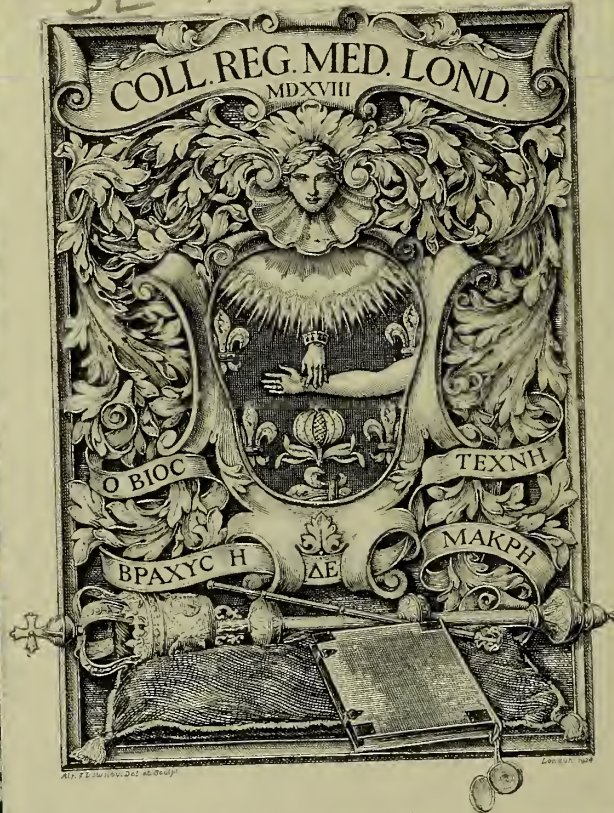



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THE
CYCLOPÆDIA;
OR,
Universal Dictionary
OF
ARTS, SCIENCES, AND LITERATURE.

VOL. VII.

THE HISTORY OF THE

ROYAL SOCIETY OF LONDON

FROM ITS ORIGIN TO THE PRESENT TIME

IN TWO VOLUMES

THE
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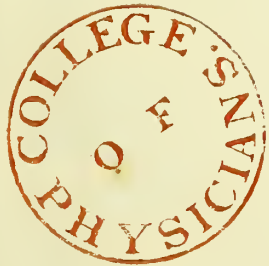
Arts, Sciences, and Literature.

BY

ABRAHAM REES, D.D. F.R.S. F.L.S. *S. Amer. Soc.*

WITH THE ASSISTANCE OF

EMINENT PROFESSIONAL GENTLEMEN.



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CASTRAMETATION.

ought not only to understand how to trace out ground for troops to encamp in the usual or customary manner, but they ought also to be so far conversant in geometry and in the doctrine of ratios or relations, as to be able without confining themselves to the rules prescribed by any writer on castrametation, none of which are applicable to every situation, with promptitude and readiness to vary the form of an encampment in such a manner as to make it suit the circumstances they are placed in, preserving, at the same time, in the different parts of it order, regularity, and due proportion. They should possess knowledge enough to enable them to discern immediately which of two positions, apparently in other respects alike advantageous for an encampment, is capable of being secured and defended with the least trouble and difficulty. They ought to understand the principles of fortification, and particularly of irregular construction, without which the *coup d'œil* itself cannot be carried to much perfection. And they should, in short, be well acquainted with the doctrine of positions and the combinations of attack and defence, which, united, form the sublime part of war.

Every nation, or tribe of people, even the most savage and uncivilized, has had a particular mode of encamping. But by whom a regular method of forming an encampment was first introduced, cannot with certainty be determined. As some knowledge, however, of geometry, was necessary for tracing out a camp regularly, it is more than probable, that regular castrametation was first made use of in Egypt. The great numbers of people assembled together, and employed in digging the immense canals, and on other prodigious public works in that country, must have been encamped, as they could not return home daily. The Israelites, before they left Egypt, must have been often and long encamped, and, of course, after the manner of the Egyptians. Moses gives us no account of the way in which they encamped, either in Etham, or near Pi-hahiroth, in front of Baal-zephon, before he carried them across the Red Sea. But in the second chapter of the book of Numbers he delivers a general one of what he was commanded to observe in regard both to their castrametation and order of march. They were ordered to pitch their tents, every man by his own camp, and by his own standard, throughout their several hosts.

Those, who were under the standard of Judah, viz. the tribes of Judah, Issachar, and Zebulun, to the amount of 186,400 fighting men, formed the east side of the camp, towards the rising of the sun. These, on decamping, were to *set forth first*, or lead the van, and were commanded by Nahshon, Nethaneel, and Eliab.

Those under the standard of Reuben, viz. the tribes of Reuben, Simeon, and Gad, amounting to 151,450 warriors, formed the south side of the camp. These, on decamping, *set forth in the second rank*, and were commanded by Ehizur, Shelumiel, and Elisaph.

Those under the standard of Ephraim viz. the tribes of Ephraim, Manasseh, and Benjamin, amounting to 108,100 combatants, formed the west side, and were commanded by Elishama, Gamaliel, and Abidan. These, however, on a march, did not follow immediately those that formed the south side of the camp, but the Levites, who with the tabernacle followed the warriors under the standard of Reuben.

Those under the standard of Dan, viz. the tribes of Dan, Asher, and Naphtali, to the number of, 157,600 fighting men, formed the north side, and were commanded by Ahiezer, Pagiel, and Ahira. These, on a march, brought up the rear.

In the middle of that immense encampment, the Levites, to the number of 22,000, encamped with the tabernacle of the congregation afar off from the sides of the camp, with Moses and Aaron and his sons in front of it, towards the east.

It is probable, nay almost evident, that this huge camp was a square, or nearly so. For although the number of fighting men that pitched their tents under the standard of Judah, on the east side of the camp, amounted to 186,400, exceeding the number of those who encamped towards the west, or on the opposite side of the camp, under the standard of Ephraim, by 78,300, yet the number of warriors encamped on the north side of it, under the standard of Dan, amounting to 157,600, exceeded the number of those encamped on the south side, under the standard of Reuben, by 6,150 only. Now had they encamped in the same manner as we must reasonably suppose they did, and with the same depth in each front or side, their camp would have been a trapezium, having its sides to one another as the numbers 186,400, 157,600, 151,450, 108,100. This, however, would have been a very awkward and inconvenient figure for it: but by making the depth of the encampment on the east side to that on the north side as 186 to 157, and the depth of it on the west and south sides respectively as 108 and 151 to 157, they might easily have made their camp a square. And it is more than probable, that it was a perfect square when the ground admitted of it, for Moses was skilled in all the knowledge and learning of the Egyptians, and they were sufficiently acquainted with geometry to know that of all rectilinear figures with the same perimeter, the square contains the greatest area.

Moses neither informs us how their tents were arranged, nor whether they surrounded their camp with an intrenchment. That fanciful French writer, however, M. de Folard, in his "Traité de l'Attaque et de la Défense des Places des Anciens," article third, roundly asserts, that Moses always intrenched his camps. In speaking of lines of circumvallation and countervallation, he uses the following words: "On ignore que des Egyptiens, des Juifs, des Assyriens, ou des Medes, s'en est servi le premier. Je pencherois plutôt pour les premiers que pour les autres, parce que je les crois plus anciens. Moïse se retrancha toujours dans ses campe-mens. L'écriture ne dit pas qu'il été le premier, qui se soit servi de ces sortes de precautions; et lorsqu'elle parle de l'investiture des villes on ne voit rien, que puisse marquer ou faire conjecturer que c'est pour la première fois."

Moses tells us that the Israelites, on quitting their camp, moved in four large bodies, of three tribes each, with the Levites and the tabernacle of the congregation between the second and third of these divisions.

The Romans also, on quitting their camp, marched in five principal bodies or divisions; for the extraordinary led the van; next after them marched the allies of the right wing, who were followed by the baggage of both; after them marched the first of the two Roman legions, with its own baggage behind it; then followed the second legion with both its own baggage behind it, and that of the allies of the left wing, who closed the rear. The cavalry marched sometimes in the rear of the respective bodies to whom they belonged, and sometimes on the flanks of the beasts of burden loaded with the baggage, keeping them together, and covering them from insult. When any attack was expected to be made upon the rear, the extraordinary of the allies were placed there, instead of leading the van. The two legions and the two wings of the allies changed their places daily on a march, which the four principal bodies of the Israelites do not appear to have done, that they might

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might enjoy by turns the advantage of arriving first at water and forage. When they were threatened with any immediate danger, and were marching through an open country, they advanced in three parallel lines behind one another, with the baggage of each line in its front.

Before the end of a march, and the approach of the army to the place of encampment, a tribune, accompanied by some centurions, advanced to examine and survey the ground, to determine the situation of the consular tent, and on which side of it the legions could be most conveniently encamped.

As to the castrametation of the Romans, according to Polybius, and during the commonwealth, see the article CAMP. The French Encyclopédistes, following Justin Lippius, chiefly make it nearly an equilateral quadrangle or square; but Polybius makes it a perfect square.

As to the castrametation of the Greeks, we understand from Polybius that they had no invariable, fixed, or determinate method of encamping. Xenophon, in treating of the Lacedæmonian republic, delivers Lycurgus's sentiments respecting castrametation, and informs us, that that lawgiver regarding the four angles of a quadrangle, or square, as useless, enjoined the circular form for a camp, unless it were secured by a mountain, or had its rear covered by a wall or river. His words are these: "Ἐρω δὲ καὶ ἡ στρατοπεδεύουσα ἐνομίσε χρεῖαι Λυκούργος διὰ μὲν γὰρ τὸ τὰς γωνίας τῆ τετραγώνου ἀχρηστοὺς εἶναι, κυκλὸν στρατοπεδεύοντα, εἰ μὴ ὁρὸς ἀσφαλὲς ᾖ, ἢ τεῖχος, ἢ ποταμὸν οὐσίῃσιν ἔχουσαν."

Even this mode of castrametation, delivered by Lycurgus, was not fixed or determinate, but might vary with the circumstances of ground and situations; and we have the authority of Polybius for asserting, that the Greeks in general, when they encamped, considered chiefly the natural strength of the position they chose for that purpose, and accommodated to it the admeasurement and disposition of the different parts of their camp, partly from anxiety to avoid the labour of throwing up an intrenchment round it, and partly from the persuasion that works raised by art are less secure than those that are made by nature. In compliance with what the nature of the ground demanded, they were accordingly obliged not only to give their camp occasionally every kind of figure, but also to vary the positions and dimensions of its several parts, as the place for each was favourable or otherwise. Hence, this judicious historian tells us, arose that great inconvenience, namely, that the Grecian soldier never knew either his own place in the camp, or that of the body to which he belonged. On the other hand, he says, the Romans willingly submitted to the task of throwing up an intrenchment, and to other painful labours, for the sake of the advantage they found in employing a method of castrametation that was never changed, and which rendered all the parts of the camp familiar to the army.

The Romans also, on their marches, cheerfully underwent much greater fatigue for the security of their camps than the Greeks were willing to submit to, each soldier frequently carrying three or four palisades for the intrenchment. This was a labour, Polybius tells us, which in the discipline of the Grecian armies was regarded as impracticable; whereas the Romans performed it without much difficulty. The Greeks, he says, on their marches, were hardly able to support the toil of moving along their own bodies. But the Romans, after slinging their shields with the leathern braces behind their shoulders, took their javelins in their hands, and were at the same time able to carry the palisades. They also discovered more judgment both in the choice and shape of their palisades than the Greeks, whose aversion from labour

and fatigue must have frequently left their camps in a state of great insecurity.

Besides the account given by Polybius of the Roman method of encamping, there is a description of their castrametation, given on a mutilated scroll or label by Hyginus, who appears to have been a camp and land measurer in the time of Trajan and Hadrian, when the empire was in its highest pitch of glory, as Trajan had extended it beyond the Tigris on one side, and beyond the Danube on the other. Hyginus's fragment was first published in 1606, but in a form so defective and mutilated, as to be hardly intelligible. In 1665, it was published at Amsterdam, with a very curious, learned, and elaborate commentary on it by Rhabodius Hermannus Schelius.

In the time of Marius, the military affairs of the Romans without doubt underwent a considerable change, which probably affected their ancient system of castrametation, but to what extent it is impossible to determine. But the alterations then introduced gradually occasioned a great departure from their former rules and regulations. It is no wonder then that their castrametation, according to Hyginus, differs so materially as it does from that of Polybius. Though the empire of the Romans was at its utmost extent, and existed in full force and vigour, their language was on the decline, and its purity in a great measure lost. The legions, by residing long in the conquered countries, adopted by degrees the barbarisms of the natives, and became familiar to their manners and customs. The attaching of large bodies of mercenaries to them gave rise to a different establishment, both for their national and auxiliary troops; in the latter of whom they could not always place so much confidence as formerly, and occasioned the creation of many new officers and appointments, which rendered a new method of castrametation necessary. Hence, this writer makes use of terms that are not to be found in any other author, and seem to have been unknown in the time of Polybius. The scroll or label containing his rules of castrametation is entitled "*Hygini Gromatici de Castrametatione Liber*."

He informs us, that a complete army consisted of three legions, with their supplements, or auxiliaries, making use of this number for the purpose of exemplifying or illustrating his castrametation, and observing at the same time that the largest army was composed of no more than five or six such legions. He tells us, that every camp, as often as circumstances will permit, should be one half longer than it is broad, or have its length to its breadth in the ratio of three to two. Such a camp he calls *castra tertiata*. He accordingly makes the length of a camp for three legions equal to 2,400 Roman feet, and its breadth equal to 1,600 feet. General Roy, however, says that the particular measures as given by him do not correspond exactly with these general dimensions, and makes the sum of them, as he has collected them from the original, give the length of the camp equal to 2,310 feet only, and the breadth equal to 1,620 feet, the one falling short of 2,400 feet by 90, and the other exceeding 1,600 by 20.

When the camp was longer in proportion to its breadth, than in the ratio of three to two, it was called *castra classica*, because a general founding of all the martial instruments together became necessary, as the buccinum or bugle-horn sounded in front of the prætorium could not then be distinctly heard at the distant parts of the camp.

Hyginus divides the length of his camp into three unequal parts, by streets extending across the whole breadth of it. The first of these, lying in front of the prætorium, he calls the *prætentura*. The second, lying between the principal

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freet and the quintan street, and in the middle of which stands the prætorium, he calls the *latera prætorii*; and to the third, situated beyond the quintan street and behind the prætorium, he gives the name of *retentura*.

The principal street, according to him, was 60 feet broad, and had the middle of it before the centre of the prætorium distinguished by the name of *groma*, from the cross-staff, or some similar instrument, which was used for tracing out the right angles of the camp. And those employed in this business, or in making allotments of lands in the conquered countries for the veterans, were probably called *gromatici*. The prætorian street, leading from the *groma* perpendicularly to the principal street, is also 60 feet wide. The breadth of the quintan street is 30 feet as well as that of the fagular street, which runs quite along the four sides of the camp, dividing the interior part of it from the exterior, or that which lies between the said street and the intrenchment. But when an army consisted of five or six legions, the breadth of each of these streets was equal to 40 feet. The intervallum between the tents on the outside of the fagular street, and the intrenchment making part of the exterior division of the camp, is every where 60 feet wide. This camp commonly had only four gates, viz. the right and left principal gates, the decuman gate, and the prætorian gate. Hyginus says, that the decuman gate received its name from the tenth cohort of the legion's being encamped near it. General Roy, however, places this gate differently from Hyginus, and differs also from Schellius in several particulars in regard to the interior divisions and arrangement of the camp.

It was the practice of the Romans during the commonwealth to place their own legions in the centre, both in the camp and when drawn up in order of battle. Hyginus, however, places the most of the legionary troops in the exterior part of the camp without the fagular street, and nearest to the rampart, for the defence of which they were more to be depended on than the mercenaries, in whom they did not confide so much as they formerly used to do in their focii or allies. He alleges that the foreign troops, by being kept thus within, or surrounded by the Roman legions, were more easily rendered obedient and attentive to their duty. They certainly had it less in their power to desert, or carry intelligence to the enemy, than they would had they been encamped next to the intrenchment. The form of his camp must in a great measure have depended on the proportion which the number of the legionary troops bore to that of the mercenaries, or auxiliaries, since when the last was but small, the Roman cohorts could encamp with a greater depth and less extended front, leaving more space between

the fagular street and the rampart; and when it was great, with a smaller depth and a more extended front, leaving less space between the said street and the rampart.

Hyginus tells us, that a complete century of foot consisted of eighty men, and that one tent held eight men. When all the men of a century then were off duty, they would have required ten tents. But as part of each century was always on duty, they pitched only eight tents, leaving thereby sufficient room for that of the centurion. For every tent a space of 12 feet in length was allowed. The length of the ground then occupied by the men of the century and the centurion was equal to 120 feet. The breadth of the space allowed for each tent was equal to 10 feet. Five feet more were allotted for the arms, and nine for the bat-horses, or beasts of burden. The whole breadth therefore of the hemistrigium, or half-striga, amounted to 24 feet; and the length of it was what Hyginus terms *intabulino*. Another hemistrigium lying contiguous to this, but in an order reversed, that the horses might front those in the other, and feed at the same manger, made a breadth of 48 feet for one striga, to which, if a width of 12 feet along the whole length of the space occupied by it for a street, between it and the next striga be added, we get 60 feet. The whole space then, including the said street of 12 feet wide, allotted for one striga, or two hemistrigium, consisting of two centuries or 160 men, contained 120 multiplied by 60 feet, or 7200 square feet. And a cohort, which consisted of six centuries, occupied of course 21,600 square feet. For the Hyginian camp of a Roman army, composed of three legions, with their supplementa or auxiliaries, consisting of 42,626 men, see *Plate of Castrametation*, figs. 1, 2, 3.

It is evident that in the Hyginian camp the same number of troops occupied a much smaller space than they did in the Polybian camp. The Roman armies under their emperors were more impatient of labour and fatigue than they were under the commonwealth, which led to the shortening of the length of the intrenchment and the crowding of as many men as possible into a given space. They also got into the practice of employing a much greater proportion of cavalry to their number of infantry than they did before their government became imperial. And the cavalry were commonly exempted from working on the intrenchments. These and other causes made them depart gradually from their ancient system of castrametation, as described by Polybius, and make their camps sometimes rectangular, sometimes triangular, sometimes circular, sometimes oval, and, to avoid labour, give it different forms to suit the circumstances of advantageous ground, and the necessity of their situation.

C A S T R A M E T A T I O N .

Distribution of the troops in the Hyginian camp, containing three legions,
with their supplementa, or auxiliaries.

In the Prætentura, or Front Division of the Camp.	Legi- onary foot.	Auxili- ary or other foot.	Total infan- try.	Horse.	Total.	Gene- ral to- tal.
Ten legionary cohorts of 480 each, placed without the sagular street	4,800					
Three legionary cohorts of the same number within that street	1,440					
One first cohort of the legion double in number to the ordinary cohorts	960		7,700			
The vexillarii of one legion attached to and encamped with this cohort	500				10,000	
Marines of Misenum		500				
Marines of Ravenna		800				
Attached to the hospital for the men, the veterinarium for the horses, including artificers and labourers of all sorts			2,300			15,216
Exploratores, or scouts		1,000		200		
Moorish horse				600		
Pannonian veredaries				800		
Four alæ milliariæ, or wings of horse, of 1000 each, from which, deducting 96 supernumerary horses belonging to the officers, there remain 904 for the effective establishment of each ala					5,216	
				3,616		
In the Prætorian, or Central Division of the Camp.						
Six legionary cohorts of 480 each, without the sagular street	2,880					
Two first cohorts of the legions within the sagular street, on the right and left, each consisting of 960 men	1,920		5,800			
The vexillarii of these two legions, encamped with their respective first cohorts, at 500 each	1,000				8,720	
Four prætorian cohorts, reckoned only at the establishment of the ordinary legionary cohorts, 480 each		1,920				
The primipilarii and evocati, who encamped with them, might amount to		1,000	2,920			
Five quingenarian alæ of 500 each, from which deducting 64 supernumerary horses, belonging to the officers, and their establishment is reduced to 436 horsemen in each ala				2,180		11,750
Prætorian horse				400	3,030	
Singular, or select horse				450		
In the Retentura, or Rear Division of the Camp.						
Eight legionary cohorts of 480 each, without the sagular street	3,840		3,840			
Three milliarian cohorts of foot of 960 each		2,880				
Three quingenarian cohorts of foot of 480 each		1,440				
Two milliarian pedestrian equestrian cohorts, each consisting of 760 and 240 horse		1,520		480		
Four quingenarian pedestrian equestrian cohorts, each consisting of 380 foot and 120 horse		1,520	10,860	480		15,660
Statores		200				
Auxilia nationum	{	Palmyreni	500			
		Daci	700			
		Getæ	900			
		Cantabri	700			
		Britones	500			
			17,340	16,080	33,420	9,206
					26,966	42,626

N. B. Hyginus does not give the number of the *comites imperatoris*, or chief attendants on the emperor; neither are we told how many camels there were with their *epidates*, (riders or drivers), which, when they were to go out against the enemy, used to encamp in the *prætentura* near the *marines*; but when destined to bring in booty, were placed in the *retentura*, or rear division of the camp.

Though general Roy makes streets of separation or distinction between the different cohorts, Hyginus does not mention any.

Hyginus places 24 of the 30 cohorts, that composed three legions, without the *fagular street*, or in the exterior part of the encampment.

General Roy thinks that Hyginus by the *signa* meant the front of the cohort, and by *tabulinum* its depth. In regard to the rows of tents he differs from Schellius, who makes them run parallel to the *fagular street*, whereas he places them perpendicularly to it. He says that the width of the camp within the *fagular street* was every where equal to 1260 feet; that the length of the *prætentura* within the same street was equal to 720 feet; that the distance across the *prætorian*, from the principal to the *quintan street*, was also equal to 720 feet; but that the distance across the *retentura* was only equal to 480 feet, or two thirds of the distance of either of the other two parts. See *figs. 1, 2, and 3.*

Of modern Castrametation.

The invention of gunpowder and the application of it to military purposes, have necessarily rendered modern castrametation very different from that of any nation among the ancients. The principal object of Europeans in forming their encampments is the convenience or facility of drawing up their troops at the heads of them. Hence it follows that we should encamp them in such a manner as to be able with expedition and without confusion, to assemble and parade them in the very disposition which is regarded as the best for fighting in the situation we happen to be in. The order of battle therefore should determine and regulate the order of encampment. Consequently, the place of each regiment in the line of battle should be at the head of its own encampment, and the extent of the line of battle from the right to the left of the camp should be equal to the front of the troops formed in line of battle, with the same intervals in the one as in the other. The front or principal line of the camp is commonly directed or laid out in such a manner as to face or look towards the enemy.

It being once admitted that troops should be encamped in the order in which they ought to fight, it is no difficult matter to deliver general rules for the admeasurement and the tracing of camps.

A camp does not always suppose a position, though a position occupied necessarily supposes a camp.

The dispositions and the orders of battle unavoidably vary with the nature of the ground and situations. The arrangement of the troops in their camp will of course vary accordingly. The order of battle also frequently depends on the views and intentions, genius and capacity of the general, and on his fertility in stratagems and resources. That wonderful man and extraordinary general, Annibal, the son of the no less celebrated Amilcar Barcas, made use of a different order of battle and arrangement of his troops in almost every engagement with the Romans. Whenever the ground and weather admitted of his employing stratagem against his enemies, he was sure to practise it, as at Trebia and the Thrasymene lake. And when he found no circumstances of ground, situation, or weather, that he could convert to his advantage, he changed the disposition of his troops and his order of battle, as at Cannæ.

Were there but one fixed and determinate order of battle, or method of arranging troops for action, there need be but one invariable mode of encamping, or method of castrametation. But nature delights in variety. Ground is indefinitely various and diversified; and fire-arms are by no means suited to all this diversity, or to the different circumstances and incidents of time. Before the discovery of gunpowder, the Roman arms, order of battle, and manner of fighting, were adapted to all times and to all sorts of ground, and were calculated for combating individually as well as collectively, and for presenting a front to the enemy by a single movement, from whatever quarter they might be suddenly attacked. The Macedonian phalanx, on the other hand, from which our manner of forming troops in files is manifestly derived, was adapted to only one time and place, and to one fixed or determinate manner of action. It was sluggish and tardy in its movements; and its whole strength, like that of our musquetry, consisted in its remaining an unbroken and entire body, or in the conjoint action of those who composed it. Whenever they were obliged to engage the Romans individually, they were sure to be defeated and destroyed. The phalanx could neither move over uneven and interrupted ground, nor engage on it without breaking and leaving intervals or openings sufficient for troops engaged with it in close action, and furnished with arms and armour, alike calculated for single and joint combat, to rush in and attack those separated and broken parts, both on their flanks and in the rear. The phalanx, therefore, never engaged the Romans on ground uneven and irregular, without being defeated, and meeting its destruction. Of this, the battle of Cynoscephalæ was a remarkable instance. The phalanx also, like our musquetry, was not well adapted either to defensive or offensive operations in the dark, or during the time of night; whereas, the Roman arms and mode of fighting were alike suited both to day and night. The Macedonian phalanx, like a modern army in close action, when its fire becomes useless, required ground that was level, plain, naked, and free from every obstacle, such as fences, ditches, lanes, walls, woods, thickets, breaks, obliquities, brows of hills, channels of rivers and rivulets, &c. The troops in it lost all their strength and capacity of acting when they engaged either in separate companies, or man with man. A Roman foldier, on the other hand, when once armed and ready for service, was equally fitted for engaging in any time and in any place, or upon any appearance of an enemy, however sudden or unexpected, and always preserved the same power and the same capability of action, whether he engaged with the whole army, or only with a part of it, whether in a separate company, or singly against another man. Musquetry in attempting to penetrate into so enclosed and interrupted a country as this, would be constantly breaking and getting into disorder whenever it met with the least embarrassment, resistance, or opposition. A few thousand active men, armed each with the Roman gladius and a light shield, would find very frequent, nay, almost constant opportunities of closing advantageously with the separated and broken parts of such a penetrating body of musquetry, and of occasioning a dreadful carnage among them with very little loss or injury to themselves. Were the musquetry to fire on their closing with them, the smoke would only increase their confusion and facilitate their destruction. If they attempted to defend themselves either individually or in separate and small bodies they would certainly perish. They would therefore be reduced to the alternative of either surrendering themselves prisoners without resistance, or of throwing away their arms, and running as fast as their legs could carry them;

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them; for they could not carry their muskets along with them and retire with half the celerity that troops armed in the other way could follow them. Were there any reason for apprehending an invasion of this country, ten thousand active men armed in this manner would be of more use for the purposes of defence than sixty thousand of either sharpshooters, or common infantry. But custom and prejudice, and perhaps ignorance too of the proper mode of defending it, may possibly prevent the adoption of such a measure. As to cavalry, it is manifest that they can be of but little use in either attacking or defending it, since there are but few situations in it where they could be brought to act with advantage and effect.

As the men in the phalanx had shields, or bucklers, as well as spears, the width or breadth of a file in it was equal to three feet. A Roman soldier standing under arms also occupied three feet, but in order of battle he necessarily occupied six feet, in order to have the free use of his large shield on his left arm, and the gladius in his right hand in action.

Though the arrangement of troops in a camp must vary with the nature of the ground, it is customary to suppose for each corps of an army such a fixed or determinate order of battle as can be made use of on a plain or level ground. Such an order serves for forming the tableau, delineation, picture, or description of the force of the army, and for regulating the order of service in regard both to the superior officers, and the troops that they command.

The number of men that forms a battalion varies in different countries of Europe, and has varied at different times. The space necessary for constituting the breadth of a file also varies: some make it equal only to 22 inches, but others, perhaps with better reason, allow two feet for it, as the three ranks are thereby less confined in their firings.

Troops are divided not only by battalions and squadrons, but also by regiments and brigades.

An army generally consists of infantry, cavalry, and artillery, and may be called or denominated the union or junction of the battalions, squadrons, and artillery. The formation or arrangement of these three corps constitutes the order of battle. And this name or appellation for the said arrangement comes from the principal design or intention of making it, which is always to give battle.

The number of lines, on which an army ought to engage, is not at all fixed or determined; for the ground, the disposition of the enemy, the number of troops, &c. may render material changes or alterations necessary. It is a point, indeed, that no determination can be come to, which will suit every circumstance of ground or situation.

An army, however, when drawn up in order of battle, is generally ranged in two lines with a corps of reserve behind them, and consisting like them of battalions and squadrons, to succour those parts that may be hard pressed and in danger of yielding or giving way. This corps is stronger or weaker as occasion requires. For the most part the infantry is posted in the centres of these lines, and the cavalry on the wings. The ground, however, makes it necessary sometimes to place the cavalry in the centre and the infantry on the wings, and sometimes part of the infantry on the flanks of the position, and the greatest part of the cavalry on one wing with the remainder of it behind the infantry. The common practice of posting the cavalry on the wings of the infantry, and in a line with it, seems to be in various respects improper and injudicious. It cannot advance quicker than the infantry without leaving its flanks of both uncovered and exposed. It cannot in such a position either protect the infantry or receive protection from it. Disposed

of in this manner it therefore renders the movements of the whole slow and tardy. It is usually alleged that the cavalry is posted on the wings of the infantry in order to cover its flanks. This, however, is a very bad reason, for cavalry cannot form a flank for itself, but infantry may. The arrangement of our different species of troops, and the forming of them in files after the manner of the phalanx, excludes every idea of quickness or celerity, which is the very life and soul of military manœuvres, and alone can render them successful.

It is generally a maxim in the order of battle to place the second line 900 feet at least, or 1000 feet behind the first, to prevent the enemy's balls or shot from reaching it. This distance may, and most probably will change during the course and progress of an engagement. Attention, however, should be paid to it in placing the troops in order of battle.

It is customary to place fewer battalions and squadrons in the second line than in the first, when the first is full, in order that the first, if routed or thrown into confusion, may have sufficient intervals to pass through for the purpose of recovering from their disorder, and regaining regularity and order.

All the infantry of Europe commonly fight *en lignes pleines*, or in continuous lines, without any intervals between the battalions, but such as are necessary for the guns, for each of which about 20 feet are usually allowed. When intervals are admitted between regiments that consist each of more than one battalion, or between brigades, an additional allowance of 40 feet is generally made.

Sometimes hussars and dragoons are placed out of the line to cover the flanks of the cavalry. This, however, is for the most part a bad and injudicious disposition; for cavalry never can be so disposed of as to afford an effectual cover and protection to the flanks of cavalry, though infantry may. They are said to be out of the line, because they ought to be posted a little behind the lines. All troops indeed, or bodies detached for any service, are said to be *hors de ligne*, or out of the line.

In the camp, the same distance or interval of 20 feet for each piece of artillery is allowed between the battalions, or ought to be, as in order of battle; and when the divisions are admitted between regiments, or brigades, 40 feet more are allowed.

The situation of the park of artillery is not precisely fixed or ascertained. It is customary, however, to place it for the most part either behind the centre of the second line of infantry at the distance of about 1000 feet from the same, and in a line with the reserve; or behind the reserve, at the same distance of about 1000 feet. On other occasions, as circumstances make it advisable, or necessary, it is placed towards the centre at a greater or less distance from the first line of infantry. For the form of a park of artillery, see *Plate, Castrametation, fig. 4.*

When an army then encamps in three lines, and the park of artillery is in a line with the reserve, the depth of the camp cannot well be less than from 2500 to 2750 feet; and when the park of artillery is about 1000 feet behind the reserve, the depth of the camp must be from about 3500 to 3750 feet.

The depth of the tents of a battalion depends on the manner in which the companies composing it are encamped, whether by a whole company, a half-company, or a quarter-company, in each row of tents perpendicular to the front of the encampment. But, including the tents of the officers, sutlers, and servants, the depth is usually about 200 feet, and that of a squadron is about 400 feet.

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The privies, or necessary-houses, of the first line, are usually about 200 feet beyond the *front de bandiere du camp*, or in front of the line, which determines the extent or length of the camp, and on which are placed the colours and standards of the troops that occupy it: and those of the second line are commonly about 150 feet behind the officers' tents. There ought to be nothing, however, in front of the camp that can in the smallest respect interfere with the movements and the formation of the troops in order of battle.

The intervals between squadrons of cavalry are different in different countries. And their depth, when encamped, will, of course, be influenced by that of the camp, which, itself, is not regulated but by certain rules and arrangements founded on custom or usage.

If n be supposed to represent the number of men in a battalion, d , the number of men in a file, and b , the breadth or width of the file, the front of the battalion will be generally expressed by $\frac{n \times b}{d}$. Thus, if $b=2$ feet, and $d=3$, the

front of the battalion in feet will be equal to $\frac{2n}{3}$, which, when $n=600$, gives 400 feet for the front of the battalion; when $n=800$, or the battalion is 800 strong, gives 533 $\frac{1}{3}$ feet for its front; and when $n=900$, or the battalion is 900 strong, gives 600 feet for its front; and so on. But if the width of the file be supposed equal only to 22 inches, or $\frac{11}{6}$ feet, and d be equal to 3, the front of the battalion will be expressed by $\frac{11 \times n}{18}$ feet. And if, in this case, n be = 600, or the battalion 600 strong, its front will be equal to $\frac{11 \times 600}{18}$ feet = $\frac{1100}{3}$ feet = 366 feet 8 inches. If the battalion be 800 strong, its front, in this case, will be equal to $\frac{4400}{9}$ feet = 488 $\frac{2}{3}$ feet; and if it be 900 strong, its front will be = 550 feet; and so on. And whatever is the length of its front in order of battle, the same ought to be the front of its encampment, when the ground and circumstances will permit.

If d be supposed equal to 2, or the files to be only two men deep, which is as deep, perhaps, as they ever should be, when it is intended that all the men should fire without hurting or wounding one another, the length of the front of a battalion in each of the foregoing supposed cases will be just one-third greater. When the number of men in it is given, the length of its front will be as the breadth of the file directly, and the depth of the same in number of men inversely. When the number of men in it and the breadth of the file are given, the length of its front will be inversely as d , the depth of the file. And when both the breadth of the file, and its depth in men are given, the length of the front of the battalion will be directly as the number of men in it.

The breadth or width of a file of cavalry is generally equal to three feet. The Macedonians allowed three feet of their measure for the width of a file in their phalanx, when drawn up in order of battle; and the Romans allowed also three feet of their measure to a soldier when standing under arms, but six feet to him when in order of battle. If n then be supposed to denote the number of men in a squadron of cavalry, and d , as before, the depth of the file in men, its front will be expressed generally in feet, by $\frac{3n}{d}$, which, when $d=3$, is simply equal to n . Hence, then, it appears, that the front of a squadron, drawn up three deep, is equal to as many feet as there are men in it, and that its

front, when it is drawn up only two deep, is equal to half as many more feet as there are men in it.

The width of the large streets in a camp depends also, in a great measure, on the mode of encamping the companies. For, if f denote the front, l , the length of a tent, n , the number of the rows of tents, r , the width of each of the small streets, m , their number, q , the number of the large streets, and v , the variable width of one of them, we shall

$$\text{have } v = \frac{f - ln - mr}{q}.$$

The camp maxims most commonly delivered are the following:

To give the camp the same length of front that the troops occupy, when drawn up in order of battle, whatever be the width or depth of the file.

To make the troops encamp by battalions and squadrons, except the royal artillery, who usually encamp on the right and left of their parts, wheresoever it is placed, with the train horses in the rear of the same.

To place the bread-waggons in the rear of the camp, and as near as possible, for the convenience of distributing the bread easily.

That the commander in chief should encamp in the centre of his army, or, at least, at such a convenient distance from it, that a speedy and easy communication may be kept up at all times between head-quarters and every part of the camp.

To pay particular attention to the convenience of winter fuel and forage, and to cleanliness, for the preservation of health among the troops.

The highest and most important branch of castrametation, however, consists in the choice of situations proper for encampments and for engagements. The doctrine of positions, indeed, and the combinations of attack and defence, form the sublime part of war. And in illustrating this subject, we conceive we cannot do better than adopt the concise observations of marshall Saxe, who, in point of natural endowments, genius, and talents as a commander, as well as of military information, acquired by experience, study, and reflection, was certainly inferior to no general that has appeared in modern times.

Of situations proper for the encampment of armies, and for engagements.

It is the part of an able general, to derive advantages from every different situation which nature presents to him; from plains, mountains, hollow ways, ponds, rivers, woods, and an infinite number of other particulars, all which are capable of rendering great services, when they are converted to proper purposes: but although they make so material an alteration, both in situation and circumstance, wherever they happen to be, yet, as such advantages are frequently overlooked, till the opportunity of profiting by them is lost, it may not be unreasonable to enter into some detail upon the subject.

Let us then, in the first place, suppose a piece of ground divided by a rivulet, and a chain of ponds. See *Plate, Castrametation*, fig. 5 and 6. AA represents the army marching up to attack BB, whose infantry is at first drawn up in one line to cover the ponds: but, as soon as the enemy arrives within reach, my infantry in the front of these ponds, (says the marshall,) marches back by the intervals or banks between them, to form a second line; and my cavalry is at the same time advanced upon the right, to keep in awe the enemy's left wing; which movement alone is sufficient to disconcert him: if he attempts to attack this cavalry, it is to re-pass the intervals between the ponds, which are guarded by bodies of infantry, that are posted immediately behind them.

This

This manœuvre will have so long engaged the enemy's attention upon his left, that he will not have sufficient time to change his disposition, or to reinforce his right; because the moment my cavalry is arrived upon my right, I attack all that part of the enemy's line that lies between me and the rivulet, which very probably I shall throw into confusion. His right wing being thus defeated, the rest of his army will be assaulted in front and rear by my two wings of cavalry, and in flank by all my infantry. If he inclines in the least to the right, in order to present a front to my infantry, he will thereby expose his left flank to the troops which I have posted upon my right, and upon the intervals between the ponds: under these circumstances, therefore, it will be impossible for him to make any movement, without being thrown into confusion.

According to this disposition, I suppose the enemy's army to consist of double the strength of mine: and although it may be imagined, that the cavalry upon my right is in danger of being cut to pieces, yet the more the attention of the enemy is taken up with an object in his front, the more he will be entangled in the snare that is laid before him; for I shall thereby be furnished with a better opportunity of falling upon his rear; after which my cavalry must be more than commonly unfortunate, if it be not able to make good its retreat by the intervals between the ponds, where the enemy will certainly not dare to pursue it.

Fig. 7, represents the two armies in another situation, where AA is to attack BB: C, C, C, are three strong redoubts thrown up at the distance of three hundred paces in the front of BB, furnished each with two battalions; and every thing else that may be necessary for their defence: D represents some detached cavalry: E, E, are two flanking batteries: F, F, two battalions posted in two redoubts to cover the batteries. I suppose the enemy's army AA to be twice as powerful in numbers as BB; nevertheless, in what manner is he to attack me in this disposition? It is impossible for him to march up in line of battle, without being broken and disordered, till he has first rendered himself master of my redoubts; in attempting to do which, he will be exposed to a severe flanking fire from my two battalions; and to pass the redoubts, and leave them in his rear, will be impracticable: if then he resolves to attack them by detachments, I shall in like manner make others to maintain them; in which I must have considerably the advantage, on account of the damage that he will unavoidably sustain from my cannon: if he advances with his whole army against them, I give the signal for my cavalry, which is concealed behind the wood, to move up at full speed, and fall upon his rear; at which time I also march up, and charge him in front; being, therefore, at once embarrassed by the redoubts, thrown into some disorder, and attacked in rear, there is all the appearance of my obtaining an easy victory.

This is an excellent disposition, where you can be certain that the enemy is either inclined, or obliged to attack you; for one cannot possibly be too careful in avoiding every step that may correspond with any hopes or expectations of his. This is a maxim in war never to be departed from, but in extraordinary cases, where no fixed rules can be given. A good opportunity for engaging should never be neglected, merely because the situation may happen not to be strictly agreeable to your fancy; for you must form your disposition according as you find it, and decline the attack altogether, unless you can make it with advantage; by which I mean, unless your flanks are well covered; unless you can engage a small part of his army with a large part of yours; can amuse, or keep a check upon him, by the means of any

small river, marsh, or other obstacle that may lie between you; supported by circumstances of which nature, you can attack him with confidence, although considerably inferior in numbers, because you will risk nothing, and may obtain a great deal.

Suppose, for instance, his army, BB, to be divided by a river, in the manner represented in *fig. 8*, and that I am to attack him with AA in that situation; I shall, therefore, make the following disposition for it. With my right wing I shall keep in awe his left, and with my left try all efforts to defeat his right: according to appearances, I shall be able to pierce him in the part marked C, upon the bank of the river; for it is but reasonable to suppose, that the strong must overpower the weak; in consequence of which advantage, as the communication between the two divisions of his army will be thereby cut off, and the left, in which his principal strength consisted, be no longer able to sustain the right, he must be rendered incapable of maintaining his ground; and, finding himself exposed both in front and flank, will undoubtedly retire.—Let us proceed to another example.

A is the enemy's army which I am to attack with B: the rivulet between us is supposed to be every where fordable; and the encampment of A to be made upon its banks, as is usually the custom in such situations, as well on account of the protection which it naturally affords, as for the convenience of the water: the enemy being in this disposition, I arrive towards the evening, and encamp with B on the opposite side. As he will not be inclined to trust to the uncertain event of an immediate engagement, he will undoubtedly, therefore, not pass the rivulet, or quit the advantage of his post, to attack me in the night-time; on the other hand, I rather imagine that he will be altogether taken up in providing for the defence of it: on my side, I shall only leave one weak line opposite to him, and marching all night with the remainder, gain the position, C. I have nothing to fear from the enemy, in making this movement; for he will certainly not venture to pass the rivulet, or to leave his post unguarded, on bare surmise or conjecture only. The day arriving he discovers me upon his left flank, as well as in front; after which it will be impossible for him to make any disposition, or to form any order of battle, without being thrown into confusion; for I shall fall upon him before he can have sufficient time to finish it: but his attention will principally be taken up, in sustaining his post upon the rivulet, which I shall attack at the same time, with the troops that were left on the opposite side for that purpose: he will detach some brigades to oppose me upon the left, which, arriving *en detail*, and having to engage with a large body, drawn up in good order, will easily be repulsed; inasmuch that he will be in a manner totally defeated, before he can be even able to persuade himself, that the real attack was made on this side; and, after having thus at length discovered his mistake, he will cease to be in any kind of capacity to remedy it.

Fig. 9, represents another situation, in which the enemy's army, AAA, is supposed to be formed in separate bodies, and extended to a considerable distance all along a large river, in order to cover a province, as is frequently the case. AAA is, therefore, to defend the river, and BBB is the offensive army, endeavouring to pass it; and extended in like manner upon the opposite borders. These large rivers have generally plains on both sides, bounded by mountains, out of which issue small ones, or rivulets, that are sometimes of a considerable size, and that discharge themselves into the greater: by the means, therefore, of such a rivulet, one must endeavour to build a bridge, unknown to the enemy; for

in this lies the great difficulty of passing all rivers: after having then prepared your bridge all along the rivulet, you are to throw it over that part of the river marked C, where you are to force your passage; in which, I take it for granted, you will be able to succeed, especially if you make at the same time two false attacks at the places marked D and E: the enemy will not dare to vacate any of his posts, neither will the general officers, situated in different quarters, execute any orders they may receive to that effect; for as, at this time, they will be engaged themselves, and as each will suppose his to be the real attack, they will from thence be induced, not unreasonably, to suppose, that their commander in chief had not been informed of it: during all this time the grand effort is making at the centre between the rivulet and the mountain, marked F. The first step to be taken after the passage, is to possess yourself of the eminences; by which means you divide the enemy, and, having cut off his communications, he can hardly hope to time his arrival afterwards so well, as to be able to attack you on both sides at once; and although he even does, he will, nevertheless, be easily demolished: the circumstance of your being possessed of these advantages, without having suffered any loss in the obtaining of them, will add to his confusion; for, notwithstanding your passage should be disputed, yet the opposition you meet with can never be considerable enough to permit it; especially when you have used proper precautions, and made your disposition with judgment. After you have once taken post, and erected your bridge, for which four hours are a sufficient space of time, and as much more will be required for the passage of 30,000 men, you may allow the enemy twenty-four hours to penetrate into your real design, and twenty-four more to assemble either half of his army, at the place in which he has attacked you: but even this will be rendered impracticable, because I suppose you to be effectually covered, after you have passed, by the rivulet on the one side, and by the mountain on the other.

All the large rivers that I have seen produce a great variety of situations where passages of this kind may be executed; and smaller ones afford likewise the same; but they are seldom quite so commodious, because the plains and mountains which surround them are usually not so advantageous, nor the rivulets so considerable. In short, by discernment one may reap advantages from a thousand different sorts of situations; and a commander void of that cannot possibly be expected to do any great things, even with the most numerous armies.

The marshall concludes these remarks on the choice of situations for encampments and engagements with the following observations upon the battle of Malplaquet. If, instead of posting the French troops in bad entrenchments, the three woods over-against the hollow ground had been only cut down, and three or four redoubts thrown up in it, supported by a few bridges, I am of opinion (he says) that things would have taken a different turn: for, had the allies attacked them, they must have lost an infinite number of men, without ever being able to carry them. It is the property of the French nation to attack: but when a general is unwilling to depend altogether upon the exact discipline of troops, and upon that great order which, according to the present system, is always necessary to be observed in actions, he ought, by throwing up redoubts, to introduce the method of engaging *en detail*, and of attacking by brigades; in which he might certainly succeed very well. The first shock of the French is scarcely to be resisted; nevertheless it is the part of a general to be able, by the prudence of his disposition, to renew it: and no means can facilitate this so much as redoubts; for you can always

send fresh troops to sustain them, and to oppose the enemy. Nothing can possibly create such distraction, or tend to dispirit him to so great a degree, because he will be afraid, at every attack, of being exposed in flank: while, on the other hand, your own troops become thereby encouraged; for they are conscious that their retreat is secure, and that the enemy will not dare to pursue them beyond the redoubts. It is upon such an occasion that you might be able to reap the greatest advantages from their vigour and impetuosity: but to post them behind entrenchments, is, in a manner, to occasion their defeat; or, at least, to deprive them of the means by which they might have conquered. That would have been the event of the day at Malplaquet, if marshall Villars had taken the greatest part of his army, and attacked the one half of that of the allies, which had been so imprudent, as to form a disposition in which it was totally separated from the other by a wood, without having any communication at the same time made between them: the flanks and rear, moreover, of the French army would have been under cover, as may be seen in the situation of it, represented in *fig. 10.*

There is more address required in making bad dispositions than may at first be imagined, provided they be such as are intentional, and so formed as to admit of being instantaneously converted into good ones. Nothing can confound an enemy more, who has perhaps been anticipating a victory, than a stratagem of this kind; for he perceives your weakness, and draws up his army in the order in which he expects to benefit the most from it; but the attack is no sooner begun, than he discovers the imposition. I must repeat it, therefore, that nothing can possibly disconcert an enemy so much, or plunge him into errors so dangerous; for, if he does not change his disposition, he must infallibly be defeated; and the alternative, in the presence of his adversary, will be attended with the same fatal consequences.

If the marshall had abandoned his entrenchment at the approach of the allies, and made his disposition in the manner represented in *fig. 11.* it appears to me that he would have succeeded much better.

CASTRATING a book, among *Booksellers*, is the taking out of some leaf, sheet, or the like, which renders it imperfect, and unfit for sale. The word is also applied to the taking away of particular passages, on account of their obscenity, too great freedom with respect to government, &c.

CASTRATING is also used among *Gardeners*, in speaking of melons and cucumbers; where it signifies the same with **PRUNING** or **PINCHING** of other plants.

CASTRATION, in *Surgery*, from *castro*, "quia castrum facit;" the operation of rendering any animal incapable of generating, by the excision of the testicles in male subjects, and of the ovaries in females. This operation is commonly named **GELDING** and **SPAYING** among farriers, who are in the constant practice of thus mutilating various brutes for domestic uses, &c. Even several of the watery tribe of animals have sometimes been castrated, for the purpose of rendering them more fat and luscious for the table of epicures!

This operation has been performed by the Turks, Persians, Egyptians, and Hebrews, time immemorial, especially upon their slaves, from motives of jealousy: nor was it unknown to the Greeks and Romans, as appears from the writings of certain ancient medical and satirical authors; and, even to the present day, the Italians are so barbarous as to castrate great numbers of male children, with a view to preserve their shrill voice for singing! See **EUNUCH**.

The effect on the physical constitution of a man is the same, whether the testicles be injured by contusion, so as to break down their natural texture; whether the spermatic vessels be obliterated, still leaving the testes entire; or, whether

ther those organs be wholly removed by excision. In any of these cases, the offence was regarded as so atrocious, by the old laws of England, as to amount to felony; "et sequitur aliquando poena capitalis, aliquando perpetuum exilium, cum omnium bonorum ademptione," (Bract. fol. 144.); and this, says judge Blackstone, although the crime of *mayhem* was committed upon the highest provocation: (Comment. vol. iv. b. iv. c. 15.) See *МАУНИМ*. But, we presume, the law cannot affect regular-bred Surgeons who perform the operation, only with a view to the good of their patients; notwithstanding, a different opinion has been held by certain writers, who affirm, "that it is penal in Physicians and Surgeons to castrate even with consent of the party:" (See *Encyclop. Brit.* vol. v. p. 250, edit. ult.) It becomes, however, a dubious and nice point, on some occasions, to decide upon the necessity and probable advantages of castrating a man.

We shall here say nothing of the corresponding more cruel mutilation in women, as it is very properly exploded from surgical practice: and although we are told by Athenæus, Hesiarchus, Suidas, Galen, Aristotle, and others, that the female ovaries (formerly called testicles) have been actually retrenched by some barbarians, it is doubtful whether most of the cases alluded to did not rather consist in padlocking, or *INFIBULATION*; which Cornelius Celsus describes, as having been exercised also on boys. But, for a more detailed history of the origin and extension of this practice, as an act of policy or refinement, we refer to vol. i. of M. Dujardin's *Hist. de la Chirurgie*, Introd. pp. 36—44, 4to. Paris, 1774; and to M. Mahon's posthumous work, entitled "*Médecine Légale et Police Médicale*," 8vo. vol. 1st. Paris, 1801. We now shall offer a few remarks on this operation, as it concerns the practical surgeon.

Castration is advisable in any case, where the life of a person is considerably endangered by a change of structure and loss of function in the testicle; as well as in many other cases, where the removal of an indurated and greatly enlarged testis would materially contribute to the relief or accommodation of a patient. It can very rarely be requisite to extirpate a testicle for the existence merely of an abscess, or for varicose vessels of the spermatic chord; though this operation has been sometimes resorted to, under such circumstances. But, when it has been resolved on as proper to be done, the following are the most approved modes of operating:

After having shaved the hair from the affected side of the scrotum and pubes, the patient is placed upon a table of a proper height, with his head and shoulders somewhat elevated, his legs and thighs at some distance from each other, and his knees a little bent; and in this posture he must be secured by two assistants. Or, as Mr. Murfinna advises, the patient may be placed upon a high and strong chair, whilst the operator sits upon a low one, or kneels down before him. The skin of the anterior surface of the scrotum is then drawn into a fold, in such a manner, that the incision by which this fold is to be separated, shall reach from the top to the bottom of the scrotum. The operator holds this fold at one end with the fingers of his left hand, whilst an assistant holds it at the other, and cuts it at once completely through with a bistory. Mr. Theden draws the fold of the scrotum, with the aid of an assistant, as tight as the skin will admit; after which he thrusts his bistory through this fold, with its edge turned upwards and the back directed towards the diseased testicle: he then raises the knife upwards, and thus cuts through the whole fold of the skin in the quickest manner, whereby he thinks the patient is spared a great deal of pain.

This incision may be so long, that its upper extremity shall reach above the abdominal ring, whilst the lower extremity terminates an inch higher than the base of the scrotum. Should the incision be found too small, it must immediately be enlarged either at its upper or lower extremity, as it ought to extend over the whole tumor, in order that the tunica vaginalis may also be cut through in the same direction. Although it is desirable that this incision should be made precisely in the middle of the fold, this is in some rare cases impracticable, on account of the distended blood vessels being situated there, the division of which would produce a violent hæmorrhage, when another place must be chosen for making the incision. But should these vessels occupy a very large extent, we are obliged to cut them through, in which case the bleeding arteries must be secured or compressed by an assistant, whilst the operator is making his second incision.

The lips of the wound are now drawn asunder at both sides, to the distance of some inches from each other, or the operator dissects them away from the tunica vaginalis, in order that he may gain more room. When there is any fluid contained in the tunica vaginalis, this must be divided from top to bottom, with the same knife, as in the hydrocele. If we now find the diseased testicle for the greater part detached, we lay hold of it with the left hand, separate it here wherever it is attached, and divide its stronger posterior adhesion, with the scalpel, in such a manner as at the same time to separate all the diseased substance that may be found there; after which the spermatic cord is separated above from all its adhesions, and the whole of the cellular substance dissected away from it. The spermatic cord being thus laid bare, the operator accurately examines it, and if it be in its natural condition, he immediately ties it very firmly, (with many strong waxed threads, twisted together), an inch above the diseased part, and then cuts off the testicle half an inch below the ligature. After this, the spermatic cord will be immediately retracted towards the abdominal ring, in which situation it must be kept without stretching it, and consequently the ligature, the end of which is fastened over the ossa pubes by means of adhesive plaster, must not be drawn tight, but held loose. By this means, and by the application of a little lint under the end of the spermatic cord that has been cut, it is prevented from having too much stress laid upon it, as well as from forming its adhesion too low.

In most cases, however, it might be advisable to detach the spermatic cord from above down to the place where it is intended to divide it, and not to disengage the testicle till after the cord has been tied. For the excision of the testicle is always combined with some degree of pain and spasm of the spermatic cord, which may be avoided by tying and dividing the spermatic cord, before we cut out the testicle.

Mr. Theden having (he says) observed various nervous affections, such as spasms and epileptic symptoms, to supervene upon the tight application of ligatures, adopted the *Tamponade*, the advantage of which he maintains upon the following grounds: After some hours the artery contracts so strongly that no hæmorrhage is any longer to be apprehended; the pain and irritation of the spermatic cord is avoided; a swelling of the spermatic cord, and a congestion of fluids in the cellular substance situated on the outside of the peritoneum, and at the back, which may frequently give rise to fatal consequences, never take place when this method is adopted, as they do when ligatures are employed. He performs the operation in the following manner: he first lays a piece of agaric, equal in size to the circumference of the spermatic cord, upon its divided extremity, and over

that a larger, which he presses chiefly upon that part where the spermatic artery lies, and then pushes them, with a very gentle pressure, towards the abdominal ring, so as not to occasion the smallest pain to the patient. He then applies close to the divided spermatic cord several bunches of scraped lint, covers all the wounded parts with the same substance, wets the whole with his arquebuseade diluted with water, and again directs the assistant to place his finger upon the spermatic cord. Finally, he covers the whole of the dressings with compresses, which are also wetted with the arquebuseade. For security's sake, he directs the spermatic cord to be kept constantly gently compressed, for the space of twenty-four hours, by assistants who relieve each other.

Mr. Le Blanc also believes, that the fatal consequences, which so frequently follow castration, generally depend upon the too great tightness with which the spermatic cord is tied. On this account, he directs that the ligatures should be drawn only moderately tight, and instead of drawing them tight, to apply agaric, and secure it upon the part for several hours, by a gentle pressure with the hand.

Mr. Warner stops the hæmorrhage after castration, by applying gentle pressure to the vessels, by means of his thumb and fore-finger, with which he lays hold of the vessel for the space of several minutes; he has also found the application of a small piece of linen to the orifice of the vessels, to answer his purpose without occasioning the slightest degree of pain.

But though the tamponade has been also used by other practitioners with success, it is, however, justly considered by the greater part as not perfectly safe. For reasons, which, though well known, are however very important, Mr. Marshall condemns it in the strongest terms, and recommends tying as the safest remedy; but the method according to which he performs this operation, has something peculiar to itself, which will scarcely come into general use. He considers the prevention of the retraction of the spermatic cord into the abdominal ring, as the principal cause of all the troublesome symptoms. He therefore always separates the spermatic cord as high as the abdominal ring, loosening both it and the testicle from all its adhesions with the neighbouring parts, by means of his finger or a sharp instrument. He then divides the spermatic cord, an inch below the abdominal ring, and ties it, applying under the string, which consists of four waxed threads, two small compresses, in order to prevent its cutting the parts; besides which, he considers it to be very useful, to push the spermatic cord into the abdominal ring, which consequently cannot be done without making an incision into the ring.

Mr. Loder concludes from his experience, that the spermatic cord may be tied, without there being reason to apprehend dangerous consequences, provided we use the precaution first to separate it from the neighbouring parts to which it adheres, and tie it, with a broad ligature, gradually, and not tighter than is necessary. For this purpose, he uses a ligature, consisting of five or six strong threads, which he applies loose round the spermatic cord, after having separated both that and the testicle completely from all the surrounding cellular substance; he then draws the spermatic cord gently forwards, cuts it through with a pair of scissors, and gradually tightens the ligature till the hæmorrhage ceases, upon which he makes a second knot, and cuts off the ends of the ligature so as still to leave some inches of the threads hanging out of the wound. For the sake of greater security, he applies, besides this ligature, sometimes another narrower one in a similar manner.

Mr. Mursinna, however, is of a contrary opinion. The ligature, which with him is formed of three strong waxed

threads, he introduces at the proper place under the exposed spermatic cord, and fastens it anteriorly, with a double knot, in such a manner, as to draw the whole string as tight as possible, in order that all the parts included in the ligature may be, in a manner, crushed. The double knot he further secures by a single one, in order that it may not get loose. This violent method of tying, he says, at first produces exquisite pain; but that is only momentary, and afterwards nothing of it is felt. By this means almost all the violent symptoms, which generally succeed the operation, may be avoided, and the cure will be greatly accelerated. Only when the ligature has not been drawn sufficiently tight, or when, in consequence of the spermatic cord being much loaded with fat, or not sufficiently detached from the cellular substance, it again becomes loose before the nerve has been destroyed, the pain, and sometimes also the hæmorrhage, returns, which is frequently followed by nervous affections.

In order to prevent such accidents, he always applies a second similar ligature loose round the first, fastening the ends of the string, with a plaster, upon the patient's belly, in order that in case of necessity, particularly if a hæmorrhage should occur, they may be immediately used. When the patient, after the application of the ligatures, still feels pain in the spermatic cord, extending to the abdominal ring, the surgeon may conclude, that the ligatures have been applied too loose, or at least that the nerve has not been completely destroyed. In this case, he must renew the ligature, by applying a second string at the same place, and in order to prevent hæmorrhage and all the other symptoms, he should continue to tighten it, till the pain entirely remits. Mr. Richter entirely concurs in this opinion, and appeals to experience in proof of the assertion, that a ligature drawn perfectly tight produces far less violent symptoms, than one which is only moderately tight, and merely irritates, instead of altogether suppressing the vital actions. Mr. Pearson, of the Lock hospital, whose instructions will be hereafter adduced, is of the same opinion.

The method of stopping the hæmorrhage employed by Mr. Sibold, is done without including the nerve in the ligature, whereby he thinks all the dangerous symptoms may be obviated; as the stopping of the hæmorrhage is the only purpose for which the ligature is applied. He draws the spermatic artery forwards, with Bromfield's tenaculum, and ties it, without including any other part of the spermatic cord in the ligature, and without giving the least pain to the patient by the operation. Applying the ligature round the whole spermatic cord, he entirely condemns, and expresses his surprise that surgeons, notwithstanding all the dangerous consequences that have been found to arise from it, still hesitate to tie the spermatic artery quite separate from all the surrounding parts; an operation, which has not only always succeeded with him, but has likewise been always performed with great facility.

But after the excision of the testicle and the application of the ligature, should some other artery, besides the spermatic, either in the internal or external coats of the scrotum, bleed profusely, it is proper either to draw it forward with a needle and tie it also, or when this cannot be done, to apply pressure and styptic remedies.

When the scrotum is perfectly sound, or when we are sure that all the indurated parts have been entirely removed from it, we ought, as Mr. Fearon advises, to endeavour to effect the healing of the wound by the first intention; for which purpose the divided parts must be gently drawn together, in order to bring the lips of the wound in as accurate contact as possible, in which situation they must be

secured by means of adhesive plaster; or, as Mr. Loder advises, two futures may be applied, and between these long slips of adhesive plaster.

In other cases the wound is to be filled up with dry lint, and the lips of the wound drawn somewhat nearer together by means of long slips of adhesive plaster, which are covered with a pledgit spread with ointment; over this is laid, a thick, soft and dry compress, and the whole is secured with the T bandage. After the dressings have been applied, the patient is put in bed, where he should lie with his feet constantly stretched out. Mr. Schmucker directs us to lay the patient, after the operation, in a horizontal posture upon mattresses stuffed with horse hair, in order that the divided portion of the spermatic cord may always keep the same position, and not contract when the knees have first been drawn upwards, and are afterwards extended. This horizontal position which is adopted by most practitioners, Mr. Muriina conceives to be inconvenient, and therefore places the patient on his back, with his head and shoulders somewhat elevated, and his thighs moderately bent.

The lint, that has been introduced into the wound, must be suffered to remain there, till it spontaneously separates in consequence of suppuration, which generally happens on the fourth or fifth day; till which period the renewal of the dressings must also be deferred.

After every thing that can easily be separated has been extracted out of the wound, it must be carefully cleansed of the blood and matter, again loosely filled up with dry lint, and we must continue to draw the lips of the wound gently together, by means of adhesive plaster, without however exciting pain. Afterwards the dressings are to be renewed daily, or, should the suppuration be very copious, twice a day, till a complete cure is obtained. The upper part of the wound, in which the spermatic cord is situated, must not be suffered entirely to close till the ligature has been drawn out; however, we must here also endeavour to prevent too violent a suppuration. After the ligature has been drawn out, the small wound must be cicatrized by the application of dry dressings and gentle pressure.

Upon this subject Mr. Pearson has offered some judicious observations. He says, "1. It is seldom necessary to remove any part of the scrotum when the disease has not arrived at the ulcerated state. I have never seen the mere bulk of the part form a valid objection against leaving the whole of the integuments; for the scrotum will generally contract within very moderate dimensions. But where the skin adheres to the testicle; where it has undergone a morbid alteration; or when the person has formerly been punctured several times for a hydrocele; the integuments will be found in such an indurated state, that it will be generally prudent to remove the altered and callous parts. However, the removal even of a considerable portion of the diseased scrotum will not necessarily prevent us from healing the wound by the first intention; for the skin of this part dilates so readily, that the lips of the wound can be easily detained in contact by employing a few ligatures.

"2. Of all the methods that have been devised for the suppression of hæmorrhage, the application of a ligature round the bleeding vessel is the least painful, and the most certain; and in the operation of which we are now speaking, it is the easiest and most expeditious method, to tie the whole spermatic cord. It has frequently been delivered as the opinion of very respectable surgeons, that the most dangerous consequences are to be apprehended, from including the spermatic cord in the ligature. Some have forbidden us to include the cremaster muscle; others have advised the separation of the nerve; and some have only di-

rected us to avoid the *vas deferens*. Heister and other eminent surgeons, have declared the separation of the nerve from the blood-vessels, to be both unnecessary and impracticable; and they who advise such a practice, are charged with being ignorant of anatomy. It is however probable, that in Mr. Bromfield's method of securing the spermatic artery, the nerve may be generally avoided. I think this mode of proceeding is not entirely free from objection: for as the cord is divided at the beginning of the operation, it must be trusted to the fingers of an assistant till the diseased testicle be removed from the scrotum: but it has more than once happened, that the cord has retracted, so as to escape from the fingers of the assistant; and the operator has consequently found great difficulty in securing the vessels under such unfavourable circumstances. Mr. Pott has directed us to tie the spermatic cord, after the operator has separated the *vas deferens* from the blood-vessels with his finger and thumb. When the spermatic cord is in a natural state, there will be little difficulty, or loss of time, in complying with this direction; but where it has been for some time diseased, the cellular membrane loses its mobility, so that the several parts are not easily separable: in such cases, it is of consequence to know whether the separation of the *vas deferens* be a part of the operation, which cannot be omitted without danger to the patient. It is the result of my experience hitherto, that no danger nor inconvenience whatever will ensue from including the *vas deferens* in the ligature: I am farther of opinion, that by following a contrary rule, the operation is made more complex, without being rendered either less painful or hazardous: and in this opinion I am supported by the authority of the most respectable writers on surgery.

"Some practitioners have thought it advisable to interpose a piece of lint, or some other soft substance between the ligature and the spermatic cord; and this was probably devised, either to prevent the waxed silk from cutting the vessels; or by thus increasing the lateral pressure, to render it unnecessary to draw the ligature so tight as to give much pain. When the spermatic artery is perfectly free from disease, and the cord is small and flexible, a very small degree of pressure, thus applied, will no doubt be sufficient to prevent a hæmorrhage. But where the spermatic artery is much enlarged, and the cord has become unnaturally dense and elastic, a very gentle pressure will be insufficient to close the bleeding vessels: and if the ligature be drawn very tight, we shall in a great measure forego the advantages that were proposed. Among the reasons that have been offered against including the whole spermatic cord in the ligature, it has been urged: 1st. That the patient always suffers exquisite pain when the cord is tied; and 2dly. That severe inflammation, great disorder of the contents of the abdomen, and even alarming convulsions, are among the symptoms that supervene to this mode of treatment. I do not pretend to deny, that violent pain, and sometimes dangerous consequences have attended the usual way of tying the spermatic cord; but I would beg leave to suggest, that these consequences may probably depend less upon including the whole cord in the ligature, than upon tying it too gently. If we merely proposed to restrain the hæmorrhage from the divided spermatic artery, a very moderate degree of pressure would be sufficient; but as a nerve, a muscle, &c. are also to be included, there ought to be the farther intention of intercepting all communication between the brain and the part below the ligature: if a sufficient force be exerted to produce this effect, the vitality, and consequently the sensibility of that portion of the cord will be quickly destroyed. I therefore always draw the knot as tight as possible; and although

though the patient may complain at the moment, yet the pain very soon goes off; so that in no one instance where this method was followed, have I ever known the least subsequent inconvenience. All imperfect and partial pressure must necessarily be followed by the alarming symptoms which different practitioners have recorded. It would therefore be much better not to tie the cord at all, than to fail of drawing the ligature to such a degree of tightness, as immediately to kill the included part; and this additional reason for the observation may likewise be subjoined, that when the knot is left comparatively loose, the separation will not be completed as soon, as when the life of the parts that are compressed by it is instantly destroyed. When the cord is found at any time so dense and elastic, that the ligature applied in the usual way, proves insufficient to restrain the hemorrhage, we are advised to carry a needle with a double ligature through the middle of the cord, and tie it on both sides; this method will certainly be effectual, but the operator ought to be careful lest he puncture the artery, when he passes the needle into the spermatic cord." See Pearson on Cancerous Complaints, p. 71. &c.

In most cases that require castration, the testicle is not only entirely diseased, but also so large as to fill the whole tunica vaginalis, which is itself either partly, or entirely diseased, or has only formed close adhesions with the testicle in various parts. This may generally be discovered before the operation, both by the eye and the touch, from the size, the weight, and especially the hardness of this part. When the tumor has besides a rugged surface, and occasional pain, we are enabled to distinguish the nature of the disease with still greater certainty; namely, that there is little or no water contained in the tunica vaginalis, and that this is for the greater part adhering to the testicle, and diseased. In this case, after having divided the external integuments, and sufficiently laid bare the tumor, an incision, several inches in length, should be made into the tunica vaginalis, below the abdominal ring and over the spermatic cord, the fluid that may be contained in it discharged, the spermatic cord detached as much as possible from all its connection with the surrounding parts, and if it be free from disease, tied in the manner above-mentioned. The whole tunica vaginalis, with the diseased testicle, is then to be cut out of the cellular substance of the scrotum, after which the whole mass under the ligature is cut away with the scalpel.

Only it is necessary, in performing this operation, that we should take care not to injure either the septum scroti or the scrotum itself. In order that this accident may be avoided, we must draw the tunica vaginalis tight, by means of a double tenaculum, and direct the assistant to draw tight the external skin, in order that we may be able to cut as much as possible within the cellular substance. When, as happens in some rare cases, the tumor has formed adhesions with the scrotum, we must separate it with the scalpel, but not cut through the scrotum, as the indurated parts of the skin may be healed and preserved during the suppuration. In the still rarer case, when the tunica vaginalis adheres not only to the testicle, but also to the external skin, on its whole anterior side, in such a manner as to render it impossible to draw the skin into a fold; we must divide the external skin, by a perpendicular incision, lay bare the tunica vaginalis, and then perform its excision, as well as that of the testicle, after the manner above described.

Should the spermatic cord be indurated or diseased, which may readily be discovered by the sight and touch, it must be tied an inch above the diseased part. But should the cord be diseased as high up as the abdominal ring, it must

also be laid bare higher, the abdominal ring itself enlarged, the spermatic cord drawn tight, separated from all its connection with the parts in the abdominal ring, and tied as tight as possible above the diseased part in order to prevent the subsequent renewal of the disease, and effect a radical cure. As it is not to be expected that the disease will extend higher than the abdominal ring, we may also tie the cord, with hopes of a successful event, even though it should be diseased as high up as the abdominal ring.

This indurated and diseased state of the spermatic cord may also probably be discovered before we undertake the operation, as the larger size of the tumor, the manner in which it has been produced, and the length of time during which it has continued, will direct our attention to it. When therefore we find the tumor to extend into the abdominal ring, and that it is preternaturally hard and painful to the touch, without the patient's having previously been affected either with an omental or intestinal hernia; the spermatic cord is in all probability diseased. As even in this case the operation has sometimes been successfully performed, and the patient's life preserved, by widening the abdominal ring, separating the spermatic cord, and then tying it; the surgeon ought also in such a case, provided the other circumstances be favourable, to perform that operation.

CASTRATION, in *Rural Economy*. See GELDING and SPAYING.

CASTRATION is a term which has been sometimes used by the older physicians to signify the correcting of violent medicines, especially purgatives. See CORRECTION and CORRECTORS.

CASTRATION also denotes the art of retrenching, or cutting away any part of a thing from its whole.

CASTRATO, *Ital.* a male singer, with a soprano or female voice, occasioned by a cruel act, which needs no further explanation than what is given under the article CASTRATION, which see. It is a delicate and difficult subject to discuss. The custom in the East has prevailed from the highest antiquity. The chamberlains of the Egyptian kings, in the time of the Pharaohs, were eunuchs; and in the East the practice of emasculation has long been general on the guardians of females in the harems of the great. Italy is the only country, perhaps, on the globe where the inhuman custom has prevailed of gratifying the auricular sense at the expence of humanity. The Italians pretend to have very severe laws against this inhuman practice; but evirati have been employed in the pontifical chapel to sing the soprano, or treble parts, ever since the establishment of the opera, in the beginning of the 17th century; till which period the treble parts were sung by Spaniards in falset, which see. The favour and fortune which some of the castrati have obtained by their voice, taste, and talents in singing, have stimulated sordid and unnatural parents to have their children mutilated in expectation of their aggrandizement, though the horrid operation does not give or improve a voice, but only preserves it from change at the time of puberty; and as not one boy in a 100 has a fine voice, though all boys have a shrill and effeminate voice previous to manhood; yet of all the unhappy children thus mangled, the number is very small of those who have voices fit for the theatre. And even when there is a voice, the want of genius, diligence, figure, and intelligence, will prevent their ever acquiring the favour or the pity of the public; and though they merit the utmost commiseration for the inhumanity of their barbarous parents, they are always treated with scorn and derision by the gross and vulgar part of society. See EUNUCH; where we shall

shall resume the subject, and detail the history and use of eunuchs from the most remote antiquity to the establishment of the musical drama in Italy.

CASTREDE *d'Alva*, in *Geography*, a town of Portugal, in the province of Tras los Montes, on the Duero; 4 leagues S.E. of Espadacinta.

CASTREL, or rather KESTRIL, in *Ornithology*, *falco tinnunculus* of Linnæus, which see.

CASTRENSES, *Morbi*. See *CAMP Diseases*.

CASTRENSIANI, or CASTRENSES, in *Antiquity*, an order of servants in the Greek emperor's household, to whom belonged the care and service of what related to his table and cloathing. They were thus called either on account of their attending the emperor, when in camp, or because they observed a sort of camp-discipline in the court; or rather because they were considered as foldiers, were paid as such, and had the privileges belonging to the military body.—The castrensiæ were also called “castrenses ministri,” and “ministeriani.”

To this order belonged the bakers, butlers, waiters, fullers, tailors, &c. They had a head, or superior, who was called “comes castrensis,” which was a palatine dignity under the chamberlain.

CASTRES, in *Geography*, a city of France, and principal place of a district, in the department of the Tarn; before the revolution, the see of a bishop, suffragan of Alby. In the reign of Lewis XIII. the inhabitants were chiefly Protestants, and formed within themselves a kind of republic; but since that time the walls have been demolished, and the place laid open. It is a town of good trade, containing 15,386 inhabitants; those of the canton amount to 17,266: the territory comprehends 142½ kilometres, and 7 communes. Turquoise stones have been found in its neighbourhood. It is distant 34 miles from Toulouse. N. lat. 43° 40'. E. long. 2°.—Also, a town of France, in the department of the Gironde, and district of Cadillac; 10 miles S.E. of Bourdeaux.

CASTREZZATO, a town of Italy, in the Brescian; 11 miles W. of Brescia.

CASTRI, a town of European Turkey, in Livadia, built on the site of the ancient Delphos, but has little remains of its former splendour. It contains about 200 houses, and the inhabitants are miserably poor; 14 miles N.W. of Livadia.

CASTRIES, a town of France, in the department of the Hérault, and chief place of a canton, in the district of Montpellier; 2 leagues N.E. of Montpellier. The place contains 560, and the canton 4934 inhabitants: the territory includes 16½ kilometres, and 20 communes.

CASTRIES, *Bay of*, so called by Perouse, is situated in the North Pacific ocean, at the top of a gulf about 200 leagues from the strait of Sangaar, on the coast of Tartary; it affords deep water, and a safe commodious anchorage. N. lat. 51° 32'. E. long. 142° 28'. In this bay the southerly winds are more steady, more constant, and more obstinate than in the seas of China, from which they proceed; because, being confined between two lands, their greatest variation cannot exceed two points to the eastward or westward. With a fresh breeze the sea rises to an alarming and dangerous height. The bay of Castries alone, says Perouse, of all those we visited on the coast of Tartary, deserves that name. It affords a secure asylum against bad weather, and it would even be possible to winter there. The bottom is muddy, and shoals gradually from 12 to 5 fathoms, in approaching the shore, from which the breakers extend to three cables' length, so that it is very difficult to land, even in a boat, when the tide is low. No sea abounds more with

weeds and different species of fuci; and among the weeds vast quantities of salmon are caught, to the number of 2000 in a day, which are found in a rivulet that discharges itself at the top of the bay. The inhabitants of this coast are described as a very worthy and hospitable people. Their chief subsistence is salmon, prepared on the fire with a small grain, which is their most valued food. This grain is brought to them from the country of the Mantchous, who dwell seven or eight days' journey from them, up the river Segalien, and who have a direct communication with the Chinese. Besides this grain they also bring from their country nankeens, both which they probably receive in exchange for oil, dried fish, and perhaps for some skins of bears or elks, which, together with dogs and squirrels, were the only quadrupeds whose exuvæ were observed. The Tartar village of the Orotchys, for to a nation of this name they belong, was composed of four huts, strongly built of the trunks of fir-trees throughout their length, and properly notched to fit each other at the corners. A frame supported the roof, which was composed of the bark of trees, and the fire was situated in the middle, under an aperture sufficiently large to give vent to the smoke. These four huts were inhabited by four different families, who seemed to live in the closest union, and the most perfect mutual confidence. Such were the inviolable fidelity of these people and their respect for property, that the French navigators left in the middle of their huts, and under the seal of their probity, their bags full of manufactures, beads, iron utensils, and, in short, all the articles exchanged with them; nor was their confidence in any instance abused. Each hut was surrounded by a place for drying salmon, which was exposed by the women, to whom the operation is committed, on poles to the heat of the sun, after having been smoked two or three days round the fire in the middle of their houses. The people of this bay, as well as those of Segalien, wear on their thumbs a thick ring of lead or bone, against which they cut in stripping the salmon with a sharp knife, worn by each of them at his waist. Their village stood on a neck of low and marshy land, exposed to the north, and appeared uninhabitable during the winter. But on the opposite side of the gulf, on a more elevated spot open to the south, and near a wood, was another village, consisting of eight huts, larger and better constructed than the former. Above these, and near them, were subterraneous houses, like those of Kamtschatka, described in the 3d volume of Cook's last voyage. They were large enough to contain, during the rigour of winter, the inhabitants of eight huts. At one extremity of this village were several tombs, better constructed, and equally extensive with the houses; each of which contained four or five biers, properly formed and adorned with Chinese manufactures. Bows, arrows, nets, and, in general, the most valuable articles, were suspended within these monuments, of which the wooden doors were secured by a bar supported at each extremity. Their houses were also filled with their effects in the same manner. Their clothes, furs, snow-shoes, bows and arrows, and pikes, remained in this deserted village, which they inhabit only during the winter. They pass the summer on the other side of the gulf. In their interment of the dead, they proportion the expence of their mausolea to their respective wealth. Whilst a relative kind of magnificence is manifested in the monuments of the more affluent, those of the poorer class are exposed on a bier, which is placed on a stage supported by stakes four feet high. All have their bows, their arrows, their nets, and some pieces of cloth round their tombs, and we may well conceive, from the veneration which these people pay to their ancestors, that it would be deemed sacrilege to rob their tombs.

These

These people, like the inhabitants of Segalien, seem to acknowledge no chief, and to submit to no government. Nevertheless, the gentleness of their manners, and their respect for old age, may give this apparent anarchy a character of mildness. We never witnessed, say the French navigators, the slightest quarrel; and their mutual affection and parental tenderness afforded an interesting spectacle. However, these people are filthy and offensive to a disgusting degree; and there is not, perhaps, a race of persons more feebly constituted, and whose countenance is more inconsistent with all our ideas of beauty. Their average height is under 4 feet 10 inches, French measure; their form is slender, and their voice weak and shrill, like that of children. They have prominent cheek-bones, and small blue eyes in diagonal directions. Their mouth is large, nose flat, short chin, almost without beard, and skin olive, varnished, as it were, with oil and smoke. They let their hair grow, and braid it in tresses, somewhat in the European manner. That of the women falls loose upon their shoulders, and they have the same cast of countenance with the men. It would not be easy to distinguish them, if it were not for a slight difference in their dress, and in their leaving their necks entirely open. All the cares of the female sex are limited to cutting and sewing their clothes, disposing the fish for drying, and nursing their children, whom they suckle till they are three or four years old. Females seem to be much respected in this part of the globe. The men never conclude any bargain without the consent of their wives. The silver ear-rings and copper jewels which adorned their dress, are entirely reserved for women and little girls. The men and little boys are dressed in jackets of nankeen, dog's skin, and fish skin, in the form of carters' frocks. If these extend below the knees, they wear no drawers; otherwise they have such as are used by the Chinese, and which extend to the calf of the leg. They have all boots of seal skin, which they reserve for winter; and they wear at all times, and at all ages, a leathern girdle, to which are suspended a knife and sheath, a flint, steel, a little bag for tobacco, and a pipe. The women are covered with a large nankeen gown, or one of salmon-skin, which they have the art of tanning, and of rendering extremely flexible. This dress extends to the ankle, and is sometimes adorned with a fringe of small copper ornaments, which make a noise like little bells. As to their religion, they seem to have neither temple nor priests; but they appear to have some idols of rough sculpture, suspended from the roofs of their cottages. These images, however, may only serve as memorials of some child devoured by the bears, or some hunter whom these animals may have wounded. They are represented as a people whose delicacy and refinement of manners indicate a degree of civilization, not exceeded by any who have neither flocks nor agriculture. Dogs are their most valuable property. These they harness to little sledges, very light, and extremely well made, and exactly similar to those of Kamtschatka. These dogs are of the wolf kind; and though small in size, are very strong, docile, and gentle, and seem to possess the character of their masters; while those of Port des Français, which are much smaller and of the same breed, are wild and ferocious. The bay of Castries abounds with islands; the soil of which consists of lava and other volcanic substances. Among the latter, the eruption of which appeared more ancient, were discovered various crystallizations; but no craters of volcanoes could be perceived. Vegetation in the month of July was nearly such as it is in the environs of Paris in the middle of May. Strawberries and raspberries were still in bloom; gooseberries began to redden,

and celery and water-cresses were very scarce. Several fine foliated oyster-shells of a vinous and black colour were found strongly attached to the rock, and separated from it with difficulty; and their valves were so thin that it was very difficult to preserve them entire. With the dredge were taken up some whelks of a fine colour, some peccines, small muscles of the common kind, and some varieties of the cockle. Several species of birds, such as pullets, wild ducks, cormorants, plover, white and black wag-tails, and a small blue fly-catcher, were thinly scattered. The beach and the woods echo with the croaking of ravens, and afford refuge to bald eagles and other birds of prey. The martin and sand-martin alone appeared to be in their natural climate. The earth seems to continue in a frozen state throughout the summer, as the water taken into the ship was only $1\frac{1}{2}^{\circ}$ above the freezing point, and that of the streams never above four degrees. The mercury, however, was constantly at 59° , even in the open air. This momentary heat penetrates but a little way; it only quickens vegetation, which begins and ends in the short interval of three months, and infinitely multiplies gnats, musketoos, and other troublesome insects. No plants are cultivated by the natives; and yet they are fond of vegetable substances. The grain of the Mantchous, which is probably a small shelled millet, is their greatest luxury. They gather with great care some spontaneous roots, which they dry for their winter provision; among others the yellow lily, or faranna, which is a species of onion. They are unaccustomed to the use of the shuttle, and are only dressed in the most ordinary of the Chinese manufactures, or the exuvie of some terrestrial animals and seals. Voyage of La Pérouse, vol. ii. Engl. Transl.

CASTRIMONIUM, in *Ancient Geography*, a small town of Italy, in Campania, rendered municipal by a law of Sylla.

CASTRIOT, GEORGE, in *Biography*. See SCANDERBEG.

CASTRO, PIETRO DI, an eminent painter of those subjects that are comprehended under the denomination of still life, such as vases, shells, musical instruments, gems, vessels of gold, silver, and crystal, books, and rich bracelets. He was well acquainted with all the true principles of perspective, and the chiaro-scuro; and none of his contemporaries were superior to him in transparence and truth. His colouring was peculiarly excellent, and he manifested peculiar judgment in grouping a variety of objects, so as to give union and harmony to the whole. This artist died in 1663. Pilkington.

CASTRO, ALPHONSO DE, a Franciscan friar, was a native of Zamora, in Spain, celebrated as a preacher, and much esteemed by the emperor Charles V. and his son, Philip II. He accompanied the latter into England, when he came hither to marry queen Mary. His principal residence was in the Low Countries; and though nominated to the archbishopric of Compostella, he never took possession of it, but died at Brussels in 1558, at the age of 63 years. As a writer he is principally known by his work "Against Heresies," consisting of 14 books, partly historical and partly polemical. An enlarged edition of this work by Feuardent, a Franciscan, was published at Paris, in 1570. Castro was also the author of a commentary on the 12 minor prophets and of several homilies. Du Pin's Eccl. Hist.

CASTRO, JOHN DE, an eminent Portuguese commander, was born at Lisbon, in 1500, and first served at Tangier. He then accompanied Stephen de Gama to the straits of the Red Sea, which he accurately described. On his return to Portugal, he was appointed to the command of a squadron for guarding the coast; and he soon afterwards attended

Charles

Charles V. in his expedition to Tunis. He strengthened the fortifications of Diu, the siege of which the Turks, after great loss, had been obliged to abandon; and then took a number of towns: but in 1548, he expired in the arms of St. Francis Xavier, after having been very recently advanced to the viceroyalty of the Indies. His description of all the coasts from Goa to Diu is preserved in the Jesuits' college, at Evora. His life was written in Portuguese by Hyacinth Freyre d'Andrada, and has been translated into Latin.

CASTRO, PAUL DE, a celebrated lawyer of the 15th century, was born at the place from which he took his name, in the kingdom of Naples, and received his education in part from Christopher da Castiglione. From an obscure original, he rose, by assiduous application, to several stations of eminence, and distinguished himself as a professor of jurisprudence at Avignon, Florence, Sienna, Bologna, and Padua. At the latter place, where he was teacher of the law for 45 years, he died about the year 1436. His reputation was such, that it was proverbially said, "If there had been no Bartolus, Paul would have held his place;" and Cujacius said, "He who has not Paul de Castro, let him sell his coat, and buy him." His works are principally commentaries on the code and digest, and have been printed at Venice, Frankfort, and other places. Gen. Biog.

CASTRO, in *Geography*, a town of Spain in Arragon; 10 miles N.E. of Balbastro.

CASTRO, a strong town of South America, in the island of Chiloe near the coast of Chili, in the South Pacific ocean; 180 miles S. of Baldivia, and subject to Spain. S. lat. 43°. W. long. 82°.

CASTRO, anciently called *Mitylene*, a sea-port town of the island of Metelin, and the capital, situate on the north-east coast, facing the gulf of Adramiti, with two harbours, one of which is capable of receiving large vessels. It was formerly a place distinguished by its grandeur and magnificence, of which some vestiges still remain. It has two castles, one ancient and another modern, each of which is furnished with a Turkish garrison and commander. The inhabitants are chiefly Greeks, among whom are some Armenians: the former have four churches and a metropolitan. The chief trade is ship-building. It is 30 miles S.W. of Adramiti. N. lat. 39° 14'. E. long. 26° 29'.

CASTRO, a duchy of Italy, in the state of the church, bounded on the north by the Orvician, on the east by the Patrimonio, on the south by the sea, and on the west by the Siennese; 25 miles long, and from 8 to 13 wide. The duchy of Castro, together with the earldom of Ronciglione, was conferred by Pope Paul III. on his natural son, Peter Aloysius Farnese, who afterwards became duke of Parma and Placentia: it was mortgaged by one of his descendants to the Monte di Pietà at Rome; but upon his paying neither principal nor interest, it was sequestered by Pope Urban VIII. and in the year 1661 was annexed to the papal dominions. The town of Castro, from which it derives its name, which was formerly a bishop's see, was demolished by Pope Innocent X. and the see removed to Aquapendente, because the inhabitants had murdered a bishop whom he had sent to them.

CASTRO, a town of Naples, in the province of Otranto, the see of a bishop, suffragan of Otranto; which has been frequently plundered by the Corsairs; four miles S.S.W. of Otranto.

CASTRO de Calduelas, a town of Spain, in the province of Galicia; 9 leagues N.E. of Orense.

CASTRO Dayro, a town of Portugal, in the province of Beira; 5 leagues S.S.W. of Lamego.

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CASTRO Giovanni, a town of Sicily, in the valley of Noto; 63 miles S.W. of Melazzo.

CASTRO de Gors, a town of Portugal in the province of Beira; three leagues N.W. of Viseu.

CASTRO Nova, a town of Sicily, in the valley of Mazzara, containing about 4000 inhabitants; 20 miles S.E. of Palermo.

CASTRO Nuovo, a town of Venetian Dalmatia, built by a king of Bosnia, defended towards the sea by inaccessible rocks, and towards the land by a citadel and castle.

CASTRO de Rey, a town of Spain, in the province of Galicia; 5 leagues S. of Mondonedo.

CASTRO dell Rio, a town of Spain, in the province of Cordova; 5 leagues from Cordova.

CASTRO Trionto, a town of Naples, in the province of Calabria Citra; 11 miles E. of Rossano.

CASTRO Verde, a town of Portugal, in the province of Alentejo; 1½ leagues N.E. of Ourique.

CASTRO Vicente, a town of Portugal, in the province of Tras los Montes; 6 leagues E. of Mirandola.

CASTRO Villara, a town of Naples in the province of Calabria Citra; 6 miles W. of Cassano.

CASTRO Virreyna, a jurisdiction of South America, in the country of Peru, and in the diocese of Guamanga, W. of the city of Guamanga; and extending in some parts above 30 leagues, with such a variety of temperatures, that it produces every kind of grain and fruits. The heaths, which are its coldest parts, are frequented by a kind of sheep, called Vicunna, whose wool is the most considerable article of its commerce. Its town of the same name is 125 miles S.E. of Lima. S. lat. 12° 50'. W. long. 74° 45'.

CASTROMARIM, a town of Portugal, on the Guadiana, four leagues E.N.E. of Tavira. It surrounds a hill on which is an old ruinous castle, no longer fortified. The houses are small, and the place poor and mean, but far more lively than Villa-real. Near Castromarim immediately rise mountains of the chain that divides Algarvia from Alentejo, which gradually become high as you advance northwards; they consist of argillaceous slate, and a sand stone, which has a very strong resemblance to the grey round stones found in the Hartz mountains in Germany, called "Grauwache."

CASTROP, a town of Germany, in the circle of Westphalia, and county of Mark, containing one church for Roman Catholics, and two for protestants of different persuasions; 27 miles S.S.W. of Munster.

CASTROPOL, a town of Spain, in the province of Asturias, on the borders of Galicia; 14 miles N.E. of Mondonedo.

CASTROREALE, a town of Sicily, in the valley of Demona, containing about 8000 inhabitants; 15 miles W. of Messina.

CASTROSAROS, a town of European Turkey, in the province of Romania; 44 miles W. of Gallipoli.

CASTROZARBA, in *Ancient Geography*, a town of Thrace, fortified by the emperor Justinian.

CASTRUCCI, PIETRO, in *Biography*, a native of Rome, a scholar of Corelli, and an eminent performer on the violin, arrived in England in 1715, with the earl of Burlington, when he returned from his travels. This violinist, an enthusiast, and more than half mad, is represented in one of Hogarth's prints as the *enraged musician*; the painter having sufficient *polissonnerie*, previous to making the drawing, to have his house beset by all the noisy instruments he could collect together, whose clamorous performance brought him to the window in all the agonies of auricular torture.

On his arrival, Corbet, who had hitherto led the opera band,

band, was superseded for *Castrucci*, who was appointed leader. In 1731, a concert was advertised at Hickford's room, for the benefit of signor Castrucci, *first violin of the opera*, who was to play the first and eighth concerto of his master, the famous Corelli, and several pieces of his own composition, particularly a solo, in which he engaged to execute "twenty-four notes with one bow." This advertisement was burlesqued, the next day, and a solo promised by the *last violin of Goodman's Fields playhouse*, in which he would perform "twenty-five notes with one bow."

In 1732 Handel composed, in his opera of *Sofarmes*, an *Aria parlante, cuor di madre*, on purpose to display the talents of Castrucci in the accompaniment; and from this period to the year 1737, he seems to have led at all concerts, giving way only to the two boys, Cleg and Dubourg, in the solos, in which, from their youth as well as talents, they were highly favoured by the public. This year Castrucci, in advertising a benefit concert, styles himself first violin of the opera; promising a particular concerto, with an echo, adding, that "as he has for the space of so many years had the honour to serve the English nobility, he hopes they will favour him this last time, being to return the ensuing summer to Rome, his native city."

About the year 1737, poor *Castrucci*, Hogarth's *enraged musician*, was superseded at the opera, in favour of Festing, for whom he had such an antipathy, that in his most lucid intervals, he instantly lost his temper, if not his reason, on hearing it pronounced. It was a common and irritating practice with some of his young waggish acquaintance, who had no respect for age and talents, to address him in conversation by the name of Mr. Festing, as if by mistake,—"I beg your pardon,—Mr. Castrucci I mean;" which put him in as great a rage as Hogarth's street musicians could do on May-day.

After his dismissal from the opera, oppressed with years, infirmities, and poverty, he was obliged to supplicate for a benefit at the opera-house, which on the merit of his past services was, with due benevolence, granted him at the age of 80, when he performed a solo for the last time, and died soon after.

He was a voluminous composer for his own instrument. Two books of solos, and 12 concertos for violins, though never much known, seem to have more fire and variety than most violin music of his time, till Verucini, still more inflamed, surpassed him in genius, hand, knowledge, and caprice.

He had a brother, *Prospero Castrucci*, who for several years led at the Castle concert, and played concertos with his brother, *a parti equali*; but though inferior to *Pietro*, he was not devoid of merit.

CASTRUM, in *Ancient Geography*, a term which, in combination with others, gives name to several fortified places; of which some were towns, and others mere fortresses. They are too numerous, and not of sufficient importance, to be here recited.

CASTRUM Doloris, in *Middle Age Writers*, denotes a catafalco, or lofty tomb of state, erected in honour of some person of eminence, usually in the church where his body is interred; and decorated with arms, emblems, lights, and the like.

Ecclesiastical writers speak of a ceremony of consecrating a *castrum doloris*; the edifice was to be made to represent the body of the deceased, and the priest and deacon were to take their posts, and say the prayers after the same manner as if the corpse were actually present.

CASTRUP, in *Geography*, a town of Germany, in the

circle of Westphalia, and bishopric of Munster; 5 miles S.S.E. of Clopenburg.

CASTS. See CAST, CASTING, and *Impressions from MEDALS*.

CASTULO, or CASTULUM, in *Ancient Geography*, *Castulona*, a considerable town of Spain, towards the eastern part of Bætica, belonging to the Oretani. It had the title of "Conventus" when the Romans made themselves masters of the country, but before this time the Carthaginians had contended for the possession of it with those to whom it naturally belonged. It was the native place of Imilia, the wife of Hannibal. This town was situated in a mountainous country; and some have derived its name from "Castlon," an oriental term, signifying the noise of a fall of water; and we learn from Strabo, that there were rocks near the place which gave rise to the river that passed to Castulo. The town itself, placed on a mountain, or at least very near it, seems to have some relation, by its name and situation, to Parnassus, famous for its fountain "Castalia;" and hence some have been led to imagine, that it was founded by the Phœceans, to whom belonged, in Greece, the fountains of Castalia and Parnassus. Silius Italicus has not omitted this allusion. Julius Cæsar, having purchased the lands in the territory of Castulo, established a colony in it. There were desiles in the vicinity of Castulo, mentioned by Livy, and called "Saltus Castalenis."

CASU CONSIMILI, in *Law*, a writ of entry, where a tenant by courtesy, or for life, aliens in fee or in tail, or for another's life: it takes its name hence, that authority being given by stat. West. 2. 13 Edw. I. c. 24. to the clerks in chancery to make new forms, as often as any new case should arise, not under any of the old forms; they framed this writ to the likeness of the other called *Casu proviso*.

CASU Proviso, a writ of entry, given by the statute of Gloucester, 6 Edw. I. c. 7. in case where a tenant in dower aliens in fee, or for term of life, in tail; and lies for him in reversion against the alienor.

CASUAL, something that happens fortuitously, or without any design, or measures taken to bring it to pass.

CASUAL death. See DEODAND.

CASUAL ejector, in *Law*, a nominal descendant in ejectment, and who continues such until appearance by or for the tenant in possession. Blackst. Comm. vol. iii. p. 202.

CASUAL revenues, are those which arise from forfeitures, confiscations, deaths, attainders, &c.

CASUAL theology, a denomination given by some to what is more frequently called casuistry. See CASUIST.

Adam Osiander, chancellor of the university of Tubingen, has published a system of *casual theology*, containing the solution of dubious questions, and cases of conscience. Theologia Casualis, 6 vols. 4to. Tubing. 1682.

CASUALTY, in the *Tin Mines*, a word used to denote the earth and stony matter which is, by washing in the stamping-mills, &c. separated from the tin ore, before it is dried and goes to the crazing mill.

CASUARI, in *Ancient Geography*, a people of Upper Germany, according to Ptolemy, who dwelt near the Suevi.

CASUARIA, a place of Gaul, in the division called the "Greek Alps," which was situated at a small distance to the right of Isara.

CASUARINA, in *Botany*, (said by Ventenat to be so called from a fancied likeness of its branches to the feathers of the cassowary.) Forst. Gen. 52. Thunb. Nov. Gen. Pl. 53. Linn. Jun. Suppl. p. 62. Schreb. Gen. 1395. Juss. p. 412. Vent. vol. iii. p. 576. Gært. 568. Filao, Lam. Encyc. Bot. Nouv.

Nouv. Diſt. Clafs and order, *monœcia monandria*. Nat. ord. *conifera*, Juſſ. Vent.

Gen. Ch. Male. *Cal.* common; catkin filiform, imbricated; ſcales ſomewhat membranous, whorled, lanceolate-awl-shaped, connate at the baſe, ciliated, one-flowered. *Calyx proper* two-valved; valves acute, equal, boat-shaped, ſhorter than the ſcales of the catkin. *Cor.* none. *Stam.* one, capillary, longer than the ſcale. Female. *Cal.* common ovate-cylindrical; ſcales ovate, acute, keeled, ciliated. *Calyx proper* two-valved, longer than the ſcales of the catkin, permanent. *Cor.* none. *Piſt.* germ egg-shaped, compressed; ſtyle filiform, long, biſid; ſtigmas two. *Peric.* ſtrobile almoſt globular, compoſed of the enlarged, aggregate calyxes, each containing a ſingle ſeed. *Seeds* winged, compressed. Gärt. and Vent.

Eſſ. Ch. Calyx common, a catkin; calyx proper, two-valved. Style biſid. Pericarp a ſtrobile.

Sp. 1. *C. equiſetifolia*, Linn. Fil. Supp. Thunb. Nov. Gen. p. 53. Forſt. Gen. tab. 52. Lam. Encyc. Illuſt. pl. 746. fig. 1. Mart. Mill. (C. littorea, Rumph. Amb. vol. iii. p. 86. tab. 57.) "Monoicous; whorls of ſtamens approximating." Thunb. "Little branches irregularly diſpoſed, crowded; catkins thickened towards the top." Lam. A large, ſpreading, lofty tree. Branches greyiſh or brown, knotty, and tubercled on their lower part, furniſhed on their upper part with numerous branches, which are ſet cloſe together, almoſt ſciculated, very ſlender, jointed, and regularly channelled, reſembling the ramifications of the horſe-tails (*equiſeta*). Male catkins about an inch long, terminal, ſtraight, linear-cylindrical. Strobiles about the ſize of a walnut, woody, lateral, below the ſlender branches; peduncles two or three lines long. A native of Madagaſcar and the Eaſt Indies. 2. *C. nodiflora*, Thunb. Mart. Gärt. (C. verticillata, Lam. Encyc.) "Whorls of ſtamens remote." Thunb. "Little branches whorled, looſe; catkins attenuated towards the top." Lam. A large tree, with a leſs denſe head than the preceding. Branches more diſtant; upper ones three or four together, in diſtinct whorls. Male catkins two inches long, cylindrical, jointed, whitish; filaments not more than a line and a half longer than the ſcales. Lam. Strobile nearly globular, echinate, peduncled. Scales of the catkin, when ripe, much thickened, of a corklike ſubſtance, retuſe, white, in pairs, ſet ſo cloſe together as to appear one body, handſomely teſſellated, in quadrangular figures; valves of the calyx elongated, coriaceous, concave. Gärt. A native of the Eaſt Indies and New Caledonia. 3. *C. ſtriata*, Hort. Kew. 320. Mart. "Dioicous; little branches erect; ſcales of the ſtrobiles unarmed, ſmoothiſh; male-ſheaths multiſid, ſmooth." A native of New South Wales, flowering in November and December. 4. *C. toruſeſu*, Hort. Kew. 320. Mart. "Dioicous; little branches flaccid; ſcales of the ſtrobiles villous, roughened with tubercles; male-ſheaths quadriliſid." A native of New South Wales, introduced by ſir Joſeph Banks in 1772. 5. *C. africana*, Lour. Cochin. 549. Mart. "Little branches filiform, ſwelling at the tip, and ſloriferous; ſtrobiles roundiſh, axillary." A native of the ſandy eaſt coaſt of Africa.

CASUENTINUM, or CASENTINUM, in *Ancient Geography*, a burgh of Italy, in Umbria, according to Piiny.

CASUENTUM, BASIENTO, a river of Italy, marked by M. d'Anville's map in Lucania, which diſcharged itſelf into the gulf of Tarentum. Alaric, king of the Goths, was buried in the bed of this river.

CASUHATI, in *Geography*, a high chain of mountains, in South America, part of a triangle, one ſide of which extends to the Andes, and another to the ſtraits of Magellan.

CASUIST, a perſon who profeſſes to reſolve caſes of conſcience. Eſcobar has made a collection of the opinions of all the caſuiſts before him.

To caſuiſtry belongs the deciſion of all difficulties ariſing about what a man may conſcientiouſly do, or not do; what is ſin, or not ſin; what things a man is obliged to do in order to diſcharge his duty, and what he may let alone without breach of it.

M. le Feore, preceptor of Lewis XIII. called the books of the caſuiſts the art of quibbling with God; which does not ſeem far from the truth; by reaſon of the multitudes of diſtinctions and ſubtilties with which they abound.

CASULÆ CARIANENSES, in *Ancient Geography*, an episcopal ſee of Africa, in the Byſacene territory.

CASURGIS, a town placed by Ptolemy in Germania Major, ſuppoſed to be the preſent Caurzim, in Bohemia.

CASUS AMISSIONIS, in *Scots Law*. In actions proving the tenor of obligations inextinguishable by the debtor's retiring or cancelling them, it is neceſſary for the purſuer, before he is allowed a proof of the tenor, to condeſcend upon ſuch a "Caſus amiſſionis," or accident by which the writing was deſtroyed, as ſhews it was loſt while in the writer's poſſeſſion.

CASWELL, in *Geography*, a county of America, in the diſtrict of Hillsborough and ſtate of North Carolina, containing 10,096 inhabitants, of whom 2,736 are ſlaves. The chief town is Leeſburg.

CASYRUS, or CHASIRUS, in *Ancient Geography*, a mountain of Aſia, in Sſiana; near which Pliny places the town of Solſtrates.

CASYSTES, a port of Aſia Minor, in Ionia, placed by Strabo at the foot of mount Corica.

CAT, CLAUDE NICHOLAS LE, in *Biography*, was born at Blerancourt, in Picardy, September 6, 1700. His father, Claude Le Cat, who was a ſurgeon of eminence, would have educated him to his buſineſs, but finding him diſpoſed to theological ſtudies, he encouraged him in that purſuit, and he performed the duties of an eccleſiaſtic ſeveral years. Being well verſed in geometry, he, for a time, employed himſelf in acquiring a knowledge of military architecture, and made ſome drawings in that line which gained him credit; but his friends not approving that project, and requiring him to fix on the object he now purpoſed following, he determined on ſtudying medicine, ſome knowledge in which he had acquired early, under the tuition of his father. He was now ſent to Paris, and as he was of an ardent diſpoſition, he ſoon, by his intense application to his ſtudies, attracted the notice of the profeſſors. Though anatomy was the part to which he ſeemed particularly attached, yet he ſoon ſhewed himſelf to be no mean proficient in ſurgery, and medicine, inſomuch, that in the year 1729, M. Treſſan, archbiſhop of Rouen, appointed him his phyſician and ſurgeon, though he did not take his degree of doctor in medicine, until the year 1732, when that honour was conferred upon him at Rheims. He had the preceding year been choſen ſurgeon major to the Hotel Dieu, at Rouen. For this honour, and for the attachment his countrymen conſtantly ſhewed him, he was not ungrateful. In the year 1733, having now completed his ſtudies, he went and reſided among them, and in the ſame year he began his courſe of lectures in anatomy and ſurgery, which ſoon became ſo numerouſly attended, that the rooms in which they had been accuſtomed to be given would not contain the courſe of pupils, who required admiſſion. He therefore propoſed building a theatre for the lectures, and founding a college, or ſchool for the ſtudy of anatomy and ſurgery,

which he had the pleasure of seeing carried into execution. He also formed a literary society, which was afterwards erected into a royal academy, to which, as one of the most zealous and active members, he was appointed secretary, which post he held to the time of his death. In 1759, an addition of 2000 livres was made to his salary as principal surgeon to the Hotel Dieu, and in January, 1762, the king gave him letters of nobility. In the mean while he had made himself known to most of the philosophical, and medical societies in Europe, by his communications on the subjects of anatomy and surgery; he was also a frequent correspondent with the editors of the *Journal des Savans*, *Mercur de France*, and other literary and medical journals. The subjects of his dissertations were sometimes such as rather shewed his ingenuity than his judgment, and tended more to amuse than to improve the mind; as, of the nature and properties of the nervous fluid, on the causes of the colour of the skin in negroes, &c. Many of them, however, were of a higher kind, and in the opinion of Haller, whom he occasionally opposed, and who was therefore, perhaps, no just appreciator of his merits, he made some improvements both in anatomy, and surgery. But the same versatility of disposition, which made it difficult for him to fix on a profession, might prevent his being a correct experimenter, to which an almost unwearied attention is necessary. He died in full possession of the esteem and veneration of his fellow citizens, August 20, 1768. Of his works, which are numerous, Haller has given complete lists, with occasional remarks, in his *Bib. Anat. & Chirurg.* The following are the titles of some of the principal of them. "Traité des Sens, Rouen, 1740, 8vo. avec figures." It has been several times reprinted. Haller finds some of the figures faulty. "Recueil de Pieces concernant l'Operation de la Taille." Rouen, 1752, 8vo. Some of the plates in this work are also censured by Haller. He also wrote on solvents of the stone, on the causes of the menses. "La Theorie de l'Onie, Supplement à cette Article du Traité des Sens." Paris 1767, 8vo. the most finished, Haller says, of his works. Eloy. Dict. Hist.

CAT, in *Geography*, a lake of North America. N. lat. 52° 30'. W. long. 91° 40'.

CAT Island, or *Guanabani*, one of the Bahama islands. It was the first land discovered by Columbus, to which he gave the name of St. Salvatore, Oct. 11, 1492. It lies on a particular bank to the east of the great Bahama bank, from which it is parted by a narrow channel called Exuma Sound. N. lat. 24° 30'. W. long. 74° 30'.—Also, an island near the gulf of Mexico, and the coast of West Florida. N. lat. 30° 6'. W. long. 89°.

CAT, in *Sea-language*, denotes a ship formed on the Norwegian model, used by the northern nations of Europe, and sometimes employed in the English coal trade. It has three masts and a bowsprit, rigged like an English ship; having, however, pole-masts, and no top gallant sails. The mizen is with a gaff. These vessels usually carry from four to six hundred tons.

CAT, in a *ship*. See CAT-heads.

CAT the anchor. See ANCHOR and CATting.

CAT, in *Zoology*. See *FELIS Catus*, the common cat, and its varieties.—CAT *Mexican*. See *FELIS Pardalis*.—TIGER-CAT, *Mexican*. See *FELIS Mexicana*.—TIGER-CAT, *Bengal*. See *FELIS Bengalensis*.—TIGER-CAT, *Cape*. See *FELIS Capensis*.

CAT-bird, or CAT-fly-catcher, in *Ornithology*, *MUSCICAPA Carolinensis*, which see.

CAT's-ear, in *Botany*, see *HYPOCHARIS*.

CAT's eye, in *Mineralogy*, a siliceous gem, called by the Latins, *oculus cati*, and sometimes *onycopalus*, as having white zones or rings like the onyx, and belonging to the division of chatoyant stones, or such as vary their colour according to the position of the light and the eye of the observer, which M. Chaptal considers as varieties of the opal. Near the middle it has a point, from which proceed, in a circle, greenish traces of a very lively colour. Its colour is generally of a greenish or yellowish grey, or light, or dark-yellowish brown, or reddish brown, or striped with these colours; and in certain positions, particularly when polished, emitting a silvery or yellowish moveable effulgence. Klaproth mentions two varieties of this mineral; the one whitish or yellow, from Ceylon, which, says Kirwan, is found in blunt or rounded fragments; its lustre 2, and transparency, 3.2; its fracture imperfectly conchoidal, sometimes approaching to the splintery; fragments, 3; hardness, 10; sp. gr. from 2.56 to 2.66. Klaproth says, that the species from Ceylon had 2.66 of specific gravity; and was found to contain of silex 95 per cent. of alumine $1\frac{3}{4}$, of lime $1\frac{1}{2}$, and of oxyd of iron $\frac{1}{4}$. The other species is reddish, and is procured from the Malabar coast. This, or astroites, says Klaproth, was composed of 94½ per cent. of silex, 2 of alumine, $1\frac{1}{2}$ of lime, and $\frac{1}{4}$ of oxyd of iron. Its specific gravity was 2.625. This is the sun-stone of the Turks, called *gumeche*. The best of these stones are very scarce. One of them, an inch in diameter, was in the cabinet of the dukes of Tuscany. See ASTERIA and CHALCEDONY.

CAT-fish, in *Ichthyology*; several of the shark tribe are known by this title. The lesser cat-fish, *Catulus minor*, and *Squalus catulus* of Linnæus, is called also the lesser dog-fish.—Greater cat-fish of Edwards, *Catulus maximus* of Willughby and Ray, is the Linnæan *Squalus stellaris*. See SQUALUS.

CAT-gut, a denomination given to small strings for fiddles, and other instruments, made of the intestines of sheep or lambs dried and twisted, either singly, or several together. These are sometimes coloured red, sometimes blue, but are commonly left whitish or brownish, the natural colour of the gut. They are used also by watch-makers, cutlers, turners, and other artificers. Great quantities are imported into England, and other northern countries, from Lyons and Italy.

CAT-harpings, in *Sea Language*, are small ropes running in little blocks from one side of the shrouds to the other, near the deck; their use is to force the shrouds, and to make them tight, for the greater security of the masts, and to afford room for drawing the yards in more obliquely, to trim the sails for a side-wind, when they are said to be close hauled.

CAT-heads, two strong short beams of timber, which project almost horizontally over the ship's bows, on each side of the bowsprit, being like two radii which extend from a centre, taken in the direction of the bow-sprit. That part of the cat-head, which rests upon the fore-castle, is securely bolted to the beams; the other part projects like a crane, as above described, and carries in its extremity two or three small wheels, or sheaves of brass, or strong wood, about which a rope, called the *cat-fall*, passes, and communicates with the cat-block, which also contains three sheaves. The machine formed by this combination of pulleys is called the *cat*, which serves to pull the anchor up to the cat-head, without tearing the ship's sides with its flukes. The cat-head serves also to suspend the anchor clear of the bow, when it is necessary to let it go; it is supported by a sort of knee which is generally ornamented with sculpture. The cat-block is fitted with a large and strong hook, which catches

catches the ring of the anchor when it is to be drawn up.

CAT's head, in *Mineralogy*, a denomination given to a sort of waste stony lumps, not inflammable, found in coal-mines. In these there are frequently impressions of ferns. Phil. Trans. N^o 360. p. 970.

CAT-boles, two small holes above the gun-room ports, to bring in a cable or hawser through them to the capstan, when it becomes necessary to heave the ship a-stern.

CAT-mint, in *Botany*. See CATMINT.

CAT of Mountain, in *Zoology*. See CATUS pardus.

CAT's paw, a light air of wind perceived at a distance in a calm, by the impression made on the surface of the sea, which it sweeps very lightly and then decays.

CAT-falt, a name given by our salt-workers to a very beautifully granulated kind of common salt. It is formed out of the bittern or leach brine, which runs from the falt when taken out of the pan. When they draw out the common falt from the boiling-pans they put it into long wooden troughs, with holes bored at the bottom for the brine to drain out; under these troughs are placed vessels to receive this brine, and across them are placed certain small sticks, to which the cat-falt affixes itself in very large and beautiful crystals. This salt contains some portion of the bitter purging falt, and is very sharp and pungent, and is white when powdered, though pellucid in the mafs. It is used by some for the table, but the greatest part of what is made of it is used by the manufacturers of hard soap.

CAT-silver, and CAT-gold, names given to certain fossile substances, usually called also *glimmer*, and in Latin, *mica*. They are various species of the *bræccaria*, or foliaceous talcs, in small spangles. The fragments of mica, denominated as above, according to their colour, are employed as a sand for drying ink upon paper. See MICA.

CAT's-tail-grass, in *Botany*, different species of *Phleum*; which see.

CATABANES, in *Ancient Geography*, a people of Arabia Deserta, who inhabited the parts between the town of Pelusium and the Red Sea, according to Pliny.

CATABANI, a people placed by Pliny in Arabia Felix, towards the strait of the Arabian gulf.

CATABAPTIST, a person averie from baptism; particularly from that of infants.

The word is compounded of the preposition *κατα*, which, in composition, signifies *against*, and *βαπτω*, *I wash*. See ANABAPTISTS and BAPTISTS.

CATABASION, in the *Greek Church*, a place under the altar, wherein the relics are kept. The word is formed from *καταβαινω*, *I descend*; because they went down into it.

CATABATHMOS, or CATABATHMUS, in *Ancient Geography*, a valley below the steep declivity of a mountain, whence its name, from *καταβαίνω*, to descend, on account of the precipitation of its descent; extending to Egypt, over-against the spot where stood the temple of Jupiter Ammon, and separating Egypt from Cyrenaica. It is also called "Carto Sappires;" and the Arab pilgrims, who pass through it in their way to Mecca, denominate it in their language, "Hefachbir," or the ruined places. Steph. Byz. makes it a place of Lybia, between Ammon and Parætonium, and Pliny reckons 86 miles from this last place to Catabathmos. Ptolemy mentions two places under this appellation; one the greater Catabathmos, which he makes a sea-port of Lybia; and the other, the lesser Catabathmos, which he says was a mountain.

CATABAW, in *Geography*, a river of North Ameri-

ca, otherwise called *Wateroe*, which unites with the Canga-ree, and forms the Santee, 5 miles N. of Amelia, in South Carolina.

CATABAWS, a small tribe of Indians who possess one town, called Catabaw, situated on the river of the same name, on the boundary line between N. and S. Carolina, and containing about 450 inhabitants, of whom about 150 are fighting men. These are the only tribe which resides in the state; the proprietary government having granted them 144,000 acres of land. They are a remnant of a formidable nation, the bravest and the most generous enemy the Six Nations had; but they have degenerated since they have been surrounded by the whites. N. lat. 35° 8'. W. long. 80° 52'.

CATABEDA, in *Ancient Geography*, a river of India on the other side of the Ganges, according to Ptolemy. M. d'Anville marks the mouth of this river at the bottom of the gulf of the Ganges, to the east of the principal mouth of this river.

CATABIBAZON, in *Astronomy*, the moon's descending node; called also DRAGON's tail.

CATABITANUS, in *Ancient Geography*, an episcopal see of Africa, in Mauritania Cæsariensis.

CATABOLUM, or CATABULUM, a place of Cilicia, so called in Antonine's Itinerary, and marked in the route from Tyana to Alexandria, between Cægæ and Baizæ; supposed to be the place called *Castabala*.

CATABULENSES, in the *Middle Age*, a sort of ministers, or servants of the empire, appointed to conduct the public carriage from one *catabulum*, or stage, to another. The catabulenses appear also to have had the charge of conveying the public corn to and from the mills; whence in the Theodosian code they are joined with bakers.

CATABULUM, a kind of stable, or building, wherein beasts, especially of burden and carriage, were kept for the public service. The ancient Christians were sometimes condemned to serve in the catabula, that is, to work at the cleaning of them, attending the beasts, &c.

CATACAUSTIC CURVES, in the *Higher Geometry*, the species of CAUSTIC curves formed by reflexion. See CAUSTIC curves.

CATACECAUMENE, in *Ancient Geography*, a country of Asia Minor, occupied in common by the Lydians and Mysians, according to Strabo. Steph. Byz. who assigns to this country the town of Ephesus says, that it produced no trees except the vine, and that the wine derived its name from it. Vitruvius also mentions the hills of Asia Minor in Mysia under this appellation.—Also, an island situated in the Arabian gulf, mentioned by Ptolemy and Steph. Byz.

CATACHRESIS, in *Rhetoric*, a figure whereby an improper word is used instead of a proper one.

The word is formed from *καταχραομαι*, *abutor*, *I abuse*; of *κατα*, *against*, or *contrary to*; and *χραομαι*, *I use*.

The catachresis occurs, when for want of a word proper to express a thought, we use, or rather abuse, a word that comes somewhat near it: as when we call a person who has killed his mother, master, or prince, *parricide*; which word, in propriety, is only applicable to him who has murdered his father: and *vir gregis ipse caper*, is also a catachresis. Catachresis signifies in general any harsh trope, though it is most commonly found in metaphors; and is principally used by poets, who make choice of it for novelty, or to enforce expression, where the proper word does not seem strong enough. As when Milton, (*Parad. Lost*, p. 4. v. 268,)

268,) in describing the angel Raphael's descent from heaven, says, he

"Sails between worlds and worlds;"

where the novelty of the word enlivens the image more than if he had said, flies. This trope, however, is sometimes found in the gravest authors, and even in the sacred writings. Thus, we read of the "blood of the grape;" and Solomon, (Prov. xxx. 15.) says, "the horse-leech hath two daughters." In all these instances the trope is a metaphor: but when St. John says in the Revelation, (ch. i. 12.) "I turned to see the voice that spake to me," it is here a metonymy of the adjunct; the word voice being put for the person who uttered it. St. Matthew, (ch. xxvi. 6,) mentions "Simon the leper;" not that he was then a leper, but had been so, and was cured; which is a synecdoche of the part. And when a criminal is said "to have had his reward," that is, his punishment, it is an irony. Ward's Oratory, vol. ii. p. 23.

CATACLASIS, from *κατακλάω*, *I distort*, in *Surgery*, denotes a disorder of the eye, wherein the eye-lid is inverted by a convulsion of the muscles that close it; called also *campylon*.

CATACLYSMUS, from *κατακλυσμός*, *I deluge*, a Greek name for a deluge, or inundation of waters.

CATACOMBS, in *Antiquity*. This word, derived from the Greek *κατα* and *κρυβος*, a hollow or cavity, is used to denote grottoes or subterraneous excavations for the burial of the dead.

These are monuments of great curiosity, and considerable both in size and number. Of the remarkable excavations existing, there are various kinds. Some are temples, like those of India, in the mountains of Ellora; some have been originally executed for the purposes of sepulture; others have owed their origin to the operations of quarrying for building materials, and have been subsequently converted to other purposes: of this nature are the catacombs of Rome, and the quarries, or *Latomie* of Syracuse, which served for public prisons.

The religious ideas of various nations led them to honour the dead with extraordinary solicitude, and tombs and mausoleums are among the most eminent remains of antiquity; where rocks afforded a convenient opportunity, it was an idea at once natural, and of peculiar propriety, to excavate in these silent retreats the habitations of the dead.

In Egypt the honours paid to the dead partook of the nature of a religious homage. By the process of embalming they endeavoured to preserve the body from the common laws of nature, by which every substance is decomposed, and returns to its original elements. They also provided magnificent and durable habitations for the dead, proud tombs, the astonishment of all succeeding nations, which have not preserved but buried the memory of their founders. But by a singular fatality, the well adapted punishment of pride, the extraordinary precautions by which it seemed in a manner to triumph over death, have only led to a more humiliating disappointment. The splendour of the tomb has but attracted the violence of rapine; the sarcophagus has been violated; and while other bodies have quietly returned to their native dust in the bosom of their mother earth, the Egyptian, converted to a mummy, has been preserved only to the insults of curiosity, or avarice, or barbarism.

The date of the construction of not one of these monuments is known; indeed, most of them must have been executed progressively during a considerable time: it is, therefore, impossible to follow any chronological order in describing them: we shall, however, begin with those of Egypt,

which, while they are in many respects the finest and most remarkable, are, in all probability, more ancient than any European instances.

The catacombs of Alexandria begin at the place where the ruins of the old city terminate, and extend along the sea-shore for a considerable distance. They consist in general of long galleries, with apartments on each side, excavated in the rock: in the side of these rooms there are three tiers of holes, or niches, in which the bodies were deposited; but they have been all violated, and nothing is found in them at present. The galleries sometimes run parallel to one another, and sometimes cross at right angles; others are carried one above the other, according to the situation of the ground. Many have been washed away by the sea, and others are rendered inaccessible by the drifting sand. The apartments in general but little exceed the length of a man, but some which were probably the tombs of considerable persons, may, according to Dr. Pococke, "be reckoned among the finest that have been discovered, being beautiful rooms cut out of the rock, and niches in many of them, so as to deposit the bodies in, adorned with a sort of Doric pilasters on each side." Norden gives a section of the finest of these, vol. i. page 16, which is an apartment of a circular form, and terminated by a dome. There are four doors opposite one another, ornamented with pillars and an entablature, and pediments terminated with a crescent. One of these doorways serves as the entrance to the apartment, the other three lead to large square recesses, each of which contains a kind of chest or sarcophagus of the substance of the rock, and sufficiently large to contain a body. From the style of the decorations observed in this subterranean chamber, one would be led to date its construction much later than the generality of the catacombs.

Near the pyramids of Saccara, which are at a short distance from Cairo on the opposite side of the Nile, there is a descent to a circular plain which has a rising in the middle. Bones and skulls are scattered over this spot, under which are the catacombs of the mummies, extending about half a mile, the whole country being a rocky soil, covered over with sand five or six feet deep. At some distance from these are the catacombs of the birds.

The catacombs of the mummies are entered by various wells about four feet wide, and 20 or 30 feet deep, cut through the rock, the upper part being sand, which is often moved by the wind and fills up the cavity. Some of these wells Dr. Pococke observed to be cased with unburnt bricks at the top as far as the depth of the sand, which from the size he imagined to be very ancient. The wells have holes on each side to descend by, but too much worn away to be of any use. Having descended the well, a passage succeeds, about 50 feet long, and five feet wide, which leads to another gallery of the same size, and about six feet high. On one side of this gallery there are apartments with platforms about two feet high, on which it is probable the mummies were laid during part of the process of preparation, and on the other side there are narrow cells just big enough to receive a large coffin. To this gallery there succeeds one much narrower, with niches on each side, which seem designed to set coffins in upright. From these passages there are cut oblong square apartments, which are full of the remains of mummies, and probably here the inferior persons of a family were deposited, piled up on one another, as we may suppose the heads of the family were set upright in the niches, which appear to have been walled up as well as all the other apartments.

This is the description given by Pococke of the catacomb which he examined; and it seems likely that the rest resembled

fembled this. These must have been the tombs of the common people.

The catacombs of the birds are similar to those last described, but more magnificent. These sepulchres were opened while the French were in possession of Egypt, and more than five hundred mummies of the ibis discovered.

Siut is a large well-peopled town, apparently built on the site of the ancient Lycopolis, or the city of the wolf. No antiquities are found in this town; but the Lybian chain of mountains at the foot of which it stands, exhibits proofs of the ancient proximity of some grand and flourishing city. These rocks are about half a league from Siut, and are excavated by a vast number of tombs of various dimensions, and decorated with more or less magnificence. Denon has given a view and plan of one of the largest of these catacombs. The outer porch is a large vaulted excavation, with a doorway leading into the interior of the tomb, which consists of several chambers one within the other, of various sizes and perfect regularity. All the inner porches are covered with a profusion of hieroglyphics, and the most delicate and elegant ornaments. M. Denon observes, that "if one of these excavations was a single operation, as the uniform regularity of the plan of each would seem to indicate, it must be an immense labour to construct a tomb; but we may suppose that such a one when once finished, would serve for ever for the sepulture of a whole family, or even race, and that some religious worship was regularly paid to the dead; else where would have been the use of such finished ornaments, of inscriptions never read, and of a ruinous, secret, and buried splendour? At different periods, or annual festivals, or when some new inhabitant was added to the tomb, funeral rites were doubtless performed, in which the pomp of ceremony might vie with the magnificence of the place; which is the more probable, as the richness of decoration in the interior part forms a most striking contrast with the outer walls, which are only the rough native rock. I found one of these caves with a single saloon, in which were an innumerable quantity of graves cut in the rock in regular order: they had been ransacked in order to procure the mummies, and I found several fragments of their contents, such as linen, hands, feet, and loose bones."

Besides these principal grottos, there is such a countless number of smaller excavations, that the whole rock is cavernous, and resounds under the foot.

At Gebel Silsilis, on the banks of the Nile, between Et-fu and Ombos, the site of the principal quarries of Egypt, there are various chapels consisting of porticos with columns and entablatures, covered with hieroglyphics, all cut out of the solid rock, and likewise a large number of tombs also hollowed out of the mountain. These tombs are very curious, though they are disfigured with trenches and rubbish.

In several of these tombs small private chambers are found, many of which contain large seated figures; these chambers are adorned with coloured stucco representing constantly offerings of bread, fruit, liquors, fowls, &c. The ceilings, also stuccoed, are ornamented with painted scrolls in an exquisite taste; the floor is inlaid with a number of tombs of the same dimensions and forms as are given to the cases of mummies, and equal in number to the sculptured figures: those that represent men have small square beards with a head-dress hanging behind over the shoulders: the women have the same dresses, but falling down in front over their naked necks. These latter are commonly represented with one arm passing within the arm of the figure beside them, and the other holding a lotus flower, a plant

of Acheron, the emblem of death. Some of these sepulchral chambers contain but a single figure, and may probably be the tombs of men who have died in celibacy. Others contain three or more figures, and seem to be family monuments.

At Montfalut there are also quarries, the grottoes of which still remain: they resemble those of Siut, and seem to have served as tombs to the ancient Egyptians, and as places of retreat to the first solitaries.

The catacombs of Thebes are, among all these monuments, the most extraordinary and magnificent; these consist of the Necropolis or city of the dead, on the west bank of the Nile, which was the common burial place of the inhabitants, and the tomb of the kings.

The Necropolis of Thebes is situated on the north-west of this city, on a step of the lower part of the Lybian chain, an arid and desolate spot, which seems to be devoted by nature to silence and death. The rock cut down on an inclined plane presents three sides of a square, in which double galleries have been excavated, and behind them sepulchral caves. These excavations are almost innumerable, and occupy a space of nearly a mile and a half square. At present they afford a lodging to the inhabitants of Kurnu and their numerous flocks, who, strong in these retreats, maintained themselves against the French in their late invasion of Egypt with singular obstinacy, and were only reduced by a regular siege. M. Denon, who accompanied this expedition, has given a lively and interesting description, which we shall transcribe.

"I now began my researches accompanied by some volunteers. I examined the grottoes which we had taken by assault: they were constructed without magnificence, consisting of a regular double gallery supported by pillars, behind which was a row of chambers often double, and tolerably regular. If we had not observed tombs, and even some remains of mummies, we might be tempted to believe that these were the dwellings of the primitive inhabitants of Egypt, or rather that after having first served for this purpose, these subterranean caves had become the abode of the dead, and had at last been restored by the people of Kurnu to their original destination.

In proportion as the height of these grottoes increases, they become more richly decorated, and I was soon convinced by the magnificence both of the paintings and sculptures, and of the subjects which they represented, that I was among the tombs of great men or heroes. The sculpture in all is incomparably more laboured, and higher finished than any that I had seen in the temples; and I stood in astonishment at the high perfection of the art, and its singular destiny to be fixed in places devoted to silence and obscurity. In the working of these galleries, beds of a very fine grained calcareous clay have occasionally been crossed, and here the lines of the hieroglyphics have been cut with a firmness of touch, and a precision, of which marble offers but few examples; the figures have an elegance and correctness of contour, of which I never thought Egyptian sculpture susceptible. Here too I could judge of the style of this people in subjects which were neither hieroglyphic nor historical, nor scientific; for there were representations of small scenes taken from nature, in which the stiff profile outlines, so common with the Egyptian artists, were exchanged for supple and natural attitudes: groups of persons were given in perspective, and cut in deeper relief than I should have supposed any thing but metal could have been worked. One cannot help being struck with the little analogy which the greater number of these subjects have with the spot wherein they are immured; it requires the presence,

of mummies to persuade one's-self that these excavations are tombs. I have found here bas-reliefs representing games, such as rope dancing; and asses taught to play tricks and to rear on their hind legs, which are sculptured with all the nature and simplicity which Bassan has shewn in representing the same animals on the canvass.

The plan of these excavations is not less singular; there are some which are so vast and complicated, that one would take them for labyrinths or subterranean temples. After passing the apartments adorned in the elegant style that I have just described, we entered long and gloomy galleries, which wind backwards and forwards in numerous angles, and seem to occupy a great extent of ground; they are melancholy, repulsive, and without any decoration; but from time to time open into other chambers covered with hieroglyphics, and branch out into narrow paths that lead to deep perpendicular pits, which we descended by resting our arms against the sides and fixing our feet into steps that are cut in the rock. At the bottom of these pits we found other adorned chambers, and lower still a new series of perpendicular pits and horizontal chambers, and at last ascending a long flight of steps, we arrived at an open place which we found to be on a level with the chambers that we first entered."

M. Denon made many researches among these tombs, in hopes of finding one that had not been ransacked, that he might light upon an unrised mummy and find out the manner in which they were laid within the tombs, a secret which the inhabitants obstinately concealed, as the situation of their village had given them almost an exclusive trade in this singular article of commerce. During their search, M. Denon and his companions arrived at a narrow hole, before which were scattered numerous fragments of mummies. After some hesitation, they proceeded, and having crawled along near a hundred paces over a heap of dead and half decayed bodies, the vault became loftier, more spacious, and decorated with a considerable degree of care. They now found that this tomb had already been searched, that those who first entered it not having torches, had used bushes to give them light, and that these had set fire to the linen and resin of the mummies which had caused such a combustion as to split some of the stones, melt the gums and resins, and blacken all the sides of the cave. They could observe however, that this vault had been intended for the burial-place of two considerable persons, whose figures were sculptured in relief seven feet in height, holding each other by the hand. Above their heads was a bas-relief representing two dogs in a leash lying on the altar; and two figures kneeling, had the appearance of worshipping, which makes it probable that two friends were buried here who were unwilling to part even in death. Besides this, there were lateral chambers unornamented and filled with corpses that had been embalmed with more or less care, shewing that though the tombs had been constructed and decorated by persons of consequence, they received not only the corpses of the founders, but of their children, friends, relations, and perhaps all the servants of their house. M. Denon found several bodies lying on the ground swathed up but without any coffin, and others that were not swathed; and observed various particularities concerning these.

The sepulchres of the kings of Thebes are mentioned by Diodorus Siculus as wonderful works, and such as could never be exceeded by any thing afterwards executed in this kind. He says that 47 of them were mentioned in their history, that only 17 remained to the time of Ptolemy Lagus, and adds, that most of them were destroyed in his time. It seems probable that most of these sepulchres were built and not excavated in the rock, as it is not easy to de-

stroy such sort of monuments. Strabo, however, says, that above the Memnonium were the sepulchres of the kings of Thebes, in grottoes cut out of the rock, being about 40 in number, wonderfully executed and worthy to be seen. In these, he says, were obelisks with inscriptions on them setting forth the riches, power, and empire of these kings as far as Scythia, Bactria, India, and Ionia, their great revenues, and their armies consisting of a million of men.

The magnificent catacombs, called the tombs of the kings, lie to the north-west of Thebes, at some distance in the desert. Having passed the Necropolis, the traveller enters a narrow and rugged valley flanked with perpendicular rocks, and ascending a narrow steep passage about 10 feet high, which seems to have been broken down through the rock, the ancient passage being probably from the Memnonium under the hills, he comes to a kind of amphitheatre about 100 yards wide, which is called Bab-il-Meluke, that is, the gate or court of the kings, being the sepulchres of the kings of Thebes. In this court there are signs of about 18 excavations, but only nine can be entered; the hills on each side are high steep rocks, and the whole plain is covered with rough stones that seem to have rolled from them.

The grottoes present externally no other ornaments than a door in a simple square frame, with an oval in the centre of the upper part, on which are inscribed the hieroglyphic figures of a beetle, a man with a hawk's head, and beyond the circle two figures on their knees in the act of adoration. Having passed the first gate, long arched galleries are discovered of about 12 feet wide, and 20 in height, cased with stucco sculptured and painted; the vaults, of an elegant elliptical figure, are covered with innumerable hieroglyphics, disposed with so much taste, that notwithstanding the singular grotesqueness of the forms and the total absence of demi-tint or aerial perspective, the ceilings make an agreeable whole, a rich and harmonious association of colours. Four or five of these galleries, one within the other, generally lead to a spacious room containing the sarcophagus of the king, composed of a single block of granite about 12 feet long by 8 in breadth, ornamented with hieroglyphics both within and without; they are square at one end, and rounded at the other, like the splendid sarcophagus deposited in the British Museum, and supposed by Dr. Clarke, to have contained the body of Alexander. They are covered by a lid of the same material, and of enormous thickness, shutting with a groove; but neither this precaution, nor these vast blocks of stone, brought from such a distance with such immense labour, have been able to preserve the relics of the sovereigns from the attempts of avarice; all the tombs are violated. The figure of the king appears to have been sculptured and painted at full length on the lid of each sarcophagus.

The paintings found in these sepulchres are among the most curious and interesting remains of Egyptian art, and in wonderful preservation, the colours being as fresh as when first executed. Some of these figures were copied by Bruce; and Denon who in a short visit observed every thing with the eye of an artist, has published a most valuable collection which have all the appearance of spirited and characteristic resemblances. We shall extract part of his relation. "I discovered some little chambers, on the walls of which were represented all kinds of arms, such as panoplies, coats of mail, tigers' skins, bows, arrows, quivers, pikes, javelins, sabres, helmets, and whips: in another was a collection of household utensils, such as caskets, chests of drawers, chairs, sofas, and beds, all of exquisite forms, and such as might well grace the apartments of modern luxury. As these were probably accurate representations of the objects themselves,

selves, it is almost a proof that the ancient Egyptians employed for their furniture Indian woods carved and gilt, which they covered with embroidery. Besides these, were represented various smaller articles, as vases, coffee-pots, ewers with their basons, a tea-pot, and basket. Another chamber was consecrated to agriculture, in which were represented all its various instruments, a sledge similar to those in use at present, a man sowing grain by the side of a canal, from the borders of which the inundation is beginning to retire, a field of corn reaped with a sickle, fields of rice with men watching them. In a fourth chamber was a figure clothed in white playing on a richly ornamented harp with eleven strings." M. Denon also observed figures with the heads cut off, which represented black men while their executioners were coloured red. (Pococke and Denon).

Quitting Egypt, the European examples of catacombs come next to be described, and we shall begin with those of Rome, which though by no means the most considerable for size or beauty, are, however, the most generally known.

The catacombs of Rome are a vast collection of subterranean labyrinths, excavated sometimes in stone or tufa, but more commonly in beds of puzzolana, which run sometimes to 80 feet below the surface of the earth. Thus it seems probable, that these excavations were originally dug for the purpose of procuring this useful substance, and afterwards appropriated as a burial place. In many places the sinking of the earth has suddenly afforded an entrance to new caverns, but similar accidents have filled up others, so that the extent of this subterranean city is unknown. The principal entrances are those of San. Sebastiano, San. Lorenzo, and Porta Porrese. These galleries are in general three or four feet wide, and six or seven in height. Some, however, are so low that it is necessary to stoop greatly to pass along them. There is no masonry or vault, the earth supports itself. In the two sides of these alleys, the sarcophagi containing dead bodies were placed length-ways, in recesses three or four tiers over one another, and closed with very thick tiles, or sometimes slabs of marble, cemented in a manner which would be very difficult to imitate at present. Some tombs are placed on the floor. There are also found a large number of urns containing bones, which, upon access of air, are reduced to powder. Sometimes, though rarely, the name of the deceased is found on the tile or urn, and frequently a palm is seen painted or engraved, with the cypher X. P. These are supposed to be the graves of the early Christians, and their contents are regarded by the Romans as sacred relics. The sarcophagi are for the most part quite plain, and the little sculpture, painting, or ornament, that has been found in the catacombs, is of the lower ages of the empire, and very indifferent. Almost all the galleries and chambers which have been discovered resemble one another, differing only in size. It is said that one may travel 20 miles in them; but many parts are shut up to prevent people from losing themselves in these gloomy labyrinths.

The catacombs of Naples are much larger and finer than those last described. These caverns do not extend under the city like those of Rome; they are situated in a mountain to the north of Naples, and dug one over the other partly in a stone used for building, and partly in beds of compacted puzzolana. There are three tiers of galleries, but earthquakes have closed the greater part.

From the entrance of the catacombs a straight street, 18 feet wide, and about 14 in height to the top of the vault, continues to a considerable length. It then becomes irregular, and seems to have been pierced at random in the mountain, as well as several other streets of various dimensions, with which it communicates on all sides. These ca-

verns resemble, in their distribution, the excavations of a stone quarry with various large chambers, in which piers have been left to support the ceiling. Among these subterranean halls, there are some which may have served as chapels, with altars of rough stone, and some fresco paintings, representing the virgin and saints, which seem to be of the 10th century.

The walls on both sides, through their whole length, are pierced with an infinite number of recesses; there are in some places five, six, and even seven rows one above the other. These cavities are large enough to receive a human body horizontally, but not a sarcophagus: they are of various sizes, and seem to have been calculated for the individual tenant. When the body was deposited in these recesses, they were closed with a long, flat stone, or with brick-work well cemented. In some places there were niches in which the bodies were placed upright; these were perhaps the sepulchres of particular families. Some of the tombs are ornamented with Mosaic paintings of the lower ages; and there were found marble monuments with Greek and Latin inscriptions, but these have been sawed to form the pavement of the church della Sanita. All the niches have been opened and the remains removed.

There are also considerable catacombs at Civita Turchino, near Carneto.

Sicily possesses many monuments of this kind; so that the ancient greatness of Catania, Palermo, Agrigentum, and Syracuse, is attested by extraordinary excavations. The catacombs of Syracuse are the most ample and magnificent of any in Europe. These form a kind of subterranean town, with its greater and smaller streets, squares, and places, all cut in the rock on several levels, and evidently originally destined for a place of sepulture, differing in that respect from the other remarkable excavations of that town; the Latomiae and Dionysius's ear, which were at first stone quarries, while the catacombs are not at all adapted for that purpose, their entrances being neither spacious nor convenient.

The catacombs are entered from the church of St. John, one of the oldest Christian churches in Sicily. They consist of various streets crossing one another in many directions, and are hewn with great care and regularity. The principal street continues to a very great distance, but its whole length cannot be estimated, as the sinking of the ground has filled it up in one part. On each side the walls are occupied by large tombs incrusting in the rock. At stated distances large excavations branch off, which sometimes contain near 60 coffins hollowed out of the rock. In other places there are private sepulchral chambers with doors which appear formerly to have been fastened with locks; in the middle of these chambers there are large insulated tombs, doubtless intended for the heads of families. The interfections of the streets form large openings, and there are various considerable circular halls with domes, and pierced at top with an opening to the outer air; these halls are stuccoed, and there are tombs placed symmetrically in them of the same kind as those in the streets.

In exploring these caverns, the traveller is surprised to find himself returned to the same spot whence he set out, but upon a lower story. Though it is only possible to visit a part of these vast excavations, the extent of what is seen excites the utmost admiration of the energetic industry of the nation that could construct such noble sepulchres. They are undoubtedly the greatest monument of the ancient Syracusans. The only ornaments found in these catacombs, have been added at a later period, and consist of some indifferent Greek paintings of the last age of the empire, executed upon a stucco applied to the rock. Among the coffins of all sizes which are excavated in the floors of the sepulchral

pulchral chambers, there are some so small as to be fit for nothing but the reception of a cat or lap-dog.

The catacombs of Syracuse have not the dismal appearance of those of Naples and Rome, but a mysterious tranquillity prevails in them perfectly adapted to this sanctuary of repose. Voyage Pittoresque de Naples & Sicilie. Swinburne's Travels.

The catacombs of Malta are remarkable for the smallness of their dimensions, and their perfect preservation. Hewn in a white stone and perfectly dry, they appear like works of yesterday. The galleries are so narrow that only one person can pass at a time, regularly distributed and vaulted. At certain distances sepulchral chambers occur; the principal of these is decorated with two fluted columns. The tombs are regularly placed in square recesses, and ornamented with pediments. Small niches, apparently to receive lamps, are distributed in various places. No vestiges remain of inscriptions, sculpture, or painting. Voyage Pittoresque de Naples & Sicilie.

CATACoustics, from *κατα* and *ακουω*, *I hear*, called also CATAPHONICS, the science of reflected sounds or echoes. See ACOUSTICS. Catacoustics is to acoustics what catoptrics is to optics.

CATACoustics, in *Military Language*, are *écoutes*, or small galleries from distance to distance in front of the glacis of a fortified place, all of which communicate with a gallery, that is carried parallel to the covert-way. The besieged make use of them in going to meet the enemy's miners and interrupt their progress.

CATADA, in *Ancient Geography*, now the *Miliana*, a river of Africa, which discharges itself into the Mediterranean, nearly S. of Carthage, and at a small distance from Rhades or Ades, forming the bay of Tunis. About a mile from it is the noted hot-bath called Hammam Leef, much resorted to by the inhabitants of Tunis.

CATADERBIS, a lake of Asia, in Susiana, abounding with fish, the mouth of which at the sea was nearly closed by the small isle Margastana, 500 stadia from the mouth of the river Arosis, according to the journal of the navigation of Nearchus. It is mentioned by Arrian.

CATADIOPTICAL *telescope*, the same with *reflecting telescope*, which see.

CATADRÆ, in *Ancient Geography*, a people of Ethiopia, near Egypt. Ptolemy says that they occupied the parts that lie S. of mount Garbate.

CATADROMUS, from *κατα* and *δρεμω*, *I run*, in *Antiquity*, a stretched sloping rope in the theatres, down which the funambuli walked to shew their skill.

Some have taken the word to signify the hippodrome, or decurorium, wherein the Roman knights used to exercise themselves in running and fighting on horse-back.

But the most natural meaning is that of a rope, fastened at one end to the top of the theatre, and at the other to the bottom, to walk or run down, which was the highest glory of the ancient *sebanobates*, or *funambuli*. Elephants were also taught to run down the catadromus. Suetonius speaks of the exploit of a Roman knight, who passed down the catadromus mounted on an elephant's back, in Ner. cap. xi. p. 5.

CATADUPA, in *Hydrography*, a cataract, or water-fall. See CATARACT.

The word comes from *κατω*, *downwards*, and *δωπεω*, *to make a noise by falling*.

The appellation catadupa seems to have been peculiarly given to a place in Ethiopia joining on Egypt, where the Nile, which here first assumes that name, rushed down a steep rock into the subjacent plain, with a noise so impetuous, that the inhabitants are said to have lost all sense of

hearing. Plin. Hist. Nat. lib. v. cap. 9. Ammian. Marc. lib. xxii. cap. 34, &c. Senec. Nat. Quæst. lib. iv. cap. 2.

CATADUPI, *Καταδυπι*, in *Ancient Geography*, an appellation given by the ancients to the inhabitants about the cataracts of the Nile. The catadupi are represented as all deaf; being made so by the continual din of the falling waters.

CATÆA, or CATTEA, an island of the Persian gulf, on the coast of Carmania, according to the journal of the navigation of Nearchus; in whose time it was inhabited, and consecrated to divinities, whom he describes under the names of Mercury and Venus. It extended from the west-south-west to the east-north-east, and was distant about two or three leagues from the continent. Pliny calls it *Aphrodisias*, which see.

CATÆONIUM *Promontorium*, a promontory of Africa, placed by Ptolemy in Marmarica.

CATAFALCO, an Italian term literally signifying *scaffold*. It is chiefly used for a decoration of architecture, sculpture, and painting; raised on a timber scaffold, to shew a coffin, or tomb, in a funeral solemnity.

CATAGELA, in *Ancient Geography*, a town of Sicily, according to the scholiast of Aristophanes.

CATAGMATICS, in the *Materia Medica*, medicines proper to unite broken bones; by promoting the formation of a callus. The word comes from *κατα*, *against*, and *αγωνιμι*, *I break*. But as this is a power which is not certainly known to exist in any medicine whatever, the term, says Dr. Cullen, is falsely employed. See CONSOLIDATION.

CATAGOÏON, *Καταγοιον*, a heathen festival at Ephesus, celebrated on the twenty-second of January, in which the devotees ran about the streets dressed in divers antic and unseemly manners, with huge cudgels in their hands, and carrying with them the images of their gods; in which guise they ravished the women they met with, abused, and often killed the men, and committed many other disorders, to which the religion of the day gave a sanction. Du-Cange.

CATAGRAPHIA, *Καταγραφα*, in *Antiquity*, denote oblique figures, or views of men's faces; answering to what the moderns call *PROFILES*. Catagrapha are said to be the invention of Simon Cleonæus, who first taught painters to vary the looks of their figures, and sometimes direct them upwards, sometimes downwards, and sometimes sideways, or backwards. Plin. Hist. Nat. lib. xxxv. cap. 8. cum Not. Hardouin.

CATALAUNI, or CATALAUNUM, in *Ancient Geography*, now *Chalons sur Marne*, a town of Gaul, in Belgica Secunda; called also "Duro-Catalauni," in the Itinerary of Antonine. It was before this place that the emperor Aurelian vanquished Tetricus, the president of Aquitania, who had been proclaimed emperor by the troops, according to Vopiscus and Eutropius.

CATALECTIC, a term in poetry, derived from *κατα* and *ληγω*, *I end*. The ancients called *catalectic verses* those which wanted either feet or syllables, in opposition to *acatalectics*, which are complete verses, wanting nothing.

CATALEPSY, in *Medicine*, *καταληψις*, *apprehensio, occupatio*, from *καταλαμβάνειν*, *to be seized or possessed*, a disease in which the senses and the power of voluntary motion are suddenly suspended, the body and limbs of the patient remaining unmoved in the situation in which they happen to be at the moment of the attack, and readily receiving and retaining any other position, which is communicated to them by external force.

With respect to the nature of this singular disease, which is aptly enough compared by Van Swieten to that condition of the body, which was produced, according to the fictions

actions of the poets, by the sight of Medusa's head, much difference of opinion has existed among physicians, and various denominations have been given to it. By the ancient writers it does not appear to have been accurately distinguished from other soporose diseases. According to Galen, those affected with it were originally called *καταχών*; and the disease itself *catoche* or *catochus*: but the *catochus* of Galen bears a greater resemblance to apoplexy or tetanus, and the term, perhaps, included the catalepsy, together with these diseases. Cælius Aurélianus, who considers the catalepsy as bearing an affinity chiefly to lethargy and apoplexy, has enumerated the synonyms, which his predecessors had employed to designate it. By Praxagoras and others it was included, he says, with the comatose affections, under the general terms, coma, lethargy, &c. By others some prominent symptom was assumed as a name for the disease, implying that its nature or affinity with other diseases was not understood; thus it was called *anaudia* by Antigones, from the loss of hearing which accompanied it, and *aphonia* by Diodes, from the loss of voice;—circumstances by which, however, it is obvious, it could not be distinguished from *syncope*, epilepsy, and many dissimilar disorders. Aesclepiades first denominated it catalepsy; but he has not left any distinct description of the disease, such as it is now considered. (See Cæl. Aurélian. de Tard. Passio. lib. ii. cap. 5.) It is not quite clear whether Celsus was acquainted with the catalepsy, or not. The learned Van Swieten is of opinion, and in this he is followed by Morgagni, that this disease is meant by Celsus, when he speaks of persons, as it were, thunderstruck, *attoniti*: (De Medicin. lib. iii. cap. 26.) for although he confounds the disorder of the *attoniti* with the apoplexy of the Greeks, yet he describes it as a rare disease; while in the subsequent chapter he speaks of apoplexy again, as a palsy of the whole body, and a common disease; meaning the complaint commonly understood by that term. (See Van Swieten. Com. § 1007.) In short, the accounts to be collected from the ancient writers respecting the catalepsy are confused and imperfect, and appear to refer to various lethargic or comatose affections; and even to some spasmodic diseases, such as tetanus. Nor do we find all difference of opinion done away, if we descend to the more modern records of medicine; in which several histories are related under the title of cataleptic affections, which obviously belong to other genera of disease. This confusion, together with the extreme rarity of the true disease, and the wonderful histories of cataleptics, which have been detailed by authors, have induced some physicians of eminence, (and among these Dr. Cullen must be particularly mentioned,) to doubt of the existence of such a disease. In his Synopsis of Nosology, Dr. Cullen has mentioned this complaint as a species of apoplexy, under the title of *Apoplexia Cataleptica*; having believed that the cases of catalepsy described by authors were either varieties of apoplexy, or altogether feigned. He had seen no instance of cataleptic symptoms, but what was obviously a deception. The number of well authenticated examples on record, however, in which no cause of an attempt to deceive apparently existed, and which are related by physicians of character and sagacity, render the existence of catalepsy indubitable. Its symptoms are the following:

The patient is suddenly seized, sometimes after feeling a head-ach, or stiffness of the neck, or exhibiting obvious signs of torpor of the mind or body, but generally without any previous symptom, with a rigidity of all the limbs; or, in other words, the senses and the power of voluntary motion are suddenly suspended, so that the patient remains fixed in the

posture in which he happens to be at the moment of seizure; if he is sitting, he continues to sit; if standing, he remains upright; and if occupied in any mechanical employment, or under the influence of any passion of the mind, he continues in the attitude peculiar to his work, and the countenance retains the expression characteristic of the mental condition. “Sic manus erecta non delabitur; faciei musculi ad risum, ad sletum compositi, risum vel sletum constanter expriment.” Yet such is the state of equal, though involuntary action in the antagonist muscles, that the limbs are said commonly to retain any position into which they are put by external force. During the paroxysm the sensations are in general suspended; the patient neither receives any impression from external objects, nor retains any recollection of what happened during the fit. The vital functions continue to be performed, but more feebly; the pulse and respiration are regular, but the former is smaller than in health: the colour of the countenance usually undergoes little or no change. After a duration, which is various in different instances, commonly after a few minutes, sometimes after the lapse of a few hours, and occasionally, though rarely, after a continuance of three or four days, the paroxysm suddenly declines. The patient awakes as it were from sleep, generally with deep sighing, and all the functions of the body are restored.

The congeries of symptoms just enumerated constitutes what has been called by systematic writers, the perfect paroxysm, *catalepsis vera*, in which the abolition of the senses, both internal and external, is complete. But more frequently the loss of sense is only partial; and in some instances the senses all remain undiminished, while the voluntary motions are altogether suspended; so that, although the patient is conscious of every thing that is passing around him, he is unable to speak or move, or in any way to make known his feelings or wishes. An interesting example of this kind is on record, (see Duncan's Med. Comment. vol. x. p. 242.) in which a female lay in complete possession of her mental faculties, but deprived of the power of moving a muscle of the body. She was in the distressing condition of finding herself given up by the attendants as dead, of being *laid out*, with her toes tied together, and her chin tied up, and of hearing certain arrangements for her funeral talked of, yet she was unable to make the slightest sign of her possession of sense, feeling, and life. In other cases there is a certain degree of sense and consciousness during the fit, and of recollection of the circumstances of it afterwards; and the limbs, if bent, do not retain firmly the position into which they are moved, but return gradually to their original position. Some patients are able to move one hand or limb, while the others remain rigid: and some, though apparently lifeless in all other respects, yet retain the power of swallowing whatever is put into their mouths. These are said to be examples of *imperfect* or *spurious* catalepsy. See Sauvages's Nosol. Method. cl. vi. ord. 5. Vogel. de Morb. Cognosc. et Curand. § 572. Bursar. Instit. Med. Pract. tom. iii. cap. 5.

There is also another variety of the spurious catalepsy, which is described by the title of *Eclasis*, by some writers, in the paroxysm of which the imagination of the patient has pictured dreams of an extraordinary nature, which left a vivid impression upon the memory; and after the termination of the fit, she (for it appears to have happened generally with females,) has related accounts of surprising celestial visions, with which she had been favoured during the trance. Many of the histories of trances which are on record, are, however, beyond a doubt, altogether fabulous; and in many instances they have been pure deceptions, feigned with a

view of furthering some political or religious design, or of serving some private purpose;—deceptions such as were practised by diviners of old, and as have been resorted to by fanatics in all ages. Sometimes these *ecstasies* have been among the extravagancies of maniacs.

The particular condition of the body, or of the nervous system, which constitutes the cataleptic state, has been attempted to be explained in various ways. Dr. Cullen considered it as depending upon the same condition of the brain, by which the modification of palsy and apoplexy are produced, and there are some cases on record, which accord with this opinion. Such are two cases related by Henry ab Heers, (*Observat. Med. Obs.* 3.) which are obviously of an apoplectic nature. One of the patients was a Capuchin friar, who was attacked with the fit, when standing, and remained in an upright posture. The fit went slowly off, but he was seized a second time, and died. Vogel believes that the source of the cataleptic symptoms is rather to be traced to the stomach or abdomen than to the head, which seems to imply a notion that they were of an hysterical nature. The speculations of Boerhaave, Home, and others, respecting the interruption, superabundance, or quiescence of the *nervous fluid* in the voluntary muscles of the patient, merit little attention: they are either altogether gratuitous, or consist of a mere statement of the facts in other and more ambiguous terms. We know very little in regard to the connection of many of the irregular actions of the nervous system, with the physical condition of the nerves, or of their common source, the brain: and we must content ourselves, for practical purposes, with endeavouring to trace, in the case of uncommon diseases, some analogy with those more common affections, with the treatment of which we are already acquainted.

Epilepsy appears to assume occasionally a cataleptic form; i. e. the paroxysms, which were in the beginning epileptic, become ultimately cataleptic; or vice versa; or the two forms alternate with each other. In those cases in which the patients have died *apoplectic*, the apoplexy must be considered as partaking of the nature of epilepsy, or, perhaps, ensuing to the epileptic state; for the symptoms of catalepsy, as they generally appear, are incompatible with the condition of pure apoplexy. In the latter, the nervous communication from the brain to the muscles is lost, and the limbs are consequently deprived of all power of action; in the catalepsy, on the contrary, a considerable degree of action exists in all the antagonist muscles, at the same time, and in an equal degree, so as to retain the limbs in any position in which they may be placed. The pulse, it may be also added, continues its usual beats, and is smaller than in health; and the complexion of the countenance is unaltered: nor do any of the ill effects of apoplexy remain after the termination of the paroxysm. In by far the most numerous well-authenticated instances on record, catalepsy obviously bears the closest analogy to, or rather appears to be a modification of, hysteria. This conclusion will be drawn, whether we consider the nature of the symptoms, the sex and constitution of the patients, the occasional complication and conversion of the disease, or the remedies which have been successfully employed in its cure.

As a proof of the intimate connection of the cataleptic with the hysterical paroxysm, we shall relate an account of one described by Dr. Jebb, which is similar to several others that have been recorded. The young lady, who was the subject of the disorder, was seized with the fit, when Dr. Jebb was announced on his first visit. "She was employed," he says, "in netting, and was passing the needle through the mesh; in which position she immediately became rigid, exhibiting, in a very pleasing form, a figure of death-like sleep,

beyond the power of art to imitate, or the imagination to conceive. Her forehead was serene, her features perfectly composed. The paleness of her colour, her breathing at a distance being also scarcely perceptible, operated in rendering the similitude to marble more exact and striking. The position of her fingers, hands, and arms, was altered with difficulty; but preserved every form of flexure they acquired: nor were the muscles of the neck exempted from this law; her head maintaining every situation in which the hand could place it, as firmly as her limbs.

"Upon gently raising the eye-lids, they immediately closed with a degree of spasm. The iris contracted upon the approach of a candle, as in a state of vigilance; the eye-ball itself was slightly agitated with a tremulous motion, not discernible when the eye-lid had descended.

"About half an hour after my arrival, the rigidity of her limbs and statue-like appearance being yet unaltered, she sung three plaintive songs, in a tone of voice so elegantly expressive, and with such affecting modulation, as evidently pointed out how much the most powerful passion of the mind was concerned in the production of her disorder, as indeed her history confirmed. In a few minutes afterwards she sighed deeply, and the spasm in her limbs was immediately relaxed. She complained that she could not open her eyes, her hands grew cold, a general tremor followed; but in a few seconds, recovering entirely her recollection and powers of motion, she entered into a detail of her symptoms, and the history of her complaints. After she had discoursed for some time with apparent calmness, the universal spasm suddenly returned. Her features now assumed a different form, denoting a mind strongly impressed with anxiety and apprehension. At times she uttered short and vehement exclamations, in a piercing tone of voice, expressive of the passions that agitated her mind; her hands being strongly locked in each other, and all her muscles, those subservient to speech excepted, being affected with the same rigidity as before." (See Select Cases of Paralysis of the Lower Extrem. by Dr. Jebb, Appendix.) These paroxysms obviously participate of the character of hysteria. The appearances, indeed, are not common; but the varying forms of hysterical diseases are a subject of general observation. Sydenham long ago remarked, that "a day would scarce suffice to enumerate all the symptoms of hysterical complaints, so various they are, and so contrary to one another, that Proteus did not assume more shapes, nor the chameleon a greater variety of colours."

A very large proportion of the decided cases of catalepsy, which have been distinctly recorded, occurred in the female sex, or in hypochondriacal constitutions. Sauvages has related the histories of several cataleptic patients, all of whom were females, and of hysterical habits; and several modern and well authenticated examples are of the same nature. (Sauv. loc. cit. Jebb, loc. cit. Hist. Acad. Roy. de Sciences, Paris, 1738, &c. British Magazine, 1800. Edin. Med. & Surg. Journ. vol. i. p. 61, 1805. Mem. Roy. Acad. Scien. of Sweden, 1778.) The last reference is to the case of a melancholic or hypochondriacal man, in whom the catalepsy was accompanied with *trismus*, or locked jaw. Instances are related by other authors in which the catalepsy was joined, or alternated, as well with melancholy, somnambulism, convulsions, &c. as with proper hysterical symptoms; or readily passed into these maladies.

The remote or occasional causes of catalepsy are various. In the majority of instances they appear to have been the same, which, in constitutions naturally pre-disposed to diseases of mobility, excite all the varieties of hysterical and other nervous symptoms; such are all circumstances which powerfully

powerfully influence the mind, or debilitate the body, and thus induce a degree of morbid sensibility and irritability throughout the system. Hence, among the more frequent causes of catalepsy enumerated by authors, are grief, terror, anxiety, love, intense studies, indigestion, cold, strong liquors, acute fevers, &c. Where the disease has been a modification of epilepsy or of apoplexy, if this ever happen, the causes were such as produce other forms of those complaints. See EPILEPSY, &c.

If we consider the nature of the cataleptic disease, in its more common form of *catalepsis hysterica*, it will be obvious by what means the cure is to be attempted. In the various cases which are recorded, it has been often successfully treated by the same remedies to which other nervous and spasmodic diseases commonly yield. Where it occurs in florid and plethoric habits, as hysteria occasionally does, bleeding from the arm or the jugular vein has been practised with advantage, especially during the paroxysm; this, however, is very rarely requisite. Gentle laxatives have been found useful; and in this, probably, as in other nervous complaints, the regular evacuation of the bowels is of the utmost importance. The whole tribe of stimulants and tonics have been resorted to, especially in the modern instances, the former with a view of counteracting the inordinate actions of the nervous system, and the latter in order to restore the strength, and obviate the morbid irritability of the patient. In the fit, opium, ether, volatile alkali, and various foetid antispasmodics, have been administered; errhines have been applied to the nostrils; narcotic or acrid and stimulating glysters injected into the bowels; and friction with mustard, or strong spirits, also employed on the limbs, and surface of the body. In the intervals between the paroxysms, bitter medicines have been given, the cold bath has been prescribed, and exercise in various ways resorted to successfully in different instances. The principle, in short, upon which the disease has been treated, appears to be the same with that upon which all other diseases of nervous mobility have been successfully combated. If the lethargic, apoplectic, or epileptic disorders assume the cataleptic form, which must be determined by the concomitant circumstances, the remedies adapted to the cure of these disorders respectively will of course be indicated.

Before we conclude this article, we cannot forbear to mention an extraordinary account of a woman, labouring under *catalepsis hysterica*, which has been lately published by an old and most respectable physician, Dr. Petetin, of Lyons, president of the Medical Society of that place. The title of his work is "Électricité Animale, prouvée par la découverte des phénomènes physiques et moraux de la catalepsie hystérique, &c." The case which is here related occurred some years ago, and another similar one now exists at Lyons. The history, we must acknowledge, excites our scepticism, but, on the other hand, the respectability of Dr. Petetin, supported by a letter, which we have perused, from a young physician of character at Lyons, who went to see the patient, doubting of all he had heard, but returned fully convinced of its truth, is entitled to attention. In these cases, it is affirmed, that *the senses were transferred to the pit of the stomach, and to the ends of the fingers and toes*; i. e., that the patients, in a state of insensibility to all external impressions upon the proper organs of sense, were, nevertheless, capable of hearing, seeing, smelling, and tasting whatever was approached to the pit of the stomach, or to the ends of the fingers and toes. Dr. Petetin attributes these extraordinary phenomena to the influence of animal electricity or galvanism; and affirms, that if the objects were not applied to the pit of the stomach, but made to communicate with it

by an electric conductor, the sensations were still excited; but that if the communication were interrupted, as by a piece of silk, or other non-conductor, the effect was altogether prevented. The patients are said to have answered questions proposed to the pit of the stomach, to have told the hour by a watch placed there, to have tasted food, and smelt the fragrance of apricots touching the part, &c. &c. Dr. Petetin concludes that hysterical catalepsy should be thus defined: "Abolition réelle des sens, et apparente de la connoissance et du mouvement, avec transport, des premiers ou de quelques-uns d'entre eux dans l'épigastre, à l'extrémité des doigts et des orteils; et pour l'ordinaire disposition de la part des membres à recevoir et à conserver les attitudes qu'on leur donne," p. 140.

The physician whose letter on the subject we have perused, observes, that Dr. Petetin's pamphlet has been and is still considered by many "comme une folie, comme le rêve d'une imagination exaltée;" but he avers, that it is nevertheless true. "I can assure you," he concludes, "that I have observed this cataleptic patient with the most scrupulous attention; that my experiments have been made with every caution, not for the purpose of publication, but solely with a view of satisfying myself as to the reality of a disease of which I had long doubted; and that the result has been a perfect conviction that all I have seen is true. If it be not, my senses have strangely deceived me." Until we obtain farther evidence upon the subject, we leave our readers to balance these authorities against the extraordinary nature of the facts which they promulgate.

CATALINA HARBOUR, in *Geography*, a bay on the east coast of Newfoundland. N. lat. 48° 38'. W. long. 53° 45'.

CATALLIS *capitis nomine districtionis*, in *Law*, an ancient writ that lay where a house was within a borough, for rent issuing out of the same; and which warranted the taking of doors, windows, &c. by way of distress for rent. Old Nat. Brev. 66. This writ is now obsolete.

CATALLIS *reddendis*, an ancient writ which lay, where goods, being delivered to persons to keep till a certain day, are not, upon demand, delivered on that day. It may be otherwise called a "writ of detinue," and corresponds to "actio depositi" in the civil law. Reg. Orig. 139. Old Nat. Brev. 63.

CATALOGUE, a list or enumeration of the names of several books, men, or other things; disposed according to a certain order.

George Willer, sometimes improperly called Viller, and Walter, a bookseller at Augsberg, who frequented the Franckfort fairs, first adopted the plan of causing to be printed for every fair a catalogue of all the new books, in which the size and the names of the printers were marked. Le Mire, better known under the name of Miræus, a catholic clergyman, who was born in 1598, and died in 1640, in his work "De Scriptoribus ecclesiasticis seculi xvi." printed in the "Bibliotheca Ecclesiastica" of Fabricius, Hamb. 1718, fol. informs us, that catalogues were first printed in the year 1554; but Labbe (*Bibliotheca Bibliothecarum*, Lipf. 1682, 12mo. p. 112.), Reimann (*Einleitung in die Historiam Literariam*, i. p. 203.), and Heumann (*Conspectus Reip. Liter. c. vi. § 2. p. 316.*), who took their information from Le Mire, erroneously make the year to be 1564, which error is copied by Fabricius. Willer's catalogues were printed till the year 1592 by Nicol. Bassæus, printer at Franckfort. Other booksellers, however, must soon have published catalogues of the like kind, though that of Willer continued a long time to be the principal. Among the many curious and rare articles in the library of professor Baldinger, there

is a collection of old catalogues, the earliest of which are the following: *Catalogus novus nundinarum autumnalium*, Francof. ad Mœn. anno 1586, celebratarum. Plerique apud Jean. Georg. Portenbachium et Th. Lutz. bibliopolam Augustanam venales habentur; *A catalogue of all the new books*—printed at Franckfort, by Peter Schmid. This catalogue was published by bookfellers of Augsbürg; but not by Willer, of whom we have, *Catalogus novus nundinarum autumnalium*, Francof. ad Mœn. anno 1587.—Plerique in ædibus Georgii Willeri, bibliopolæ Augustani, venales habentur. *A catalogue of almost all the books which have been published between last Easter and the present September fair.* Franckfort on the Mayn, printed by Nicolas Bassæus. In all these catalogues, printed in 4to. and not paged, the following order is observed. The Latin books occupy the first place, beginning with the Protestant theological works, probably because Willer was a Lutheran; then the Catholic; and after these the books of jurisprudence, medicine, philosophy, poetry, and music. The second place is assigned to German books, which are arranged in the same manner. The last Easter catalogue of Willer, that is found in Baldinger's library, is dated 1597, with the following title: "Plerique libri in ædibus Eliæ et Georgii Willeri, fratrum bibliopolarum Augustanorum, habentur;" printed by Bassæus at Franckfort. In 1604, the general Easter catalogue was printed with a permission from government, as appears by the following title: "Catalogus universalis pro nundinis Francof. de anno 1604;" Francof. permisso superiorum excudebat Joh. Saur. After this the Leipzig bookfellers began not only to reprint the Franckfort catalogues, but to enlarge them with many books which had not been brought to the fairs in that city. Accordingly Baldinger's library has "Catalogus universalis pro nundinis Francofurtensibus vernalibus de anno 1600;" printed at Leipzig by Abraham Lamberg. An imperial privilege appears, for the first time, in the Franckfort September catalogue of 1616; "cum gratia et privilegio speciali S. Cæs. Maj. Prostat apud J. Krugerum Augustanum." Some imperial permissions, however, may be of an earlier date. Reimann (ubi supra) says, that, after Willer's death, the catalogue was published by the Leipzig bookfeller, Henning Grosse, and by his son and grandson. The council of Franckfort caused several regulations to be issued respecting catalogues; of which an account may be seen in "D'Orth's Treatise on the Imperial Fairs at Franckfort." After the business of bookselling was drawn from Franckfort to Leipzig, occasioned principally by the restrictions to which it was subjected at the former place by the censors, no more catalogues were printed there; and the shops in Book-street were gradually converted into taverns. See BOOKSELLER.

In perusing these old catalogues, the sudden and great increase of books may well excite astonishment; and when we reflect that a great, perhaps the greater, part of them no longer exist, this perishableness of human labours will produce the same sensations with those which arise in the mind, when we read in a church-yard the names and titles of persons long since mouldered into dust. In the 16th century there were few libraries; and these, which did not contain many books, were in monasteries, and consisted principally of theological, philosophical, and historical works, with a few, however, on jurisprudence and medicine; while those which treated of agriculture, manufactures, and trade, were thought unworthy of the notice of the learned, and of being preserved in large collections. The number of these works was, nevertheless, far from being inconsiderable; and, at any rate, many of them would have been of great use, as they would have served to illustrate the instructive history of the arts. Catalogues which might have occasioned inquiries

after books that may be still somewhere preserved, have suffered the fate of tombstones, which, being wasted and crumbled to pieces by the destroying hand of time, become no longer legible. A complete series of them is no where to be found. The loss, however, might in some measure be supplied by two works, that are now exceedingly scarce; viz. those of Cleys and Draudius; who, by the desire of some bookfellers, collected together, as Georg did at a later period, all the catalogues published at the different fairs, in different years. The work of Cleys has the following title: "Unius sæculi ejusque virorum litteratorum monumentis tum florentissimi, tum fertilissimi, ab anno 1500 ad 1602 nundinarum autumnalium inclusive, elenchus consummatissimus—desumptus partim ex singularum nundinarum catalogis, partim ex bibliothecis;" first published in 1592. The work of Draudius, printed in several 4to. volumes, for the first time in 1611, and afterwards in 1625, is much larger, more complete, and more methodical. The first part is entitled "Bibliotheca classica, five catalogus officialis, in quo singuli singularum facultatum ac professionum libri, qui in quavis fere lingua extant—recensentur; usque ad annum 1624 inclusive;" auctore G. Draudio, Francof. 1625. This contains Latin works on theology, jurisprudence, medicine, history, geography, and politics. The second part is entitled, "Bibliotheca classica, five catalogus officialis, in quo philosophici artiumque adeo humaniorum, poetici etiam et musici libri, usque ad annum 1624 continentur." This part contains Latin books, with an index of all the authors that are mentioned. A small volume, without an index, is entitled, "Bibliotheca exotica, five catalogus officialis librorum peregrinis linguis usualibus scriptorum;" and a third part, containing an index of the authors, is called "Bibliotheca librorum Germanicorum classica," 1625. This work of Draudius, though it mentions many books which were never printed, and though many titles, names, and dates are given incorrectly, well deserves the attention of those who wish to acquaint themselves with the history of literature; and it was undoubtedly of use to Haller, when he composed his *Bibliotheca*. See on this subject Beckmann's *Hist. of Inventions*, vol. iii.

Catalogues of books are digested in different manners; some according to the order of the times when the books were printed, as that of Maittaire; others according to their form and size, as the common bookfellers' catalogues; others according to the alphabetical order of the authors' names, as Hyde's catalogue of the Bodleian library; others according to the alphabetical order of matters or subjects which are called real or classical catalogues, as those of Lipenius and Draudius; lastly, others are digested in a mixed method, partaking of several of the former, as de Seine's catalogue of cardinal Slusius's library, which is first divided according to the subjects or sciences, and afterwards the books in each are recited alphabetically.

The most applauded of all catalogues is that of Thuanus's library, in which are united the advantages of all the rest. It was first drawn up by the two Puteani in the alphabetical order, then digested according to the sciences and subjects, by Ishm. Bullialdus, and published by F. Quefnel at Paris in 1679, and reprinted, though incorrectly, at Hamburgh in 1704. The books are here ranged with justness under their several sciences and subjects, regard being still had to the nation, sect, age, &c. of every writer. Add, that only the best and choicest books in every subject are found here, and the most valuable editions. Yet the catalogue of M. le Telliers, archbishop of Rheims' library, made by M. Clement, is not inferior to any published in our age, either on account of the number and choice of the books or the method of its disposition.

One advantage, peculiar to this catalogue, is the multitude of anonymous or pseudonymous authors detected in it, scarcely to be met with elsewhere. Some even prefer it to Thuanus's catalogue, as containing a greater variety of classes and books on particular subjects. Bibliotheca Thuanæa, Par. 1679, 8vo. 2 vols. and Hamb. 1704, fol. and 8vo.

The conditions required in a catalogue are, that it indicate at the same time the order of the authors and of the matters, the form of the book, the number of volumes, the chronological order of the editions, the language in which it is written, and its place in the library; so as that all these circumstances may appear at once, in the shortest, clearest, and exactest manner possible. In this view, all the catalogues yet made will be found to be defective.

An anonymous French writer has laid down a new plan of a catalogue, which shall unite all the advantages, and avoid all the inconveniences of the rest. Lett. à l'Abbé *** , sur un Nouveau Projet de Catalogue de Bibliothèque. Par 1712.

The Jesuits of Antwerp have given us a catalogue of the popes; which makes what they call their *Propyleum*.

CATALOGUE of the stars, is a list of the fixed stars, disposed according to some order in their several constellations; with the longitudes, latitudes, right ascensions, &c. of each.

Catalogues of the stars have been usually restricted to two forms; in the first and most ancient, the stars were classed in their respective constellations; in the latter, they followed one another, in a continued series, according to their right ascensions, or the order in which they transit the meridian. All the catalogues, from the most ancient to that of Flamsteed inclusively, were of the first of these forms; but most of those which have been since constructed are of the latter form, as being much more convenient for the greatest variety of useful purposes. Another catalogue of a third kind has been lately formed, in which the stars are disposed in classes according to zones, or their degrees of polar distance.

The first who undertook to reduce the fixed stars into a catalogue, was Hipparchus Rhodius, about one hundred and twenty-eight years before Christ; in which he made use of the observations of Timocharis and Aristyllus, for about 180 years before him. Pliny informs us (N. H. lib. ii. c. 26) that he, upon the appearance of a new star, began to doubt whether there might not be changes among the fixed stars, and therefore made a catalogue of them, setting down the place and magnitude of each star, so that if, in future time, any new stars should appear, or any of those already observed by him should increase or be diminished in magnitude, or should totally disappear, such changes might be known to succeeding ages. Ptolemy retained Hipparchus's catalogue, containing 1022 stars, with some few alterations; though he himself made many observations, with a view to a new catalogue, A. D. 140. Ptolemy tells us, that he added $2^{\circ} 40'$ to the longitudes of Hipparchus, in order to reduce them, from the beginning of the 128th year B.C. (the epoch for which Hipparchus had given them), to the beginning of the year 137 after Christ, or the first of Antoninus Pius. This allowance is after the rate of one degree in 100 years, the quantity of the precession which was found by Hipparchus, from comparing his own observations of Spica Virginis with those which had been made of the same star by Timocharis, about 140 years before; and hence it is manifest that Ptolemy depended on no observations made by himself in this business, but rested wholly on such as had been made

by those two excellent astronomers, three centuries before his time. If he had made any observations himself, he must have found that the quantity which he allowed was too small, by a whole degree at the least; the true quantity of the precession for 265 years (the difference of the epochs) being $3^{\circ} 42' 22.6''$. To compare his tables, therefore, with the present, we must first increase his numbers by $1^{\circ} 2' 22''$, and then allow for the precession from that time to this. This catalogue, as we have it in Ptolemy, contains 1026 stars, in 48 constellations; but, according to Pliny (N. H. c. 41) it contained 1600 stars, in 72 constellations. This author, however, is so subject to error, that little attention has been paid to what he says on the subject; and it has generally been concluded that the catalogue never contained more stars than are to be found in Ptolemy; especially as none of the copies, which the Arabs have left us, contain more. About the year of Christ 880, Albategni, a Syrian, brought down this catalogue to his time. The most ancient catalogue which the Chinese now have was made in the year of Christ 1050. The Arabians are the first who, after Ptolemy, observed the stars, and noted down their places. The learned Dr. Hyde mentions several of their catalogues; and he published the most considerable of them, with a Latin translation and notes, at Oxford in 1665. This catalogue was made by Ulugh Beigh, a prince of Tartary, and grandson of the famous Tamerlane, from his own observations at Samarcand; it contains the places of 1022, or according to some, 1016 stars, adapted to the beginning of the 841st year of the Hegira, or the year 1437 after Christ. The third person who made a catalogue of the stars from his own observations was Tycho Brahe; who determined the places of 777 stars, for the year 1600. His "Progymnasmata," published in 1610, contained only this number, and his "Opera omnia," printed in 1648, contain no more. However the places of 223 more stars had then been deduced from his own observations by Kepler, and published with those of the former 777, at the end of the Rodolphine tables, in 1627. The places of the stars, in this catalogue, are adjusted to the end of the year 1600. Kepler added to the 1000 stars observed by Tycho those of Ptolemy's catalogue, which he had omitted, together with those of the new southern constellations, from other authors; so that his whole catalogue amounts to above 1160; their places being computed for the year 1600. About the same time with Tycho, William, landgrave of Hesse, with the aid of his mathematicians, Christophier Rothmannus and Justus Byrgius, determined the places of 400 fixed stars, by his own observations, with their places rectified for the year 1593; which Hevelius prefers to those of Tycho. This catalogue was first published by Willebrord Snellius in 1618, and is said to have contained the places of 400 stars; but the copy of it which we have in the third volume of Flamsteed's "Historia Cœlestis," contains no more than 368. Ricciolus, in his "Astronomia Reformata," determined the places of 101 stars for the year 1700, from his own observations; for the rest he followed Tycho's catalogue, altering it where he thought fit. In the year 1667, Dr. Halley, in the island of St. Helena, observed 350 southern stars, not visible in our horizon. The same labour was also repeated by F. Noel in 1710, who published a new catalogue of the same stars constructed for the year 1687.

In 1603, John Bayer, in his "Uranometria," published a catalogue of 1160 stars, at Augsburg in Germany; and here the situations of the stars, with respect to the constellation in which they are placed, are expressed in words; but their longitudes and latitudes are exhibited by means of maps, in which the figures of the constellations are drawn, and their stars put down in their proper places, and of their respective

pective magnitudes. The chief excellence, however, of this publication, consists in the author's having marked every star with a letter; the brightest or biggest star in each constellation being always denoted by the first letter in the Greek alphabet; the next in degree of brightness, by the second letter of the same alphabet, and so on; and when the stars in any constellation exceed the number of letters in that alphabet, those that remain are marked by Roman letters; the relative brightness of the stars being still expressed by the order of the letters. By these means, we are enabled not only to refer to every star in the heavens, with great readiness and precision, but to express, likewise, its relative brightness to other stars in the same constellation; and, in some degree, its magnitude also. This invention is so useful, that Flamsteed has, in his catalogue, adopted Bayer's letters, as far as they go; Senex has also done the same upon his globes of the largest size, and also upon his planispheres; and it is followed by most astronomers since his time. Bayer cannot be supposed to have formed this catalogue from his own observations. The places of such stars as are visible in Europe were taken from the catalogues of Ptolemy and Tycho Brahe; and with respect to those which are about the south pole, he tells us, that they are partly taken from the observations of Americo Vesputius, partly from those of Andrew Corsalis, and partly from those of Peter de Medina; and that Peter Theodore, a most skilful mariner, first formed them into constellations, and published them. In 1673, John Hevelius of Dantzic, published his "*Machina Cœlestis*," which, among other curious and valuable articles, contained a catalogue of the fixed stars. This work is very rare; as the greatest part of the impression was burned with his observatory and instruments, on the 26th of September, 1679. The catalogue is said to have contained the places of 1888 stars, of which 1553 were observed by himself; but as it stands in the "*Historia Cœlestis*," of Flamsteed (1725), it contains only 1520 stars. Their places are rectified to the end of the year 1660. The most complete catalogue that ever was given from the labours of one man is the Britannic catalogue, deduced from the observations of the Rev. John Flamsteed, the first royal astronomer at Greenwich; who for many years devoted himself wholly to that business. As there was nothing wanting either in the observer or the apparatus, we may consider this as a perfect work, so far as it extends. It is, however, to be regretted that the impression did not pass through his own hands; that now extant was published by authority, but without the author's consent. We have two editions of this catalogue; the first in 1712, which is generally called Dr. Halley's edition, because he was employed as the editor by prince George of Denmark, at whose expence it was printed. This edition contains only 2680 stars: owing, possibly, to its having been published without the consent, and, it is apprehended, contrary to the wishes of Mr. Flamsteed, who might not, on that account, contribute all the materials for it, which he could have done. It is, however, more correct in some instances, than that which was published in 1725, by Mr. Flamsteed's executors, in pursuance of his will; but this latter contains the places of 2934 stars, and is that to which astronomers generally refer. The stars in both are adapted to the beginning of the year 1690. They are distinguished into seven degrees of magnitude (of which those of the 7th degree are telescopic) in their proper constellations. To the last is added Mr. Sharp's catalogue of the southern stars not visible in our hemisphere, adapted to the year 1726. See vol. iii. of the "*Historia Cœlestis*," in which are printed the catalogues of Ptolemy, Ulugh

Beigh, Tycho, the prince of Hesse, and Hevelius; together with an account of each of them in the "*Prolegomena*." In 1782, M. Bode, member of the Royal Academy of Sciences at Berlin, published a very extensive catalogue of the fixed stars, collected from the observations of Flamsteed, Bradley, Hevelius, Tobias Mayer, De la Caille, Messier, La Monnier, D'Arquier, and other astronomers; in which the places of the stars, amounting in number to 5058, are given for the beginning of the year 1780. This catalogue, which is a very valuable work, though there is reason to apprehend that the same star is inserted more than once, is accompanied by a celestial atlas, or set of maps of the constellations, engraved in a very delicate and beautiful manner.

In all the catalogues already enumerated, the stars are classed in constellations. In the following catalogues they succeed each other according to the order in which they transit the meridian, without any regard to the constellation to which they belong: the name of the constellation being given with a description of the star's situation in it. The first catalogue of the stars, as we conceive, that was printed in this form, or in the order of their right ascensions, is that of M. de la Caille, given at the beginning of his *Ephemerides*, for the 10 years between 1755 and 1765, and printed in 1755. It contains the right ascensions and declinations of 307 stars, adapted to the beginning of the year 1750. In 1757 he published his "*Astronomiæ Fundamenta*," in which is a catalogue of the right ascensions and declinations of 398 stars, adapted likewise to the beginning of 1750. In 1763, the year immediately succeeding that of his death, the "*Cœlum Australe Stelliferum*" of the same author was published; and this contains a catalogue of the places of 1942 stars, all situated to the southward of the tropic of Capricorn, and observed by the same indefatigable astronomer while he was at the Cape of Good Hope in 1751 and 1752. The places of these are given for the beginning of the year 1750. In the same year, the *Ephemerides* for the 10 years between 1765 and 1775 were published; in the introduction to which the places of 515 zodiacal stars are given, all deduced from his own observations. The stars in this catalogue are rectified to the beginning of the year 1765. The nautical almanac for 1773 contains a catalogue of 380 stars, in right ascension, declination, longitude, and latitude, derived from the observations of the late Rev. Dr. Bradley, and adjusted to the beginning of the year 1760. It has been since, viz. in 1798, republished with corrections by Dr. Hornby, in the first volume of Bradley's observations. These make but a small part of what might have been deduced from the labours of that great man, if his representatives had not withheld the rest from the public. Mr. Wollaston, (*ubi infra*) informs us, that Dr. Bradley had the whole British catalogue calculated to the year 1744; and that traces may be observed in it of his having examined almost every star in it. He adds, from satisfactory information, that Dr. Bradley observed the British catalogue twice through: first with the old instruments of the royal observatory, previous to 1750, and afterwards with the new ones. The 380 stars above-mentioned were carefully rectified for the year 1790 by Mr. G. Gilpin. For a brief account of the state of Dr. Bradley's papers, see the article BRADLEY. In 1775, a thin volume, containing several papers of the late celebrated Tobias Mayer, of Göttingen, was published, under the title of "*Opera Inedita*;" and among the rest, a catalogue of the right ascension and declination of 998 stars, which may be occulted by the moon and planets. It is adapted to the beginning of the year 1756; and, from the known

skill

skill and accuracy of its author, is much valued. At the end of the first volume of "Astronomical Observations made at the Royal Observatory at Greenwich," published in 1776, Dr. Maskelyne, the present astronomer royal, has given a catalogue of the places of 34 principal stars, in right ascension and north polar distance, adapted to the beginning of the year 1770; and which, being the result of several years' repeated observations, made with the utmost care, and the best instruments, may be presumed to be exceedingly accurate. In 1776, a work was published at Berlin, entitled "Recueil de Tables Astronomiques," in which is contained a very large catalogue of stars from Hevelius, Flamsteed, M. de la Caille, and Dr. Bradley, with their latitudes and longitudes, for the beginning of 1800; with a catalogue of the southern stars of M. de la Caille, of double stars, of changeable stars, and of nebulous stars: a work very useful for the practical astronomer. To these may be added Dr. Herschel's catalogue of double stars, printed in the Philosophical Transactions for 1782 and 1783; M. Messier's nebulae and clusters of stars, published in the "Connaissance des Temps" for 1784; and Dr. Herschel's catalogue of the same kind, given in the Philosophical Transactions for 1786. In 1789, Mr. Francis Wollaston published in folio a "Specimen of a general astronomical Catalogue, arranged in Zones of north-polar Distance, and adapted to January 1, 1790." In forming this catalogue, Mr. Wollaston has not made any use of those which precede Flamsteed, except in a small part that of Hevelius: but all the stars in the British catalogue of 1725 are inserted, as well as those which are in the three latter catalogues of M. de la Caille, those of Dr. Bradley in the Nautical Almanac for 1773, of M. Mayer, of Dr. Maskelyne, the double stars of Dr. Herschel, M. Messier's nebulae, and all those of Dr. Herschel, excepting his 2d and 3d classes, that is, all those which are capable of being discerned with any telescopes inferior to his own. This work contains five distinct catalogues; viz. Dr. Maskelyne's new catalogue of 36 principal fixed stars; a general catalogue of all the stars, in zones of north-polar distance; an index to the general catalogue; a catalogue of all the stars in the order in which they pass the meridian; and a catalogue of zodiacal stars, in longitude and latitude.

The first catalogue contains the right ascensions in time, the annual precession of right ascension in time, and the annual proper motion, both in time and in degrees, for each star, and also the zone to which it belongs in the second catalogue. These circumstances are deduced from a multitude of observations, recently made, with the utmost care and circumspection, by the astronomer royal, for the purpose of determining, when compared with his former settlement of the same stars in 1770, whether those stars have any motion of their own, and what it is. That the *fixed* stars, as they are usually called, have a proper motion of their own, has long been suspected; and it was supposed that it had even been detected in Arcturus: but this motion is certainly so small, that no observations, made before Dr. Bradley's time, were sufficient to exhibit it; and the basis of twenty years, which our present ingenious and indefatigable astronomer royal has yet been able to obtain, seems much too short to determine it with any great degree of accuracy, even in the present improved state of astronomical instruments. The observations, however, sufficiently indicate such a motion in all the stars, and one which is pretty considerable in Arcturus.

The second catalogue, or that in zones, as its disposition is entirely new, will require some explanation. All the stars which are situated within 10 degrees of the north pole are

collected together, and inserted in a catalogue by themselves, according to the order in which they pass the meridian; and this is called the first zone. The second zone contains all the stars which are situated at a greater distance from the north pole than 10 degrees, and at a less distance than 15 degrees, disposed in the same manner. The third zone contains all the stars which are distant between 15 and 20 degrees from the north pole: but hence, till the author comes within 20 degrees of the south pole, the zones are but one degree in breadth, that is, the fourth zone contains all the stars which are at the distance of more than 20 degrees from the north pole, and less than 21 degrees, disposed in the order in which they pass the meridian, and so on. The stars which are at a less distance from the south pole than 20 degrees, are disposed, like those which are at the same distance from the north pole, into two zones, each 5 degrees broad, and into one which is 10 degrees broad: so that the whole number of the stars is distributed into 146 distinct catalogues, or zones; and in each of these the stars follow one another in the order in which they pass the meridian.

Each of these catalogues employs nine columns: the first contains the right ascension of the stars, in degrees, for the 1st of January 1790; the second, the precession of right ascension, in the same measure; the third, their right ascensions in time; and the fourth, the precession in time. The fifth contains the star's distance from the north pole; the sixth, its precession in north-polar distance. In the seventh, the magnitude is expressed; the eighth contains the number, name, or character of the star, together with the name of the observer by whom its position was ascertained; and the ninth column contains short notes, intended to call the attention of observers to certain circumstances there mentioned, in order that they may either be disproved or verified by future observations. Where the situation of a star has been given by different observers, as is the case in most, each of their situations is given, reduced to the same time, (January the 1st, 1790,) and set down in the order in which their observations were made. By these means, it is readily seen how far different observers agree with each other, and wherein they disagree.

Mr. Wollaston's reason for thinking that a catalogue of the fixed stars would be more useful in this form than in any other, is stated in the Phil. Transf. vol. lxxiv. p. 181, and vol. lxxv. p. 346; where the author proposes frequent examinations of the heavens, as the means of detecting any alterations which may happen among the fixed stars. In this business, every astronomer was invited to take a part, and to examine a certain number of zones, (each one degree in breadth,) with a telescope of a large field, mounted on a polar axis, and furnished with a system of wires in its focus. This telescope being directed to the proper parallel of declination, and fixed there, the business of the observer would be, to take the transits of all the stars which passed the field of the telescope, at the several wires in its focus; which were so disposed as to give both the difference of right ascension and declination between them; and for such a purpose, this catalogue is evidently well adapted.

The third catalogue is called, an index to the stars in the British catalogue, referring to the zone of north-polar distance, in which each star is to be found. This catalogue contains only the stars in the British catalogue of 1725, arranged in constellations; and the stars in each constellation follow one another in the same order as in that catalogue: but the constellations are disposed alphabetically. The catalogue employs three columns: the first containing the number of the star, as it stands in the British catalogue; the se-

cond, Bayer's letter of reference, where the star has one; and the third, the number of the zone to which the star belongs in the second catalogue, reckoning from the north pole: but the reader must take care that he is not misled with regard to the import of this last column: the author does not mean, by the number there put down, the number of the zones as they stand in his catalogue, but the number of the zones in which it would have been, if every one of his zones had been no more than one degree in breadth; so that his first zone, (as described above,) is to be considered as containing 10 of the zones in the second catalogue; and the second and third zones must be considered as each containing five.

The fourth catalogue contains the stars of the British catalogue, of de la Caille's southern catalogue, and about eighty stars from Hevelius's catalogue, which were omitted by Flamsteed, all arranged in one continued series, according to the order in which they pass the meridian. This catalogue employs four columns: the first containing the star's right ascension in time, for the 1st of January 1790, put down to the nearest second; the second, the star's distance from the north pole, for the same time; the third, the magnitude of the star; and the fourth, the number, name, or character of the star, and the constellation in which it is placed.

The fifth catalogue gives the longitudes and latitudes of such stars as are situated within nine degrees of the ecliptic, arranged in the order of their longitudes. It contains all the stars which are to be found within these limits, in the catalogues of Flamsteed, Bradley, Mayer, and the small catalogue of de la Caille, at page 238 of his "Astronomiæ Fundamenta." This catalogue employs five columns: the longitude of the star, reduced to the beginning of 1790, stands in the first column; the second contains the latitudes of such stars as are on the north side of the ecliptic; and the third gives the latitudes of such as are on the south side of it. The fourth column exhibits the magnitude of the star; and the fifth, the number, name, or character of it, and the name of the observer who assigned its situation. Where any star has been observed by two or more persons, the result of each of their observations, (reduced to the same epoch,) is inserted, in the order in which their observations were made.

In 1792, Dr. Francisco de Zach published at Gotha, "Tabulæ Motuum Solis;" to which is annexed a new catalogue of the principal fixed stars from his own observations, made in the years 1787, 1788, 1789, 1790. This catalogue contains the right ascension and declination, with the magnitudes and annual variations in right ascension of 381 principal stars, adapted to the beginning of the year 1800. The catalogues of the places of Dr. Bradley's 389 fixed stars, adapted to the beginning of the year 1760; of those of M. de la Caille's 515 zodiacal stars, adapted to the beginning of the year 1765; of the same author's 307 principal stars in the heavens, adapted to the year 1750; of Zach's 381 principal fixed stars, adapted to the beginning of the year 1800; of the same author's declinations of 162 principal fixed stars, with their annual variations, adapted to the beginning of the year 1800; and of Mayer's 992 principal fixed stars, adapted to the year 1790; are published by professor Vince in the 2d volume of his *Astronomy*. M. de la Lande has published a new catalogue of more than 12,000 stars in the volumes of the "Connoissance des Temps," from the year 7 (1799) to the year 12. Almost all these are stars which had not been before observed. M. C. Vidal has lately communicated to the lyceum of Toulouse a catalogue of 888 austral stars, from the 5th to the

7th magnitude inclusively. Every star has been observed three times, and all are reduced to a mean position, regard being had to the effect of refraction, the aberration of light, and the rotation of the earth's axis. The mean position of all these stars has been calculated to a common period, viz. Jan. 31, 1798; the equation and precession of the equinoxes being previously allowed for. The place of M. Vidal's observation was Mirepoix; a situation admirably suited to his purpose, by the serenity of its atmosphere and the excellence of the instruments with which its observatory is furnished, and commanding nearly six degrees of the heavens southwards more than Paris. On this account C. Lalande, and his nephew C. François Lalande, in their grand work of completing a catalogue of 48,000 stars, have engaged M. Vidal to form a catalogue of the austral stars, which he has executed with great success and admirable precision. From the history of astronomy for 1800, by Jerome de Lalande, it appears that M. F. Lalande has terminated the labour, commenced August 5, 1789, and determined the places of 50,000 stars from the pole to two or three degrees below the tropic of Capricorn. The examination of the heavens is still vigorously prosecuted by the European astronomers, conformably to the plan and wishes of Mr. Wollaston; and from the industry and accuracy with which their observations are conducted, we may expect the happiest result with regard to our knowledge of the stars and other celestial bodies.

CATALOGUES of the books of the *Old and New Testament*, in *Biblical History*. See BIBLE, CANON, and TESTAMENT.

CATALONGAY, in *Botany*, the name given by some authors to the plant which produces the *faba sancti Ignatii*, or St. Ignatius's beans of the shops.

CATALONIA, in *Geography*, a province of Spain, bounded on the north by France, from which it is separated by the Pyrenées, on the east and south-east by the Mediterranean, on the south-west by the province of Valencia, and on the west by Arragon. Its form is nearly that of a triangle; the base towards the Mediterranean being about 160 miles in length, the side towards France 120, and that towards Arragon 140 miles. Catalonia, towards the shores of the Mediterranean, has many convenient sea-ports; the inland country is in general mountainous, particularly in the northern part towards France, but interperled with a variety of spacious plains and fertile vallies. The mountains are covered with large forests of tall trees, such as the oak, the ever-green oak, the beech, the pine, the fir, the chestnut, and many others, besides cork trees, shrubs, and medicinal plants. The soil is rendered productive by the industry of the inhabitants, so that Catalonia is reckoned one of the best cultivated provinces in Spain; and it yields a plentiful supply of corn, wine, oil, flax, hemp, liquorice, and almost every kind of fruit. Brandy, wine, nuts, almonds, raisins, and cork are shipped at different places on the coast, for the merchants who reside in Barcelona. The wines are Mataro, Villanova, Sitges, Valls, and Granatché. The price varies according to the season; but when it is highest, we may reckon Mataro at 16 dollars, or 48s., the hogsheaf, including the Spanish duties; Villanova, 15 dollars; Granatché, 40. All these are red. The following white wines are, Sitges, 54; Valls, 20 dollars; but the common price is 12½ dollars per hogsheaf for both the Mataro and Villanova. When brandy is dearest, it is sold, duty free, at 57 dollars, or 8l. 11s. the four cargas or pipe of 124 gallons English, Hollands proof, or 1s. 4½d. per gallon; but it is sometimes sold at 10d. Catalonia furnishes 35,000 pipes of brandy, and 2000 of wine, besides 30,000

30,000 bags of nuts, containing three bushels each, at 20s. the bag. Of the above about 4000 pipes of brandy, and some silk, go to Guernsey and Alderney, and the rest to France, all to be smuggled into England. The merchants also export wrought silks, printed cottons, woollen goods, small arms, and spice; the last article, however, is contraband. Their imports are, corn, fish, woollen goods, hardware, and oil of vitriol. The articles prohibited are, beer, cyder, lead, hose, haberdashery, muslins, and cottons; but of the two last, immense quantities are smuggled into this province. The mountainous districts have quarries of marble of all colours, crystal, alabaster, amethysts, and lapis lazuli. Gold dust has been found among the sands of one or two of its rivers; and here are mines of antimony, copper, lead, tin, iron, silver, one of gold, alum, vitriol, and salt, and many of coal. On the eastern coast they likewise fish for coral. Provisions of every kind are excellent. The climate is mild in the plains, the cold on the mountains is supportable, and the air is pure. It is neither so hot as Andalusia, nor so cold as Asturias, and the northern part of Spain; being sheltered on the north by the Pyrenées, and on the east by the sea. This temperature, joined to the many streams and rivers with which the country abounds, renders it very fertile and delightful. The inhabitants are hardy, courageous, industrious, active, vigorous, and good soldiers, but apt to be discontented. The miquelets are a sort of soldiers, whose province it is to guard the passes of the mountains and to protect travellers; but they are often extortionate in their demands of recompence.

In Catalonia, as in France, with which this province was formerly connected, accounts are kept in livres, sols, and deniers; 12 deniers making a sol, and 20 sols a livre. But in reckoning by the money of the province, nominal and real, there is great perplexity. If we reckon the peso or current dollar at 3s. sterling, the hard dollar will be four, the current pistole 12; and the pistole of gold, 15s. See COINS. As to the measures in Catalonia, 12 cortans make one quartera, which is two bushels, English measure. Sixteen cortans make a carga of wine or brandy, which is about 30 gallons English, and is reckoned to be 12 arrobas. 100 quarteras are reckoned equal to 128 fanegas.

In estimating the weights of this province, eight ounces make a marc, being $\frac{1}{8}$ heavier than in Castile; 12 ounces make a pound; 26 pounds one arroba; four arrobas one quintal, which is 93 pounds English, or 91 pounds Castilian; 125 pounds make 112 pounds English.

In the beginning of the last century they reckoned in Catalonia 101,866 houses, and only 391,490 inhabitants; but the province had then been ravaged by civil war. In 1768 the bishops, in their account of the population, made the following return; viz. men, 189,252; women, 192,763; boys, 301,379; girls, 320,916; clergy, regular and secular, 14,235; in all, one million and thirty thousand two hundred and forty-five. Since that time the population has not decreased; and yet, in the returns to government, A. D. 1787, the number of inhabitants is stated at only 801,602. Of these 6983 are under vows, and 1266 are knights. These accounts, so different from one another, without any assignable cause of deficiency in the latter, shew, that, notwithstanding the most vigilant attention on the part of government, they always fall short of the actual population, because it is the interest of every family, parish, and district, to conceal their numbers, in order to avoid the capitation tax. Catalonia enjoys the privilege of exemption from the taxes called alcavala, cientos, and millones; in lieu of which the inhabitants pay 10 per cent. on all rents, belonging to individuals or communities, and on the supposed gains of

merchants and mechanics. They are subject also to some other charges on labour and manufacture, and on cattle. The whole amount of the taxes collected in Catalonia was, A. D. 1721, 481,867l. sterling. But as the revenue of Spain is more than doubled since that period, if we allow the same increase for Catalonia, we may state the revenue arising from this province at little less than a million sterling; which, according to the computed population, is 20s. annually for each person; whereas, taking the whole peninsula together, the Spaniards pay no more than 10s. each per annum. Considering the rapid circulation of money in this province, and the universal affluence resulting from it, with the peculiar advantages and resources of the Catalans, this contribution, though relatively heavy, is comparatively light; for being freed from the stagnating influence of the alcavala, cientos, and millones, they enjoy a decided superiority over provinces which have never claimed the same indulgence. Unfettered by these impolitic restraints, and permitted to set their own value on their commodities exposed to sale; their industry is free, and not like that of less-favoured provinces, crippled in all its operations. In addition to these immunities, the great number of troops, quartered in Catalonia, not only gives to the farmers and manufacturers a ready market for their commodities, but contributes much to maintain good order in the province. For near two centuries previous to the accession of the present family, Catalonia was infested with banditti, who, by robbing and plundering passengers, interrupted the safe and easy communication of the cities with each other, and prevented, in a great measure, the interior commerce of the country. But Philip II. stationed a considerable detachment of his troops in this doubtful part of his dominions; and these not only restored good order, but revived commerce by a quick and certain demand for all the productions of industry. Besides, the popular prejudice in Catalonia is favourable to commerce; for here artists and manufacturers are as much honoured and respected as in other provinces they are despised. In consequence of this their trade is brisk; the vessels employed to carry it on are more than 1000; and government can always depend upon 18000 seamen, who are registered and always ready to obey the summons in cases of emergency. Moreover, what contributes most to the wealth and prosperity of Catalonia is the power, which gentlemen of landed property have over their estates to grant a particular species of lease, called "Establishment by Emfiteutic contracts." By this kind of contract, the great proprietor, inheriting more land than he can cultivate to profit, has power to grant any given quantity for a term of years, either absolute or conditional, either for lives or in perpetuity, always reserving a quit rent, like our copy-holds, with a relief on every succession, a fine on the alienation of the land, and other seigniorial rights dependent on the custom of the district, such as tithes, mills, public-houses, the obligation to plough his land, to furnish him with teams, and to pay hearth-money, with other contributions, by way of commutation for ancient stipulated services. The tenure in Catalonia is evidently feudal. All property in land is traced up to the king, and is held by knights' service from the crown, subject to relief, to fines, and to escheat. Under the royal grant, the great lords claim, not merely tithes of all lands not being freehold, with quit-rents and fines, mills, and public-houses, but the right of appointing magistrates and receiving tolls on the passage of cattle over their estates. To the power retained by them of making emfiteutic contracts has with reason been attributed the cultivation of such waste lands as are susceptible of tillage, and the consequent increase of population. Industry has been promoted, new families have

been called into existence, and many, rescued from poverty and wretchedness, are now maintained in comfortable affluence. Nevertheless by the culpable inattention of great proprietors, both to the general good and to their private benefit, they leave their lands uncultivated; and, therefore, even in Catalonia, according to the government returns, more than 300 villages have been deserted. See on this subject, Townsend's Spain, vol. iii.

The province of Catalonia has been usually divided into 15 vigueries, or jurisdictions, besides the two which are in Roussillon and which belong to the French; viz. Tortosa, Monblanc, Tarragona, Villa Franca de Panades, Barcelona, Gerona, which includes that of Ampurdan, all which lie along the sea-coast; Campredon, Puicerda, with the county of Cardagna, both which lie near the Pyrenean mountains; Balaguer, Lerida, Agramont, Tarrega, Cervera, Manresa, and Vigue. Some have divided this principality into Old and New Catalonia, including in the former the country between the Pyrenées, which runs along the river Llobregat eastward to the sea; and towards the west the tract from this river to the borders of Valencia and Arragon. The principal towns of this province are Barcelona, the capital, Tortosa, Tarragona, Gerona, Monblanc, Lerida, and Villa Franca de Panades. The chief rivers are the Segre, the Llobregat, the Cervera, and the Ebro.

Catalonia has been reckoned one of the most populous provinces in Spain; and contains one archbishopric, seven bishoprics, 28 large abbeys, one principality, 2 duchies, 5 marquisates, 17 earldoms, 14 viscounties, and a great number of baronies.

When the Moors had overrun the greatest part of Spain, and began their attacks on this province, the Catalonians made an effort to secure their freedom, and applied to Charles Martel of France for assistance; by whom, as well as by his son Pepin, they were aided in their wars against the Moors. On the death of Zaro, governor of Barcelona, who had agreed to pay tribute to Charles the Great, Bernard, grandson to Charles, was made earl and governor of Catalonia; on his decease, Godfrey, or Wiford, the son of his colleague in the government of this province, as well as of Provence and Languedoc that were annexed to it, was created governor of Barcelona, and in 884 hereditary count of Barcelona, which was to continue to him and his heirs for ever, with the restriction, that they should remain vassals to the king of France. In 1137, Don Raymond V., count of Barcelona, marrying Petronilla, the daughter of Don Ramiro, the monk, and heiress of Arragon, united Catalonia to the crown of Arragon, but without any incorporation of territories; and in 1182 it shook off all dependency on France. Catalonia continued united to Arragon till the year 1640, when it submitted to France. In 1652, the king of Spain recovered Barcelona and some other places; and by the treaty of the Pyrenées in 1659 he saw himself again master of all Catalonia. In 1705, the whole principality submitted to the archduke of Austria, and adhered firmly to his cause, inasmuch that, though in the year 1713, he was obliged to evacuate Catalonia, Majorca, and Yvica, yet the inhabitants of Barcelona determined to maintain their privileges or die in the attempt; however, in the year 1714, Barcelona was obliged to surrender at discretion, and the whole country was reduced to the subjection of Philip V. who abolished all those valuable privileges, which they had so often asserted with a successful intrepidity.

Among the ancient inhabitants of this province we may reckon the Castellani, from whom some have imagined that it derived its name; others trace its etymology to the Cate-

launi, an ancient people in Gaul; but others, with greater probability, trace the origin of the appellation to the following circumstance. Upon the decline of the Roman empire, the Alani seized the best part of this province, of which they were, in some measure, dispossessed by the Goths; and at length, mixing together and becoming one people, they came to be called Gothalani, and their country Gothallonia, which, by degrees, was softened into Catalonia.

CATALPA, in *Botany*, the Indian name of a North American plant, referred by Linnæus to the genus bignonia, (see *BIGNONIA catalpa*); but as the plants included in this genus differ considerably from each other, it has been divided by Jussieu and Ventenat into four, jacaranda, catalpa, tecoma, and bignonia. Of catalpa, the French naturalists give the following character. *Cal.* two-cleft. *Cor.* bell-shaped; tube distended; border four-lobed, unequal. *Stam.* two, fertile, three, barren. *Stigma* bilamellate. *Cap-sule* resembling a silique, long, cylindrical, two-valved; partition opposite to the valves. *Seeds* with a membranous appendage at the tip and base. Trees, with simple, ternate, whorled leaves and panicled flowers. Jussieu refers to it, *bignonia catalpa* of Linnæus, and *bignonia longissima* of Jacquin.

CATALS, *Catalla*, denote good or chattels.

CATAMANA, in *Ancient Geography*, a town of Asia, in Syria, situate, according to Ptolemy, in Coniagena.

CATAMARAN, or CATIMORAN, in *Sea Language*, is also called Balza, or Balsa, for an account of which see the article BOAT.

CATAMENIA, from *κατα* and *μην*, *month*, in *Medicine*, women's monthly purgations, called also *menfes*, which see.

CATAMITE, a boy kept for sodomitical practices.

CATANA, in *Ancient Geography*, a town of Sicily, on the eastern coast of the island, in a gulf of the same name. Thucydides says, that this city was founded seven years after Syracuse, by the Chalcidians, from Naxos. Strabo also mentions it, and says, that it was repaired by Augustus, and became a Roman colony. Pliny and Ptolemy give it this title. Strabo reports that this city lost its first inhabitants; but that Hiero, tyrant of Syracuse, placed others in it, and changed its name into that of *Ætina*; assuming the glory of being its founder. It still bore this name; when Dionysius, to revenge himself for the favours which it had given to the revolted inhabitants of Syracuse, levelled its walls, and bestowed its territory on the Campanians; and immediately after the decease of Hiero, the Catanese expelled those whom he had established there, and demolished the tomb of the tyrant, and the city regained its ancient name. It fell into the hands of the Romans among their earliest acquisitions in Sicily, and became the residence of a prætor. To make it worthy of such an honour, it was adorned with sumptuous buildings, and every convenience was procured to supply the natural and artificial wants of life. It was destroyed by Pompey's son, but restored, with superior magnificence, by Augustus. The reign of Decius is famous, in the history of this city, for the martyrdom of its patroness, St. Agatha, whose intercession is implored on every emergency. She is piously believed, says Swinburne, to have preserved Catania from being overwhelmed by torrents of lava, or shaken to pieces by earthquakes; yet its ancient edifices are covered by repeated streams of volcanic matter, and almost every edifice, even her own church, has been thrown to the ground. In the reign of William the Good, 20,000 Catanians, with their pastor at their head, were destroyed before the sacred veil could be properly placed to check the flames. In the 17th century Catania was twice demolished. Cicero, speaking of the riches and beauty of this city, adds, that it had a temple dedicated to

Ceres,

Ceres, in which was preserved an image of this goddess; but that only women were allowed admission, and that it was guarded by young females. See CATANIA.

CATANADROMI, in *Ichthyography*, a term of the same signification with the more common word *anadromi*, the distinctive term of a set of fishes, which at times leave the fresh water for the salt, and afterwards return to the fresh water again. See ANADROMOUS.

CATANANCHE, in *Botany*, (Gr. *κατανανχη*, *violence*, so called, according to Dioscorides, because it was superstitiously used as a philtre, or love-charm by the women of Thessaly.) Linn. Gen. 920. Schreb. 1250. Juss. p. 171. Vent. vol. ii. p. 492. Gært. 905. *Catanance*, Tourn. 271. *Cupidone*, Lam. Encyc. Bosc. Nouv. Dict. *Candia lion's foot*. Clafs and order, *syngenesia polygamia equalis*, Linn. *Cichoraceæ*, Juss. Vent.

Gen. Ch. *Cal.* common, imbricate, top-shaped; scales numerous, loose, egg-shaped, acute, concave, scarious, shining, permanent. *Cor.* common, uniform; florets all with stamens and a pistil, numerous, ligulate, linear, truncated, five-toothed. *Stam.* filaments five, capillary, very short; anthers forming a hollow cylinder. *Pist.* germ oblong; style filiform, the length of the stamens; stigma bifid, reflexed. *Peric.* the permanent calyx. *Seeds* solitary, egg-top shaped, crowned with a five-leaved, chaffy, awned pappus or calycle. *Recept.* chaffy.

Eff. Ch. Receptacle chaffy. Calyx imbricate. Pappus consisting of five chaffy awned leaves.

Sp. 1. *C. carulea*, Linn. Sp. Pl. 1. Willd. 1. Mart. 1. Lam. Encyc. 1. Illust. Pl. 658. fig. 1. (Chondrilla; Bauh. Pin. 130. 6. Barr. Ic. 1134. Rai. Hist. 257.) "Calyx-scales all egg-shaped, mucronate, coloured in the middle." Lam. "Leaves villous, linear, a little pinnatifid at the base." Willd. *Root* perennial: *Root-leaves* numerous, long, narrow, with two pair of long, linear teeth, lying flat on the ground. *Stems* about two feet high, slender, pubescent; furnished with small, generally entire leaves, or rather transparent scales growing nearer together as they approach the summit. *Flowers* terminal, blue, large, on long peduncles. A native of the South of Europe, flowering from June to October. 2. *C. caespitosa*, Willd. 2. Desf. Atl. ii. p. 238. tab. 217. "Inferior calyx-scales egg-shaped, acute, leaves linear, rather fleshy, slightly toothed at the tip." Willd. *Root* annual. *Flowers* yellow. 3. *C. lutea*, Linn. Sp. Pl. 2. Willd. 3. Mart. 2. Encyc. Illust. Pl. 658. fig. 2. Gært. tab. 157. fig. 5. "Interior (not inferior, as in Linnæus,) calyx-scales lanceolate." Lam. "Leaves lanceolate, toothed, three-nerved." Willd. *Root* annual. *Stems* two or three, a foot and a half high. *Flowers* small, yellow, on slender peduncles. A native of Italy and the Levant.

Propagation and Culture. The first species may be propagated by slips planted in pots filled with light sandy soil, or in warm borders, under the shelter of walls, pales, or hedges. But it succeeds better when raised from seeds sown in March, in a border of good warm earth, and afterwards transplanted into pots or borders where it is to remain for flowering. The third species may also be readily raised from seeds; but, as it has little beauty, it is not often kept in gardens. Mill.

CATANANCHE *graca*, Linn. Willd. Mart. Lam. See SCORZONERA *elongata*.

CATANDUANES, or CANTUADANES, in *Geography*, a province of the island of Luçon or Manilla, consisting of a small island to the most south-easterly part of Luçon; its southern point being almost parallel with Siliran. Its shape is triangular, about 30 leagues in compass, and 10 in length.

As it is exposed to the north wind, it is always stormy; and it lies so near the Emtocadero, or mouth of the channel of St. Bernardin, that some pilots mistaking it, and apprehending that they were entering the mouth of the strait, have found themselves among dangerous flats, which encompass the island about a musket-shot from the shore, and suffered shipwreck. This island abounds in rice, oil of palms, cocoas, honey, and wax. It has several rivers that are dangerous to cross, in the channel of which is found gold, brought down from the mountains by the floods. The largest of these is called Catandangan, and by the Spaniards Catanduanes, whence the island took its name. The chief employment of the natives is the carrying of wood, and the making of light boats, which they sell at Mindora, Caleya, Balayan, and other places. They first make one very large, without any deck, and not nailed, but sewed together with Indian canes, and then others less and less, one within another, and thus they transport them 100 leagues. The people paint themselves; they are warlike, and excellent sailors; and if a boat be overfet, they leap into the water and immediately turn it. Apprehending such accidents, they carry their provisions in their hollow canes closely stopp'd, and tied to the sides of the boats. Their habit is only a waistcoat, which reaches down to the knees. The women are of a masculine size, and apply themselves as much as the men to tillage and fishing. They are modestly clad in a coat or jerkin, and a long mantle. Their hair is tied on the crown of the head, forming a knot like a rose. On the forehead they wear a plate of gold two fingers' broad, lined with taffeta; in their ears three gold pendants. On their ancles they have rings, which make a tinkling noise as they move.

CATANGIUS SINUS, in *Ancient Geography*, a gulf of Asia Minor, in the Thracian Bosphorus.

CATANHEDE, in *Geography*, a town of Portugal, in the province of Beira.

CATANI, in *Ancient Geography*, a people of Asia, in the vicinity of the Caspian Sea, according to Pliny.

CATANIA, or CATANEA, the ancient *Catana*, a town of Sicily, in the valley of Noto, near the foot of mount Ætna. This city has frequently suffered in ancient and modern times, from the eruptions of this mountain. See ÆTNA and CATANA. The materials of which the modern city is built are such as might be expected in a volcanized country, where stones of any other than a volcanic nature are not to be found but at a considerable distance. The edifices, both public and private, and even the walls of the city, are principally of lava; which has furnished materials not only for the modern Catania, but also for the more ancient city, which was entirely destroyed by an earthquake in the year 1693: at least its ruins, when dug up, have all been found to consist of lava. Those who have taken a view of the surface of the territory of Catania have every where met with immense accumulations of lava; among which the most conspicuous are the remains of that torrent which, bursting from one of the sides of Ætna in 1669, inundated a space 14 miles in length, and nearly four in breadth, rose over the walls of Catania, burying under it a part of the city, and at length precipitated itself into the sea. The prince of Biscaris has employed great labour and expence in digging down to the ruins. We descended, says Mr. Swinburne, into baths, sepulchres, an amphitheatre, and a theatre, all much injured by the catastrophes that have befallen them. They were erected on old beds of lava, and even built with square pieces of the same substance, which in no instance appears to have been fused by the contact of new lavas. The sciarra, or stones of cold lava,

lava, have constantly proved as strong a barrier against the flowing torrent of fire, as any other stone could have been, though some authors are of opinion, that the hot matter would melt the old mafs, and incorporate with it. Nothing less than the fertility of its territory could have inspired the inhabitants with the courage, or rather the obstinacy, to build and rebuild in a situation which derives no advantage from the sea; which is without a river and without fortifications; exposed to all sorts of natural misfortunes, and continually threatened with the dreadful calamities which have already proved so destructive. And yet in the course of the last century it has revived with great splendour, and when all the houses are finished, it will be a very handsome city. In the progress of its improvement it has acquired more the features of a metropolis and royal residence than Palermo. Its principal streets are long, straight, and wide, and well paved with lava; but they are so disposed, that in the middle of the day this burning town is totally without shade, and almost impassable. If its wealthy inhabitants had possessed a greater degree of taste; if, instead of huge palaces, and large churches of an obsolete and fanciful architecture, the buildings had been erected in a simple and noble style, Catania might have been one of the most magnificent cities in the kingdom of Naples. The market-place, however, is not without beauty; it is a square cut off at the angles, and decorated with arches supported by marble columns. In the centre of the great square formed by the town-hall, seminary, and cathedral, are two antique fragments, very happily grouped: they consist in a part of an Egyptian obelisk of granite, with hieroglyphic characters; placed on the back of an elephant formed of lava, the ancient symbol of Catania. The cathedral erected by the abbot Angerius in 1094, and endowed by earl Roger with the territories of Catania and *Ætna*, has suffered so much by earthquakes, that little of the original structure remains, and the modern parts have hardly any thing, except their materials, to recommend them. The other religious edifices of the city are profusely ornamented, but in a bad taste. The Benedictine convent of St. Nicholas is the largest belonging to that or any other religious order. Every part has been rebuilt since the earthquake of 1693. The church is a noble fabric, though it has many defects in the design and execution; and is accounted the largest in Sicily. The organ, constructed by a Neapolitan priest, is much esteemed by connoisseurs in musical instruments. The tones of all sorts of wind and stringed instruments are imitated by it with the most perfect illusion. One wing of the monastery is appropriated to a considerable museum of antiquity and natural history. This museum is magnificent, and amidst a variety of trifling objects it contains some utensils in bronze, of as perfect purity and beauty as those of the cabinet of Portici, earthen vases of a most elegant form, and very curious lamps. The prince of Biscaris, to whom the modern Catania is indebted for many of its improvements, has also formed a very magnificent museum. His collection consists of specimens of the most curious subjects in antiquity which Catania and Sicily produce; such as the remains of architecture, mosaic ornaments, Roman and Grecian materials for building; sculpture, among which, a single colossal Torso, found at Catania, may be ranked with the most beautiful pieces of antiquity; a collection of earthen vases, peculiarly valuable for the number, the forms, and preservation of the figures represented on them; another of antique bronzes; the natural history of marine productions, plants, shells, and fishes; and the productions of the earth, such as minerals, vegetables, volcanic matters, marbles, precious stones, and animals:—the whole arranged in an order which exhibits science,

taste, and industry. You see likewise in this museum a series of arms, armour, and singular costumes. In this city there is also a third museum, the possessor and founder of which is the chevalier Gioeni; the valuable contents of which are enumerated by Spallanzani. One of the greatest curiosities at Catania is the Villa Sciarra, belonging to the prince of Biscaris. Upon the black impenetrable surface of the lava, which issued from *Ætna* in 1669, this prince has laid the plan of a garden, built houses, planted trees in soil brought hither from other places, and formed two large ponds of fresh water, supplied by springs that ooze through the lava. The pools of the Villa are stocked with fish and water-fowl, and are preserved from the fury of the neighbouring sea by a strong pier, which is the only separation between the salt and fresh water.

The number of public edifices that are crowded together in so small a space, has left little room for the houses of individuals; and from this circumstance it has been inferred, that Catania has been embellished at different periods, or that the private houses were extremely small in comparison with the public buildings; or that the ancient city was more ornamented than extensive, and, consequently, more rich than populous. The modern town is somewhat of the same kind. Although its population be estimated at 20 or 30,000, and by the Catanians themselves at double this number, yet nothing is seen in the streets but convents, churches, and palaces, separated by a few private houses. Catania is the see of a bishop, suffragan of Monreal, whose revenues are very considerable; 2000*l.* sterling per annum being derived, as it is said, from the sale of snow collected on mount *Ætna*. This city has also an university, the only one in the island, and the nursery of all the lawyers. N. lat. 37° 30'. E. long. 15° 19'. Swinburne's Travels, vol. iv. Brydone's Travels, vol. i. Spallanzani's Travels, vol. i. De Non's Travels.

CATANIDIS PROMONTORIUM, in *Ancient Geography*, a promontory of Asia Minor, in the vicinity of the isle of Lesbos, towards the Arginusæ islands, according to Diodorus Siculus.

CATANII, a people of Arabia Deserta.

CATANITÆ, a people placed by Ptolemy in Arabia Felix.

CATANZARO, in *Geography*, a town of Naples, in the province of Calabria Ultra, the seat of a governor and tribunal of justice, the see of a bishop, suffragan of Reggio. It is situate on a mountain, and has manufactures of silk velvets and cottons. This town was built in 963 by order of the emperor Nicephorus Phocas, as a post of strength against the Saracens, to which its situation on an eminence, in the pass between the mountains and sea, adapted it. In 1593 it attained to the dignity of capital, formerly the right of Reggio. It contains 12,000 inhabitants, who live by the law, and the sale of corn, silk, and oil. The college of the late Jesuits is a handsome building, and possesses a good statue of St. Ignatius, by Fonsaca, and a very fine picture representing St. Bruno distributing bread to the poor; 9 miles N.E. of Squillace. N. lat. 38° 58'. E. long. 18° 20'.

CATAO, a town of Asia, in Thibet; 15 miles W.S.W. of Yoloton.

CATAONIA, in *Ancient Geography*, a province of Asia, in Armenia Minor, between Taurus and Antitaurus. Strabo places this province in Cappadocia, because Armenia Minor once made a part of Cappadocia; and he says that Ariarathes I. king of Cappadocia, joined Cataonia to Cappadocia. It is situated to the north of Cilicia Campestris, and traversed from the N.E. to the S.W. by the Sarus. The two principal towns were Tariana and Comana Cappadocia. The

Pyramus

Pyramus had its source in the mountains of the eastern part.

CATAPAN, or CATIPAN, a name the later Greeks, about the twelfth century, gave the governor of their dominions in Italy.

Ughellus and others say, catapan was the same with *capitaneus*; formed from it by metathesis, or transposition: others derive it from *κατα*, *juxta*, and *παν*, *omne*; in which sense, catapan was a governor-general, or magistrate, who had the direction of all: others will have it derived from *κατα παντοκρατορα*, that is, *next after the emperor*. In which sense, catapan was a second master, *secundus dominus*. Ducange derives it from *καπετανος*, *captain*; which the Greeks applied to every governor, and even every man of quality.

CATAPELTA, an instrument of punishment, in use among the ancients. It consisted of a kind of press, composed of planks, between which the criminal was crushed to death.

CATAPELTÆ, in *Ancient Writers*, more frequently written *catapulta*, which see.

CATAPHONICS, in *Music*, synonymous with *catacoustics*, which see.

CATAPHORA, in a theme of the heavens, an appellation given to the houses falling from the third, sixth, ninth, and twelfth angles. In which sense the word stands opposed to *anaphora*.

CATAPHORA, in *Medicine*, a term formerly used to denote a variety of lethargy, or *coma*, with which it may be considered as nearly synonymous. It signified a lesser degree of sopor than the term *Carus* (which see), or a lesser approach to the state of complete apoplexy. But these distinctions are now discarded as useless, since the nature, causes, and treatment of all must be similar; they are not different diseases, but only different degrees of the same disease. Sauvages defines the cataphora, "Status somnolentus facile excitabilis, sine febre, delirio, et oblivione." Nosol. Meth. class. vi. ord. v.

CATAPHRAC TA, from *κατα*, and *φρασσω*, *I fortify*, or *arm*, in the *Ancient Military Art*, a cuirass, or heavy defensive armour, composed of sheets or links of iron, so curiously fastened and arranged on strong cloth or leather, like plumes, that they preserved the same appearance in all motions, and left no part of the body exposed. It was formerly used sometimes both by infantry and cavalry, and when by the latter, it was generally made to cover the horse as well as his rider. It was anciently used by the Persians, Sarmatians, and others. It was frequently made to cover only the breast. The Romans adopted it early for their foot, and, according to Vegetius, retained the use of it till the time of Gratian, when the Roman discipline becoming greatly relaxed, and military exercises with laborious duty being chiefly discontinued, their foot thought the cataphracts, as well as the helmet, too great a load for them to carry, and therefore threw both aside. But he tells us, that by thus leaving their breasts and heads exposed and unprotected, they were, when fighting against the Goths, frequently destroyed by the multitude of the archers of those barbarians. And he very emphatically observes, that whilst they declined military fatigue, and the trouble of carrying armour sufficient for their protection, they were in a most disgraceful manner killed like sheep. Hence it would appear, that the Romans were overcome chiefly by the bow, after they laid aside their defensive armour. His words are the following: "Licet exemplo Gotthorum et Alanorum, Hunnorumque equitum arma profecerint pedites tamen constat esse nudatos. Ab urbe enim condita usque ad tempus

D. Gratiani, et cataphractis et galeis muniebatur pedestris exercitus. Sed cum campestris exercitatio, interveniente negligentia desidiaque cessaret, gravia videri arma coeperunt, quæ raro utique milites induebant. Itaque ab imperatore postulant, primo cataphractas, deinde cassides deponere; sic detectis pectoribus et capitibus, congressi contra Gothos milites nostri, multitudine sagittariorum sæpe deleti sunt; nec post tot clades, quæ usque ad tantarum urbium excidia pervenerunt, cuiquam curæ fuit, vel cataphractas vel galeas pedestribus reddere. Ita fit, ut non de pugna, sed de fuga cogitent, qui in acie nudi exponuntur ad vulnera. Quid enim pedes sagittarius sine cataphracta, sine galea, qui cum arcu scutum tenere non potest, faciat? Quid ipsi draconarii atque signiferi, qui sinistra manu hastas gubernant, in prælio facient, quorum et capita nuda esse constat. et pectora? Sed gravis pediti lorica videtur, et galea fortasse, raro meditantî arma raro tractanti. Cæterum quotidianus usus non laborat, etiam si onerosa gestaverit. Sed illi qui laborem in portandis veteribus munimentis armorum, ferre non possint, detectis corporibus et vulnera sustinere coguntur et mortes; et, quod est gravius (et turpius) aut capi, aut certe fuga rempublicam prodere. Sic dum exercitum laboremque declinant, cum maximo dedecore trucidantur ut pecudes." In this passage Vegetius ascribes the success of the Goths against the Romans without their defensive armour chiefly to the great multitude of their archers. Even in the defence of modern fortifications there are situations in which we are convinced the bow and the arrow would have greatly the advantage of the musket and bayonet, as in casemated galleries, in the counter-scarps of ditches, &c. where musketry soon becomes useless on account of the smoke. And were it necessary to defend such a very inclosed country as this, many occurrences might arise, in which a certain number of good archers might be of more real use for the purposes of defence than thrice the number of our best musketry. Tacitus, Hist. lib. i. cap. 79. Veget. de Re Mil. lib. i. cap. 20.

CATAPHRAC TA, among *Surgeons*, denotes a bandage of the thorax; thus denominated from its resemblance to a Roman breast-plate, called cataphracts. See BANDAGE.

CATAPHRACTÆ NAVES, vessels armed and covered in fight, so that they could not be easily damaged by the enemy. They were covered over with boards or planks, on which the soldiers were placed to defend them: the rowers sitting underneath, thus screened from the enemies' weapons.

CATAPHRACTI, or CATAPHRACTARI, persons secured with cataphracts. The term, however, is not commonly employed to denote an ancient species of cuirassiers, or horsemen, covered completely, as well as their horses, with such armour as is described in the article Cataphracts, which see. The Persians made use of such cavalry; after them the Greeks; and then the Latins. Antiochus had 3000 of them when he marched against Scipio Asiaticus. And as the Romans copied after the Greeks, notwithstanding their hatred of them, in things they thought useful and advantageous, there is every reason to suppose that they borrowed from them that institution. The same meaning is affixed to the term *Crapellarii*.

CATAPHRACTUS, in *Zoology*. See DASYPUS.

CATAPHRACTUS *Pogge*, in *Ichthyology*. See COTTUS *Cataphractus*.

CATAPHRYGIANS, in *Ecclesiastical History*, a sect in the second century, so called as being of the country of Phrygia. They were orthodox in every thing, setting aside this, that they took Montanus for a prophet, and Priscilla and

and Maximilla for true propheteſſes, to be conſulted in every thing relating to religion ; as ſuppoſing the Holy Spirit had abandoned the church. See MONTANIST.

CATAPLASM, in *Surgery*, a poultice, or external application of a pulpy confiſtence, more or leſs compoſed of ſubſtances poſſeſſing a medicinal quality, and thence denominated antifeptic, emollient, diſcutient, anodyne, aſtringent, ſtimulating, maturing, repellent, &c. Cataplaſms have their name from *καταπλασσω*, *illino*, to ſpread or beſmear ; and are therefore always ſuppoſed to be ſomewhat coherent or tenacious.

They uſually conſiſt of farinaceous ingredients or mucilaginous vegetable matters, which are mingled with gums, balſams, reſins, eggs, honey, &c. and ſoftened by the addition of vinegar, water, or milk, and generally applied warm. Ignorance and caprice, however, have introduced a vaſt farrago of ſubſtances into compoſitions of this claſs ; but judicious and experienced ſurgeons have limited them very conſiderably, and much ſimplified the form of their cataplaſms.

The practitioner who keeps in mind the particular object he has in view, whether to communicate heat, cold, moiſture, or ſome peculiar medicinal virtue, will not be at a loſs to find appropriate materials for his purpoſe ; in the *Pharmacopœa Chirurgica* of Mr. Houſton are contained many formularies of this nature, adapted to various occaſions.

CATAPOTIA, from *καταπινω*, *Iſwallow*, dry medicines, in a form fit to be ſwallowed whole ; otherwiſe called *pills*.

CATAPPA, in *Botany*, Rumph. Gært. See TERMINALIA.

CATAPTELEA, in *Ancient Geography*, a town of Aſia Minor, in Bithynia, ſeated on the Euxine ſea.

CATAPULTA, from *κατα* and *πύλιν*, in *Ancient Military Language*. Much diverſity of opinion has exiſted among modern writers, in regard to the *catapulta* and *balliſta* ; ſome repreſenting the former as having been employed to throw ſtones and bullets, and the latter to throw arrows, darts, javelins, pointed poles, &c. ; others reverſing theſe applications of them ; whiſt ſome contend that each of them was made uſe of for both purpoſes. The chevalier de Folard, whom many of the French writers have followed on this ſubject, in his “ *Traité de l’Attaque et de la Defence des Places des Anciens*,” ſpeaks of theſe machines in the following words.

“ Polybe dit formellement par tout, où il parle de ces deux machines (la balifte et la catapulte) que la balifte jettoit des durds, et la catapulte des pierres.”

“ La catapulte, comme la balifte, avoit différens noms. Les Grecs l’ont appellée d’une façon, et les Romains d’une autre, chaque nation comme il lui a plu. Céſar l’appelle tantôt catapulte, tantôt *onager*, *onagre*. Les Grecs de la moienne antiquité l’appellent tantôt l’un tantôt l’autre, jamais machine n’a ſouffert tant de différens noms. J’en pourrois compter une douzaine tout au moins, qui ont couru toutes les nations. Je conſens qu’on les adopte tous, mais du moins doit-on ſe faire entendre dans la deſcription de la machine : car le nom n’y fait rien, et ne change rien à la choſe, dès que nous en concevons la ſtructure et le principe du mouvement.”

“ Le ſcorpion ne fut jamais la catapulte, comme une infinité de commentateurs l’ont cru ; ce n’étoit qui la balifte : car quel rapport peut avoir la catapulte avec cet animal ?”

“ Végèce dit qu’on nommoit autrefois ſcorpion, ce que de ſon tems on appelloit *manubaliſte* ; c’eſt l’arbaſete dont on commença à ſe ſervir du tems de nos peres, et que nous avons abandonnée depuis l’invention de nos fuſils, on de nos mouſquets, quoique cette armé, toute prevention à part, fut infiniment plus meurtriére et plus avantageuſe, que ne le ſont nos

fuſils, ſes coups plus certains et plus affurez, et fa force au moins égale. Végèce prouve aſſez, que le ſcorpion étoit la balifte des anciens. Cela ſe voit dans Céſar en pluſieurs endroits de ſes commentaires, car il emploie indifféremment ces deux termes pour ſignifier la meme machine ; mais il diſtingue toujours celleci de la catapulte : *Cæſar in caſtris*, dit Hirtius, *ſcorpionum catapultarum magnam vim habebat*.”

“ Avant que d’entrer dans l’explication de notre catapulte, ou pour mieux dire de celle des anciens, je crois, que le lecteur ne ſera pas ſaché de voir ici celle d’Ammien Marcellin, Liv. xxiii. en éclairciſſant ce que nous paroît obſcur et embarraſſé dans le texte de cet hiltorien. Cette hardieſſe nous doit étre permie, lorſqu’elle ne va pas au de là des bornes raiſonnables.” His tranſlation follows.

“ La catapulte eſt compoſée de deux poutres courbes, dit cet hiltorien, qui ſe joignent à leurs extremitéz par deux traversans. Aux deux cotez et vers le milieu de leur courbure, on pratique deux trous arrondi oppoſez l’un à l’autre, et larges à proportion du poids qu’on veut jeter ; c’eſt dans ces deux trous que l’on fait paſſer un cordage replié en pluſieurs tours qui paſſent deſſus et deſſous deux chevilles de fer qui part-gent cette eſpece d’écheveau de cordes. Au milieu de ce cordage filé et partagé par les deux chevilles de fer, on introduit à leur centre le bout d’une pièce de bois ou bras fait en manière d’axe de charette. Lorſqu’il eſt queſtion de ſ’en ſervir, l’on entortille et l’on bande les cordes également des deux cotez ; et de peur que la force du bandage et des cordes entortillées ne lâche, on tient fixes les deux chevilles par un arrêt : alors on baiſſe le bras par le bout d’en haut par le moié d’un moulinet, et ce bout eſt retenu par une détente ; on met alors la pierre à l’extremité de ce bras qui forme un cuilleron (bowl of a ſpoon). Un homme lâche alors la détente d’un coup de maillet, et fait partir le bras qui pouſſe la pierre d’une force extraordinaire, parce qu’il va donner et choquer dans le plus fort de ſon mouvement contre un montant, au milieu duquel il y a un couſſinet rempli de paille hachée.”

And he compliments thoſe, who have written before him on the ſubject, in the following manner.

“ S’il nous eſt permis de dire librement ce que nous penſons, ceux qui nous ont donné de la catapulte, entre autres Lipſe, Choul, Fabretti, Perrault, n’ont rien produit que d’imaginaire.

We ſo far agree in opinion with Folard that the real and original uſe of the *catapulta* was to throw ſtones, and that of the *balliſta* to throw darts, &c. But we cannot help obſerving, that he miſquotes Polybius in aſſerting that that hiltorian conſtantly makes this diſtinction between theſe two machines whenever he mentions them. For at the ſiege of Thebes in Phthiotis by Philip, where he makes Polybius ſay there were 150 catapultæ and 25 balliſtæ, that writer does not mention balliſtæ at all. His words are theſe. “ *Συναχθέντων δε καταπηλτών μὲν εκατὸν πεντήκοντα πετροβολικῶν δὲ ἑξήκων πέντε καὶ ἑκοσὶ, προσηλθεὶς ταῖς Θηβαίαις*. That is, 150 catapultæ and 25 ſtone-throwing machines being collected or brought together, he. (Philip) advanced towards Thebes. Now the *ἑξήκων πετροβολικῶν*, as diſtinguiſhed from the *catapulta*, was not the balliſta ; but the *onager*, which threw ſtones by means of a wooden ſtilus, pole, or beam, and a cham or a ſling ſuſpended at the end thereof for receiving the ſtones. This machine might have been ſo conſtructed as to throw ſtones of any ſize. The *καὶ το πλῆθος των βολῶν*, and the multitude of projectiles, which Mr. Hampton has tranſlated, “ darts diſcharged without intermiſſion,” might lead an incautious reader to ſuppoſe that there were balliſtæ there, from which thoſe were thrown. But this could not have been the caſe even

even according to his own translation of the Greek words denoting the machines, of which there were 25 distinguished from the 150 catapultæ, and which he expressly calls machines for throwing stones. Folard's assertion, then, on this point is altogether unfounded.

In like manner the words "καὶ τρεῖς ἦσαν βελοσπάρσεις λιθοβολοῖς," and there were three places, stations, or batteries, for stone-throwers, used by Polybius, when speaking of the siege of Echinus by Philip, are without any reason translated by Casaubon "et erant ibi tres stationes idoneæ locandis balistis," and by Mr. Hampton, "and in these (trenches) there were three batteries of balistæ."

Folard also roundly and unscrupulously asserts that Julius Cæsar calls the same machine sometimes *catapulta* and sometimes *onager*. The truth, however, is, that Cæsar does not make any mention at all of the *onager*. But his authority may be considered as decisive in regard to the use that was made both of the balista and the catapulta, and the distinction, in this respect, between the two machines. He mentions the balista only once, viz. in the second chap. or section of his second book, "De Bello civili," when speaking of the siege of Marseilles, by his lieutenant, C. Trebonius. His words are these. "Sed tanti erant antiquitus in oppido omnium rerum ad bellum apparatus, tantaque multitudo tormentorum, ut eorum vim nullæ contextæ viminibus viniæ sustinere possent. Asseres enim pedum xii cuspidibus præfixi, atque hi maximis balistis missi per quatuor ordines cratium desigebantur." From this passage it is evident that even the largest balistæ were employed to throw long pointed poles, &c. and such like missiles. Of the catapulta he also makes mention only once, which he does in these words; "aut faxa ex catapultis latericium discuterent," which clearly shews, that the *catapultæ* were in contradistinction to the *balistæ* employed for throwing stones.

Vegetius does not mention the catapulta; but he expressly tells us, that the scorpiones were called manubalistæ, or hand-balistæ, in his time. They were so called, no doubt, from such a machine's being manageable by one person. And, besides him, Vitruvius informs us, that the scorio and *onager* were different machines, though it appears from Ammianus Marcellinus, that the name of scorio was also given to the *onager*.

Folard taking it for granted, that the catapulta and the *onager* were the same machine with different names, has translated as above a passage on the *onager* in the twenty-third book of that author in such a manner as to make it suit this supposition. What he calls his *catapultæ* is neither the catapulta nor the *onager* of the ancients. It has a large wooden stilus, pole, or beam, with a ladle or spoon at the end of it for holding a stone. This stilus every time it is let loose and throws a stone, strikes violently against the cross-beam at the top, and must soon shatter either it or itself in pieces, and so shake the other parts of the machine as to render the whole useless. It has no sling or funda, which that writer expressly says the *onager* had, in these words. "Summitatque ejus (stili seu temonis) unci ferrei copulantur, e quibus pendet stipea vel ferrea funda." It is only necessary indeed to turn to the passage in A. Marcellinus to be satisfied, that the chevalier has translated it very erroneously.

The following extract respecting the frame of the machine is from Heronis Ctesibii Telestictiva.

"Duo ligna accipiuntur quadrata et equalia, quæ quatuor diæpneumatibus, id est, *transversariis*, itidem equalibus connectuntur, ex quibus duo in extremitatibus cardines habeant, qui in ligna quadrata immissi in exteriorem partem pertingant, ita ut in ipsarum eminentiarum foraminibus cuneoli adacti p gma totum fortissime contineant. Extremitatibus vero quadratorum lignorum sucule, quæ transversum motum

habeant, aptentur, in quibus sint foramina, per quæ vectes trajiciantur, five ad extremitates, five in medio, per quos versentur. Superant autem quadrata ligna ipsa diæpnegmata ad superiorem partem." This author represents it as a machine of the cross-bow kind with two straight arms, one end of each of which is fastened in the upright cordage and the other ends are joined by a cord or some other substance, answering the same purpose as the string of a bow.

The catapulta was certainly of the huge cross-bow kind, and when used acted like a pellet bow. The stand was rectangular and consisted of two beams placed longitudinally, and connected together with cross beams. On or near the middle of each of the side pieces there was an upright post erected. These two posts were mortised, or let into a strong cross-beam at top, parallel to, and directly below which there was also a cross beam for upright cordage, which was strained both above and below by means of crows put into the holes of the circular iron capitals, which had strong iron cross pieces, smooth at top, to prevent their chafing the same, of which there were two sets or coils separate and distinct from each other, equally distant from the centres of the said cross beams, and passing through the upper one, and either round pieces of iron fastened to the beam below, or cross pieces of iron in moveable capitals as in the beam above. The two arms forming the bow lay horizontally. The inner ends of them were inserted in the upright cordage; and the outer ends were united by a bow-string which was drawn back by a windlass or capstan at the hinder end of the machine. When the cord or other substance forming the bow-string was drawn sufficiently back, it was held by a catch and iron pin, from which, when the machine was going to be discharged, it was disengaged by the stroke of a hammer or mallet. Under the bow there was a table or platform on a sort of universal joint, by which it was elevated in front when necessary and also moved a little to the right or left between the upright cordage.

There is now at Gibraltar a catapult, which was constructed at the desire of the late Lord Heathfield under the direction of that very eminent military antiquarian, the present General Melville. It was for throwing stones a very little way over the edge of the rock in a particular place, where the Spaniards used to resort to the foot of it, and where shells thrown from mortars could not injure or annoy them. See the drawing of the said machine. *Artillery, Plate II.*

The catapulta and balista were both of them machines of the cross-bow kind and resembled each other in their general construction and moving powers, but were differently mounted for the different purposes to which they were applied or made use of. With the bow-string of the catapulta there was connected a sort of pouch or net-work for receiving the stones or bullets, that were to be thrown by it; and the table under it was plain or smooth; whereas in the balista, the table had a groove or channel in it, for the arrows, darts, poles, &c. that were to be propelled or thrown forward. Their general resemblance, however, or similarity of construction, was probably the cause of their being often confounded with each other even by some of the later Roman authors.

CATAPUTIA, in the *Materia Medica*. See EUPHORBIA *Lathyris*.

CATÄQUENSIS, in *Ancient Geography*, an episcopal see of Africa, in Numidia.

CATARA, in *Geography*, a town of Arabia; 76 miles S.E. of El Catif.

CATARA, in *Ancient Geography*, an episcopal town of Asia Minor, in Lycia.

CATARABON, a river of Upper Germany, which, according

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According to the interpreters of Ptolemy, directed its course towards Dacia.

CATARACT, in *Hydrography*, a fall or precipice in the channel, or bed of a river, caused by rocks, or other obstacles, stopping the course of its stream: from whence the water falls with an increased noise and impetuosity. The word comes from *καταπίπτω*, *I tumble down with violence*; compounded of *κατα*, *down*, and *πίπτω*, *deficio, I throw down*. Such are the cataracts of the Nile, the Danube, Rhine, &c.

Of the various cataracts of the Nile, two of the most remarkable are formed by the fall of the water between two mountains; which descends with such rapidity and noise, that the inhabitants within the sound of them are said to be all deaf. Mr. Bruce (*Travels in Abyssinia*, vol. iii. p. 423) particularly describes the cataract of the Nile near the village of Alata on the borders of the kingdom of Begemder, S.E. of the lake Tzana or Dembea. The Nile, he says, is here confined between two rocks, and runs in a deep trough, with great roaring and impetuous velocity. The height of this cataract has been somewhat exaggerated by the missionaries who report the fall to be about fifty feet: but Bruce states it at about forty feet. The river, increased by rains, when he observed it, fell in one sheet of water, without any interval, above half an English mile in breadth, with a force and noise that were truly terrible, and which stunned him and for a time made him perfectly dizzy. A thick fume, or haze, covered the fall all around, and hung over the course of the stream both above and below, marking its track though the water was not seen. For an account of the cataract of Syene; See SYENE. For the cataract of Assar; See ASSAR.

The most extraordinary cataract of the Rhine is that near Schaffhausen, the height of which is estimated by Mr. Coxe at only 50 feet: but M. Ramond, his elegant French translator, observes, that the quantity of water, which varies according to the season, has some influence upon the height, and a considerable effect upon the aspects of this fall. Those who have seen it at the periods when the snows dissolve will admit the exactness of that description, which this ingenious traveller thinks exaggerated, and only true of remote times. M. Ramond has been assured that the height of the cataract, in these circumstances, is not less than 80 feet. About three or four Italian miles east of Terni in Italy, there is a famous waterfall in the river Velino, near the place where it flows out of the Lago delle Marmore. The mountain on which it takes its course before its fall is very high, and environed on both sides by much higher mountains. The shelving of the river's bed, as soon as it comes out of the lake, causes a very rapid stream, that collects itself into three successive cascades, the last and loftiest of which seems to be 200 feet high. The noise of this cataract cannot be heard without astonishment; and from the bottom a white mist rises and fills the air to a considerable height. When the river clears itself of the rocks, between which these cascades are formed, it falls into the Nera about 100 paces distant. The grand water-fall is called the "Cascata delle Marmore." In the Wologda, in Muscovy, there are two cataracts near *Ladoga*, which see. The Zaire, an African river in Congo, commences with a large cataract, which falls from the top of a mountain. In Japan, which is very mountainous, many rivulets form by their junction considerable rivers, in which are large and surprising cataracts. The most remarkable is that of the lake Togitz, or Facone, which, being surrounded on all sides by high mountains, has no outlet for its waters excepting three different apertures, from which they fall down in cataracts, with a dreadful violence and noise; thence the three streams, reuniting, run down with a prodigious impetuosity, by a nar-

row channel through a deep valley, over rocks and precipices into the sea. The greatest natural curiosities of the known world are the cataracts of Lower Canada, at the distance of 18 miles from the town of Niagara." Mr. Weld, in his "Travels through Lower Canada (vol. ii.) has presented to his readers four engraved views of these falls, taken from different points of observation. The most stupendous of these is that on the north-western or British side of the Niagara river, commonly called the "Great or Horse-shoe Fall," from its bearing some resemblance to the shape of a horse-shoe. The height of this is only 142 feet, whereas the two others (the river being divided by islands into three distinct collateral falls) are each 160 feet high: but to its inferior height it is principally indebted for its grandeur; the precipice, and of course the bed of the river above it, being so much lower at one side than at the other, by far the greater part of the water of the river finds its way to the low side, and rushes down with greater velocity at that side than it does at the other, as the rapids above the precipice are strongest there. From the centre of the Horse-shoe Fall, arises a prodigious cloud or mist, that may be seen at the distance of several miles, and that exhibits, when the sun shines above it, a beautiful rainbow. The extent of this fall, ascertained by the eye, is estimated at no less than 600 yards in circumference. The island which separates it from the next fall is supposed to be about 350 yards wide; the second fall is about 5 yards wide; the next island about 30 yards; and the third, commonly called the "Fort Schloper Fall," from its being situated towards the side of the river on which that fort stands, is computed at the same measure with the large island. The whole extent of the precipice, therefore, including the islands, is, according to these estimates, 1335 yards. Some have supposed, that the line of the falls altogether exceeds an English mile. The quantity of water, carried down the falls, is prodigious; being found by a moderate calculation to be 670,255 tons per minute. The Fort Schloper Fall is skirted at bottom by milk-white foam, which ascends in thick volumes from the rocks; but it is not seen to rise above the fall like a cloud of smoke, as is the case at the Horse-shoe Fall; nevertheless, the spray is so considerable that it descends on the opposite side of the river like rain. Below these falls the whirlpools and commotions of the waters are so tremendous, as to render navigation impracticable for six miles; and immediately above them the river is much narrower than it is higher up. The river, however, runs evenly, and is navigable with safety for batteaux as far as Fort Chippeway, which is about three miles above the falls, but upon a nearer access the waters are so much agitated, that, unless a boat keep in the middle of the river and is dextrously managed, it must be dashed to pieces: however, with such management it may pass down to an island which divides the river at the falls. Since the falls of Niagara were first discovered, they have very much receded, on account of the disrapture of the rocks which form the precipice. Within the memory of many of the present inhabitants of the country, the falls have receded several yards. It is not an improbable conjecture, that they were originally situated at Queenstown. Tradition reports that the great fall, instead of having been in the form of a horse-shoe, once projected in the middle; but for a century past it has remained nearly in the present form. The falls of Niagara are much less difficult of access now than they were some years ago. The most favourable season for visiting them is about the middle of September; for then the woods are seen in all their glory, beautifully variegated with the rich tints of autumn, and the spectator is not then annoyed with vermin. In the summer season you meet with

rattle-

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rattle-snakes at every step, and musquitoes swarm so thickly in the air, that, to use a common phrase of the country, you might cut them with a knife. The cold nights in the beginning of September effectually banish these noxious insects. In the province of New York, three leagues from Albany, there is a cataract of 50 feet perpendicular height, the vapour of which, like that of the falls of Niagara, gives rise to a rainbow. For an account of other cataracts in America; See ANTHONY'S *Falls*, CHAUDIERE, COHOZ, and MONTMORENCY. On the Highlands of Scotland, as well as other mountainous countries, there are several falls; but the grandest cascade is that in the river Fyres. This cataract pours down its waters from a height not much less than 500 feet; but it is broken in its progress through the different stages of the rocks. "At the last stage but one," says Mr. Lettice in his "Tour through various Parts of Scotland," "where the freedom of its passage was arrested by a narrow channel in a cleft of the precipice, it grew furious and foaming from the obstruction, till at length delivered it issued forth on a broad surface of a rock just below, and in one vast and voluminous sheet tumbled into the profound gulf, with a momentum that shook the glen, and filled the circumambient space with a continual spray."

"Now rolling down the steep again

Headlong, impetuous; see it pour!

The rocks and nodding groves rebellow to the roar."

In the vicinity of the lakes of Cumberland there are several considerable cataracts or cascades; that called "Sour-milk Force," near the bottom of Buttermere lake, is supposed to fall upwards of 300 yards. These cataracts are also rivalled by a remarkable fall of the Tees, on the west of the county of Durham, over which is a bridge suspended by chains, seldom passed but by the adventurous miners; and in this connection we might mention Asgarth Force in Yorkshire.

The principality of Wales abounds with falls of water, cascades, or cataracts, as they may be severally called, which afford amusement to the curious traveller. In the vale of Neath, the scenery of which is very romantic, there are several cascades, that are worthy of notice; but those of the river Hefsey claim particular attention. In the most considerable of these, near the junction of the rivers Hefsey and Melta, a broad sheet of water projects over an abrupt ledge of rock to the depth of 50 feet. Four others occur within an eighth part of a mile from the first. The principal of these is about 25 feet in height, and the smallest about ten. These four are all seen at once; but a bend of the river prevents a view of the great cascade. If the five were visible at one point of view, they would nearly rival the great fall of the Mynach in Cardiganshire, below the Devil's bridge; for though they would still be very inferior in point of height, the Hefsey is much broader than the Mynach, and in that respect would have the advantage with regard to grandeur. At a small distance the brink of a precipice discloses the great fall of the river Melta, which is broader than that of the Hefsey, and 70 feet high. This projects as suddenly as the others, and, carrying a larger body of water, with greater violence. It is, therefore, more awful and tremendous, but unaccompanied with those circumstances of variety and beauty which adorn and enliven its rival cataract. In the vicinity of Neath, at a place called Melin court, there is a magnificent fall of the Cleddau from the height of 80 feet. With the exception of the Mynach fall, this is the largest in South Wales, and unrivalled in its accompaniments, considered as an enclosed scene. The cascade at Havod in Cardiganshire, which has a continued fall of about 100 feet, is an interesting object in the scenery of that spot, which has been so

justly celebrated on account of the improvements introduced and still carried on by Thomas Johnes, esq. its proprietor.

The fall of the Mynach, at the Devil's bridge, has already been mentioned. This stream forms its furious passage through masses and fragments of opposing rocks, hollowing out deep cavities, which are filled with unfathomed waters, and which contribute to increase the gloom of a recess, impervious to sunshine. The depth, from the present bridge to the head of the river, is 114 feet. This cascade comprehends four different falls, each of which is received into a deep and agitated pool at the bottom, but so diminished to the eye of the observer as to melt the four into one continued cascade. The first fall takes place about 40 yards south-west of the bridge, where the river is confined to narrow limits by the rocks; it is carried about six feet over the ridge, and projected into a basin at the depth of 18 feet. Its next leap is 60 feet, and the third is again diminished to 20, when it encounters rocks of prodigious size, through which it struggles to the edge of the largest cataract, and pours in one unbroken torrent down a precipice of 110 feet. The river, therefore, falls 208 perpendicular feet, without allowing for the declivity of the three pools. If we add to this 114 feet, the perpendicular depth from the bridge to the junction of the Mynach and Rydall is 322 feet or upwards. At a small distance, in a recess seldom frequented, is the fall of the Rydall. The most remarkable cataracts in North Wales are the following: In Merionethshire, at Dol-y-Melynlyn, near Llanelltyd, is "Rhaiadr-du," or the black cataract, which is a double fall of about 60 feet high, where the water foams with a thundering noise down some black rocks, giving to the scene a singular appearance; which is increased by being covered in many places with a pure white lichen. The torrent falls into a small deep basin, from whence it dashes itself along its rugged channel. About one mile from this is another cataract, called "Rhaiadr-a-Mawddach," situated in a river of that name, where the stream forces itself down a rock, about 60 feet high, in which the stream is three times broken in its fall to the basin round which the rocks and trees form a kind of amphitheatre. Near the latter is "Pistyll y Cain," which is by far the highest and most magnificent of the three: it consists of a narrow stream, which rushes down a vast rock of the height at least of 150 feet, whose horizontal strata run into irregular steps through its whole breadth, forming a mural front; but its picturesque beauty is much injured by its regularity. The immense fragments of broken rocks, scattered round in every direction at the foot of the fall, communicate a pleasing effect, which is farther heightened by the agreeable tints of oaks and beech foliage, and, upon the whole, possesses much local beauty and romantic scenery. The most remarkable cataract in Wales is that called "Pistyll-Rhaiadr," in the extremity of the vale that lies about four miles from the village of Llanrhaiadr yn Mochant, on the borders of the counties of Montgomery and Denbigh. This cataract is formed by the river Rhaiadr, which falls from almost a perpendicular crag 210 feet high, and passes foaming through a natural arch or open basin, between two prominent sides, into a small basin at the bottom; whence it rolls over small rocks, through a woody vale, into the Severn or Tanad, a branch of the former. Some have estimated its whole height at 240 feet. The upper part of the cataract, when the sun shines upon it, is visible to a great distance; while its silvery appearance gives a degree of singularity to many of the views. Dr. Worthington, formerly vicar of Llanrhaiadr, erected a small room near the foot of the rock, for the use of visitors, who bring their own refreshments with them: this is frequently praised for its convenience and great utility in these sequestered and dreary

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dreary regions. Malkin's Scenery, &c. of South Wales, 4to. 1804. Evans's Cambrian Itinerary, 8vo. 1801.

Strabo calls that a cataract which we call a cascade; and what we call a cataract, the ancients usually called a *catadupa*. Herminius has an express dissertation "De admirandis mundi cataractis supra & subterraneis;" where he uses the word in a new sense; signifying, by cataract, any violent motion of the elements.

CATARACT, (from *καταρσσω*, *deturbo*, to confound,) in *Surgery*, is a dimness, obscurity, or entire loss of sight, produced by an opaque body situated behind the pupil, which interrupts the transmission of the rays of light, and is visible through the aperture of the iris. The seat of this opacity is usually in the crystalline lens and its capsule; it generally arises and increases by slow degrees; sometimes it suddenly appears in a very high degree. At first an impression is made upon the organ, as if all the objects it perceives were enveloped in a mist, which gradually grows thicker, and at length entirely conceals them; at the same time the opacity behind the pupil increases by the same degrees. See EYE and VISION.

According to the different seats of the cataract, it is distinguished into several species. When the opacity exists in the crystalline lens alone, it is termed *crystalline*; when in the capsule alone, *membranous*, or *capsular*, in which case it may occupy the whole capsule, or only the anterior or posterior membrane. Sometimes both the capsule and the lens are opaque, when it is named a *mixed cataract*. Sometimes there is a preternatural accumulation of Morgagni's fluid, which becomes milk-white and opaque. All these species refer to the crystalline lens, or its capsule, and are therefore comprehended under the term of the *genuine cataract*; but when the opacity is seated in other parts of the eye, it is termed the *spurious cataract*, which is divided into four species. The first species is, when pus or some other opaque substance is collected in the anterior chamber of the eye into a mass, which stops up the pupil, or fixes itself upon the anterior membrane of the capsule of the lens. In the second species, the hyaloid membrane becomes opaque. In the third species, a brown membrane is found in the eye, which lies upon the anterior part of the capsule, and is termed *choroid cataract* by those who consider it as an elongation of the choroid membrane; though it is probably produced only by the pigmentum. The fourth species is that which occurs with infants who are born with a closed pupil: this is named by some *cataracta pupillaris*; but it would more properly be called *synizesis congenita*.

In the crystalline cataract, the lens is sometimes converted into a fluid which resembles milk or pus, or thin jelly. Sometimes its capsule likewise becomes opaque and thickened, and separates itself from the neighbouring parts in such a manner, that, when extracted, it appears like a round sac filled with milk. In this case the capsule now and then is detached spontaneously from the vitreous humour, so that the cataract becomes perfectly moveable in the eye, and trembles upon the slightest motion of the eye, or of the substance behind the pupil. Sometimes the lens preserves its natural consistence, excepting that its surface becomes soft and pulpy; sometimes it is firm, like horn or bone, and the harder it becomes the thinner and smaller it is. In this case, the cataract has generally an ash, yellow, or brownish colour. Sometimes the crystalline lens has the consistence of a thick jelly, coagulated milk, or new-made cheese. Not unfrequently the lens partakes at the same time of all these different degrees of consistence.

In the capsular cataract, the lens generally becomes also opaque; the posterior membrane of the capsule is rarely, but most frequently the anterior alone, opaque. When the

opacity behind the pupil appears white and shining; when white and shining points or streaks are observed in it; when the opacity is as great at the circumference as at the middle, and no black ring is seen around the circumference; when the opacity arises suddenly; or when only a portion of the pupil becomes opaque, we may suspect the disease to have its seat in the capsule. When the opacity, attended with these phenomena, appears close behind the pupil, and convex, it is probably situated in the anterior membrane of the capsule; but when it is far behind the pupil, and appears to be concave, it probably has its seat in the posterior membrane of the capsule. In the tremulous, concreted, and partial cataract, the capsule is always opaque.

The secondary cataract is a capsular opacity, produced after the operation of extracting or depressing the lens has been performed, and commonly arises from the capsule, which has been left behind in the first operation, becoming afterwards opaque, and depriving the patient a second time of his sight. Sometimes the opacity which occurs after the operation, proceeds from portions of the lens remaining behind; and when it occurs after the operation of depression, it often proceeds from the lens having risen again into its original situation. Sometimes also the sight may be lost long after the operation has been performed, in consequence of the capsule, which has been left behind, becoming opaque.

The concreted cataract is always of the capsular kind, either with or without an opacity of the crystalline lens, and in this the capsule has always formed preternatural adhesions with the surrounding parts. These adhesions may be produced in a threefold manner. The capsule adheres either solely to the lens, or it has formed adhesions at its posterior part with the hyaloid membrane, or at its anterior part with the iris. The cataract, which is produced merely by a preternatural accumulation of the fluid of Morgagni, is rare; as in this case the capsule and the lens are generally at the same time both opaque, though in some cases the accumulation of the liquid is the sole cause of the loss of vision, the lens as well as its capsule being transparent. The different species of spurious cataract are upon the whole but rarely observed.

Besides these principal species of cataract, which require particular attention in the operation, there are also other varieties which demand less attention. To these belong, for example, the diversities of the colour of the cataract which sometimes is milky, sometimes of a pearl colour, ash-grey, brown, yellow, greenish, nay, even black. It was formerly also imagined, that the crystalline lens, in the progress of its becoming opaque, was first softened to a certain degree, and then again gradually hardened. In its soft state it was termed *unripe*, and after it had acquired a certain degree of hardness it was called *mature*. In conformity with this theory, a recent cataract was always supposed to be soft, and one of long standing hard; but this opinion has been proved of late to be without foundation. When the opacity does not occupy the whole pupil, but only half, or a portion of it, it is termed *partial*. Sometimes one only observes a white opaque streak behind the pupil. All these partial opacities have their seat in the capsule of the crystalline lens.

More important is the *complicated cataract*, and it may be combined with all other diseases of the eye, which are partly easy to be discovered, and partly do not impede the cure of the cataract; the *AMAUROSIS* excepted, which not only frustrates the intention of the operation for the cataract, but frequently is also difficult to be discovered. Nevertheless, the knowledge of this latter complication is particularly necessary with respect to the prognosis; for although amaurosis

rofs presents no obstacle to the operation for the cataract, the patient cannot, however, expect to have his sight restored by that alone. See *GUTTA SERENA*.

With respect to the causes of the cataract, it is either a local complaint, or a consequence of some constitutional disease of the body. To the causes of cataract belong—external violence, wounds, bruises, concussion, the action of fire, acrid vapours, inflammations, metastases of morbid matter, various diseases of the eye, and too much exertion of the organ, immoderate indulgence in venereal pleasures, excessive drinking; also arthritic, scrophulous, scorbutic, and venereal acrimony, hereditary disposition, and age; and in the latter cases the operation is less likely to be productive of benefit than in the first. Finally, there also occurs a congenital cataract, which is commonly fluid; but in other respects equally curable with any other species of cataract. The disease may occur in every constitution, under every mode of living, and at every period of life; but it is more frequent in persons advanced in years, than in young people. When from any cause, internal or external, a cataract is produced in one of the eyes, it generally comes on gradually, within a longer or a shorter period, in the other eye also; in many cases, however, the other eye remains free from disease during the patient's life.

The cure of the cataract depends almost entirely upon surgical assistance: though it has in some cases been known to have been cured, without any operation, merely by internal remedies, or even spontaneously; viz. when the cataract evidently proceeds from internal causes, which can be removed by medicines; for example, when it is of an arthritic, venereal, scrophulous, &c. origin, and when the cataract depends entirely upon the opacity of the capsule. The crystalline cataract can hardly be cured by internal remedies; though it is probable that the milky may in some cases be dissolved.

When the cataract proceeds from internal causes, such as a venereal, arthritic, &c. taint, such remedies are to be employed as counteract these causes; and when no internal cause can be detected, and the cataract seems to be of a local nature, such remedies are to be employed as are thought to possess a dissolvent power. Mercury has most frequently been employed with success; perhaps because a venereal taint is one of the most frequent internal causes of cataract. A complete opacity behind the pupil, proceeding from an arthritic taint, has been cured, within the space of four weeks, by the internal exhibition of vin. antim. and ac. nitum, and the external application of decoct. cort. mezer. Cataracts, probably those of a scrophulous origin, have been cured by means of Peruvian bark and cicuta. In one instance a cataract was cured during the administration of an ointment for the itch, when a psoric eruption made its appearance.

Amongst the resolvent remedies, those which stand best recommended by the test of experience are mercury, various antimonial preparations, volatile alkali, æther, and extr. hyoscyam. alb. Electricity has also been used with success. Fresh millipedes, emetics, artificial ulcers, and various evacuant sternutatories, combined with mercury, are likewise generally recommended.

The operation, which in the majority of cases is the only remedy remaining for us to try, is not always admissible, or its success is more or less to be expected. The surgeon must examine the case before him with great attention, in order that he may form a proper prognosis; but even under the most favourable circumstances, he ought not to promise his patient any thing with certainty, as even under such circumstances the operation sometimes fails of success.

The operation is altogether inadmissible when the patient

is an infant; when he has long been troubled with obstinate and frequent head-ach; when his face is of a red copper-like colour, his eyes inflamed, painful, and unable to bear the light, and have long continued in this condition; when the patient is actually affected with rheumatic or arthritic symptoms; when he is disturbed with cough; when the diseased eye is preternaturally large and dropical, or preternaturally small and atropic; and when the cataract has formed a complete adhesion with the iris at all points. When an eye is affected with cataract, we ought never to operate, as long as the patient is not almost entirely deprived of sight in that eye, unless it should be rendered necessary by some peculiarly urgent symptoms. It is likewise commonly unadvisable to perform the operation when the patient is blind only in one eye, and the other possesses its perfect powers of vision.

The operation is attended with difficulty, or its event is doubtful, when the patient, without any symptoms of amaurosis, distinguishes light from darkness in an indistinct manner, or not at all; when the cataract arises from external causes, such as a bruise, a blow, or merely a violent inflammation; when the first appearance of the cataract has been attended with violent head-ach and ophthalmia; when it is membranous, or adhering at any point; when the patient is of a cachectic habit, and the cataract has arisen from some external cause which could only be alleviated, but not entirely removed, before the operation.

Mr. Stoll never undertook the extraction of the lens, with persons who were affected with rheumatic or arthritic pains, who laboured under head-ach, or hemicrania, who were affected with pains in the temples and eyes, with frequent erysipelas, or obstinate cough, or eruptions in the face, or where the teeth and gums were in a very diseased condition, or where the cornea in either of the eyes began to grow opaque, or were dilated, and varicose vessels passed through the eye; as in these cases it generally had unfortunate consequences, the faculty of vision being either weakened, or entirely destroyed, after the operation.

We may expect that the operation will prove successful, when the patient is in other respects perfectly healthy; when the cataract has not been produced by some permanent internal cause; when the patient can perfectly distinguish between light and darkness; when during the commencement of the disease the patient has not been affected with frequent head-achs and inflammations of the eyes; when the motion and form of the pupil are perfectly in their natural state; when the cataract is situated at the proper distance behind the pupil, and the eye is in other respects entirely sound and without blemish. But great as the advantages are which this operation produces, it is still always necessary that the want of the crystalline lens should be supplied to the patient by the use of a convex cataract glass; as there are few who are able, after the operation has been performed, to read without the aid of such a glass. See *OPTICS*.

The tedious and careful preparations which surgeons make in order to prevent the inflammation which is apprehended from the operation, are not only unnecessary, but also very prejudicial. All that the surgeon can do with otherwise healthy patients consists in the following means:

1. He must endeavour to diminish and shorten the anxiety and dread of the patient by every possible method; he must not delay the operation long; and even though its success should seem to him to be doubtful, he should endeavour to inspire his patient with hope; he should also endeavour to amuse his mind as much as possible, and prevent his thoughts from dwelling upon the operation; he should remove every thing that may give too great an air of solemnity to the operation, and not inform his patient long before hand of the hour fixed upon for the purpose; when the patient is timorous,

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rous, he ought to take, half an hour before the operation, 15 or 20 drops of laudanum in a little wine; and, finally, the operation should be performed without any unnecessary preparation and parade.

2. Only when the patient is very plethoric, and used to blood-letting, a vein may be opened.

3. For two or three days before the operation, the patient should use a less nourishing diet than usual, and carefully avoid whatever can produce irritation, coarseness, or disturbance in the primæ viæ. The patient should particularly avoid all the occasional causes of rheumatic and catarrhal affections.

4. When there is cause to suspect an accumulation of feculent matter in the alimentary canal, a gentle purgative is indeed necessary; and, unless it should be contra-indicated by particular circumstances, some mercurial preparation of this kind is far preferable to the common purgative salts.

But when the patient is troubled with any complaints which might influence the success of the operation, these must be removed, as far as may be done, by means of remedies adapted to their nature and causes. No particular season of the year is exclusively favourable to the operation, all that is required being that the patient should be kept in a moderate temperature, which may be imparted to the atmosphere about him at any season. But when the patient is rheumatic or gouty, the summer is the most favourable season for the operation.

In this operation, much depends upon the convenient position both of the surgeon and patient. The surgeon, when he operates, must sit upon a high, and the patient upon a low chair, so that the head of the latter may be placed opposite to the shoulders of the former. The legs of the patient must be stretched out under the chair upon which the surgeon sits, and the head of the former must be quite close to the breast of the latter. In order to render his hand more steady, the surgeon must place one foot upon the frame of the chair upon which the patient sits, rest the elbow of the arm with which he operates upon his knee, and press his hand close to the cheek of the patient.

The surgeon ought to sit near to one of the windows of the chamber, and direct the curtains to be drawn before the others. The patient should sit in such a situation that the light may fall obliquely over his nose into his eye. The chair upon which the patient sits should have a high perpendicular back, against which his head should rest perfectly close, in order that he may not be able to start back with it during the operation.

The eye upon which the operation is not performed, ought, especially if the patient is able to see with it, to be covered with a fillet. An assistant, who stands behind the patient, lays one of his hands, for example the right, if the operation is performed on the left eye, under the chin of the patient, and raises it a little upwards, so that the face of the patient is directed somewhat upwards, and presses his head to the back of the chair, or if he sits upon one that has no back, or only a low one, to his own breast. The assistant applies his other hand to the patient's forehead, and draws the superior eyelid upwards with the fore and middle fingers of the same hand. The inferior eyelid the operator himself draws downwards with the fore and middle finger of the hand with which he does not operate.

When the line of separation between the patient's two eyelids is not sufficiently long, when the patient is very restless, and the dexterity of the assistant cannot be depended upon, it will be best to let the superior eyelid be drawn upwards by means of a broad silver hook. This hook may be formed most conveniently of a double flexible silver wire. Some also draw the inferior eyelid downwards by means of

a double hook, applying the superior hook to the eyelid and suspending a moderately heavy weight to the inferior.

Mr. Barth has lately proposed a method of operating, adapted for skilful operators, according to which he omits all the preparations hitherto mentioned. He uses no chair either for the operator or the patient, neither does he employ an assistant, nor make use of any hook. He directs the patient to lean standing against the wall of the chamber, in such a position that the light may fall obliquely upon the eye on which he is to operate. He then performs the operation in the following manner. After having placed the four fingers of his right hand (supposing the operation to be performed upon the left eye) upon the anterior part of the hairy scalp of the same side of the head, he draws the upper eyelid as much as he can upwards with the thumb of the same hand; he then places the thumb of his left hand upon the lower eyelid, draws it downwards as much as possible, and presses it with the sufficient degree of force upon the inferior margin of the socket; immediately after having done this, he pushes the point of the fore finger of his left hand under the thumb of his right, fixed in the position above-mentioned, as far as the upper eyelid, which he raises still higher up with the finger, and presses it as much as is necessary to the bottom of the socket, more or less outwards or inwards, in proportion to the necessity there is for presenting the ball of the eye. All this is done to the external parts of the eye, without touching the ball. The eyelids being secured in this manner, he orders the patient, as usual, to direct his eye in the proper position, and touches the cornea repeatedly with the flat of his lancet, at the same time giving the patient to understand that he is not about to operate. By this means he induces the patient (who generally is most restless with his head and eyes at the time when the first puncture is made, not on account of the pain which it occasions, but from fear of the danger in which he thinks his eye is), to remain quiet whilst this puncture is made, thinking the operator is still only examining the parts. But in order to keep him equally quiet whilst he proceeds to make the incision, he endeavours to throw him into a state of stupefaction by suddenly menacing him with impending danger. Having thus made the first puncture, he endeavours, with deliberate speed, to push his lancet towards the point at which it is again to be brought out, in such a manner as not to suffer the ball of the eye to slide too far towards the internal canthus, and to render the incision of a just length; though, as is well known, it ought rather to be too long than short. When he has once got hold of the cornea by bringing out the point of his lancet at the proper spot, and the eye remains in its proper situation, he continues the incision till he has completed it. But when the ball of the eye has rolled farther in any direction than it should, he brings it, as he has it now in his command, into the position necessary for completing the incision. But when he cannot reach the point for the outward puncture, without the cornea being some where in a great measure concealed, he is generally able, by a rapid and experienced comparative observation of the direction of the lancet, and the still visible cornea, to arrive at this point, blindfold as it were, and to complete the incision without damaging either the angle of the eye or the iris. For, entirely to withdraw the lancet (especially for those operators who are not able immediately to find again the entrance, and exit-puncture, and to complete the incision without injury to the iris), is always a last, though a melancholy, alternative; which, particularly where it renders it necessary to defer the completion of the operation to another day, frequently disappoints the practitioner of the reputation which he hoped to acquire by it.

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Messrs. Arneman and Conradi also deviate from the common practice, in letting the patient sit during the operation, whilst they perform it standing; as they conceive this posture to be the best and most convenient for the operator. In this manner, Mr. Conradi says he can adapt his own height to that of the patient more accurately and conveniently; and by pressing his arm to the patient's side, and his hand to the cheek of the patient, his hand loses nothing of its steadiness.

The operation for the cataract is performed either by *depression* or *extraction*. In the first, the operator presses the opaque lens out of its natural situation down to the bottom of the eye-ball, so that it may no longer be opposite to the pupil, and consequently no more obstruct the admission of the rays of light into the eye. In the second, he entirely extracts the lens through an artificial orifice in the membranes of the eye. Each of these methods has its peculiar advantages and disadvantages: some consider the one, and some the other, to deserve the preference. The method by depression is indubitably preferable in all cases in which dangerous symptoms are to be apprehended from the extraction of the lens; as when there is cause to fear a violent inflammation; when the patient is very timorous, and the eye very restless; when the cornea is very flat, and the pupil very irritable, so as to contract with unusual force; and when not only the lens but the capsule also is opaque. Depression is likewise said to be preferable when mercurial remedies have been previously employed. In cases of cataract proceeding from rheumatic metastases, it has been advised always to employ the method of depression. Moreover its greatest advantage consists in the circumstance, that even though it should not have succeeded, it may be repeated without danger, without proving an impediment to the operation of extraction being performed, even though various attempts at depression have proved unsuccessful; whilst, on the contrary, when the operation of extraction has been performed, without restoring the sight of the patient, there remains very little hope that he will ever recover it.

For performing the operation of depression, needles particularly prepared for the purpose, and provided with handles, are necessary. These needles are made of different forms, the principal of which are the round and the two-edged; of these the latter deserve in all cases the preference. Before the needle is introduced into the eye, it should be dipped in oil, or else moistened with saliva. It must be held, like a pen, between the thumb, fore and middle fingers, quite close to the foremost end of the handle. The hand must be applied close to the side of the patient's face, which generally renders the eye restless for a moment, in which case we must take care not to frighten the patient still more by repeated injunctions to keep his eye quiet; but rather let the patient alone for some moments, till his eye again becomes quiet, which it generally does in a very short time. As soon as the eye remains quiet in a position convenient for the operation, the needle is thrust quickly, but cautiously, into the eye, namely into the albuginea, at the external angle of the eye, a line from the margin of the transparent cornea, and rather more than a line under the centre. When a two-edged needle is used, it is thrust forward in such a manner, that one of its flat sides is directed upwards and the other downwards, and one of its sharp edges anteriorly, and the other posteriorly. But lest the point of the needle should hit upon the lens, and push it, if hard, into the internal canthus, the needle must never be pushed through in a perfectly straight direction, but always directed somewhat towards the posterior part of the eye, so as to bring its point behind the lens, in such a manner that it cannot be seen beyond the pupil.

As soon as the needle has been thrust through the membranes of the eye, the operator stops for a moment, till the eye has again become quiet; he then gradually turns the needle, at the same time thrusting it deeper into the eye, in such a manner, that now one of its edges is turned upwards and the other downwards. He pushes the needle obliquely backwards, and so deep into the eye, as to bring its point behind the crystalline lens, and a little beyond its centre. As soon as the needle has been pushed in far enough, the surgeon raises its point, and applies it to the upper margin of the crystalline lens, so that one of the flat sides is directed upwards and the other downwards, lying upon the crystalline lens; and in making these turns he is directed by the black stroke on the handle of his needle. He now presses the lens downwards and backwards, but by no means right perpendicularly. During this operation, he observes the opaque substance sinking down behind the pupil, and the needle following it. It is, however, to be always kept in mind, that the point of the needle cannot be raised within the eye, except by depressing its external handle, and vice versa.

When the surgeon has depressed the lens to a sufficient depth, he waits a moment before he again raises the needle. After having raised it as high as the middle of the pupil, he likewise waits for a few moments, before he draws it out of the eye, in order to see whether the lens again follows the needle; should that be the case, he repeats the operation of depression. Should it not follow the needle, he withdraws this instrument slowly out of the eye, in the same manner as he had introduced it, namely with one of its flat sides directed upwards and the other downwards.

Sometimes the lens penetrates forwards into the pupil, as often as it is pressed upon with the needle, in spite of all the pains that may be taken to push it backwards and downwards. In this case, our best method will be, immediately to determine upon another mode of operating which shall be mentioned hereafter. When the requisite caution is not used, the lens sometimes passes through the pupil into the anterior chamber of the eye, in which case it must be extracted. All the methods that have been proposed for drawing back the lens through the pupil, and afterwards depressing it, are inadmissible. Sometimes the lens, after it has been depressed, constantly rises up again with the point of the needle; and in these cases it is to be presumed that the point of the needle may sometimes have been pushed into the lens, so as always to raise it up again when it is elevated. This may probably occur most easily, when the needle has not been pushed far enough into the eye; and when it does occur, the lens will always be observed to rise together with the point of the needle. In order to obviate this trifling difficulty, nothing more is necessary than to draw the needle a little out of the eye, and then repeat the operation.

Mr. Willburg has endeavoured to improve the operation of depressing the cataract, so that the lens may easily be loosened, and depressed without lacerating it, its rising up again prevented, or at least rendered a rare occurrence, and its being injured by the point of the needle, as much as possible guarded against. He directs us rather to turn round than depress the lens, so as to direct its anterior surface upwards, but its posterior straight downwards, and its inferior margin outwards. For this purpose, the point of the needle, after having been introduced into the eye in the above-mentioned manner, is to be raised, moved round the superior margin of the lens, and applied, with one of its flat sides directed towards the iris, and the other towards the lens, to the anterior surface of the crystalline lens, a little above the centre; upon which the whole lens must be pressed gently backwards.

backwards, in order to loosen it from its adhesions; and then the needle is to be applied a little higher and nearer to the superior margin of the lens, and the upper part of the lens pressed downwards and backwards; and in this manner the whole lens is to be laid at the bottom of the eye in a horizontal direction. In operating according to this method, we may also use the round needle instead of the two-edged one; only when that is done, we must not insert it so near to the edge of the transparent cornea as we do the first, but at two lines distance at least, in order that the point of the needle may be able to follow the superior margin of the lens, backwards into the eye, during the operation. Or, it may be still more advisable, to introduce the needle as usual at the distance of a line from the margin of the transparent cornea, in order to prevent its point from injuring the iris, by being passed over and before the lens; and then turning over the superior part of the lens, to push the needle gradually deeper into the eye, that its point may follow the upper part of the lens backwards into the eye.

The surgeon should operate upon the patient's left eye with his right, and upon his right eye with his left hand; since all the proposals that have been made for operating upon the right eye with the right hand, as for example by the operator's standing behind the patient, or using a crooked needle, tend rather to render the operation more difficult than to facilitate it. At farthest it is possible to operate with the common cataract needle upon the right eye, over the patient's nose, and consequently with the right hand, provided that during the operation the eye be turned a good deal outwards; unless the patient's eyes were very deep seated and his nose very large. However, the power of operating with the left hand also is easily obtained by a little practice.

After the operation, particularly during the first days, but also for some time longer, the patient should constantly observe two rules; namely, to avoid all violent and quick motion, or concussions of the head and body, and he must be cautious never to place his head in a low dependent position, and least of all to bend it forwards. Coughing and blowing of the nose are said to hinder the depression of the lens, and must consequently be avoided also after the operation. Vomiting, which is frequently a sympathetic consequence of the operation, must be prevented by the use of opiates. It is not necessary that the patient should constantly lie upon his back; but he may either walk, sit, or lie down: however, whenever he changes his posture, he ought always to do it gradually and cautiously.

The membranous cataract, which proceeds from an opacity of the capsule of the crystalline lens, whether its seat be discovered before or during the operation, requires the common method of operating, as in this; especially when the crystalline lens is turned down, its capsule is always depressed together with it. This happens so uniformly, that we may assume it as a rule, whenever the capsule is opaque, always to prefer the turning down of the lens to every other method of operating. Should the capsule, in some rare instances, even break whilst we are depressing the lens, and not be entirely depressed together with the lens, it may be pressed down afterwards by itself. A two-edged needle is, in such cases, always to be preferred to a round one, as it lays better hold of the capsule.

The *secondary cataract* seldom occurs after the operation of depression, and when it does take place, we ought not to be too hasty in undertaking a second operation, as it frequently disappears spontaneously, in a gradual manner, and sometimes yields to internal remedies. The secondary cataract is either in consequence of an inflammation of the capsule, in which case it generally comes on soon after the

operation, and is attended with violent inflammation of the whole ball of the eye, and sometimes disappears together with that inflammation; or, if it still remains behind, yields to the operation of vesicatories, and the internal use of dissolvent remedies, especially antimonials, camphor, cicuta, volatile alkali, &c.: or, it is an effect of the continued arthritic, venereal, or scrophulous action which caused the first opacity; and then it generally comes on late, nay, even some years after the operation; being sometimes attended with inflammation of the eye, and at other times not. In this case, the internal medicines, adapted to the particular cause of the disease, are now and then of use.

When these remedies produce no advantage, the surgeon may attempt a second method of operating, in which he must depress the opaque capsule; but when this cannot be done, lacerate or puncture it, in order to procure an access for the rays of light to enter the eye, for which purpose the two-edged needle is a more convenient instrument than the round one. The same operation is also necessary in the various species of spurious cataract, especially in the opacity of the crystalline membrane: only, in this case we are not to attempt to depress the membrane, but rather to lacerate and perforate it, in order to form an aperture through which the rays of light may enter.

The *concreted cataract* is attended with more or less difficulty in the operation, according to its different species. The first species, namely, when the capsule adheres to the lens, is attended with no difficulty at all; nay, we do not even discover it whilst we are depressing the lens.

In the second species, when the capsule adheres to the hyaloid membrane, every thing depends upon separating the capsule from the substance of the vitreous humour, which is performed by moving the needle several times behind the lens, upwards as far as the superior margin of the lens, and downwards to its inferior margin. By this means it is evident that the separation may be effected, especially if we use a two-edged needle, and direct one of its edges upwards and the other downwards, whilst we are performing the operation.

When, in the third species, the whole anterior surface of the cataract adheres to the iris, we ought rather to omit the operation, as it will scarcely be possible to effect the separation; and should it be possible, it might become ineffectual, in consequence of the inflammation that is to be apprehended. But when the cataract adheres to the iris at one or a few points only, the operation probably may prove successful; but in this case, it will be best not merely to move the needle up and down behind the lens, according to Warner's method, but also to apply it alternately to the superior and inferior margin of the lens, and alternately to raise and depress it, in order to loosen its preternatural adhesions. Should this manœuvre not be sufficient, all that is left for us to do, is to pass the needle round the superior margin of the lens into the posterior chamber of the eye, and then to press it down, with a view to separate the adhesion of these parts.

In the *fluid cataract* we may also operate with the needle. As in most cases we immediately destroy the needle at the centre of the capsule, it will be the best method immediately to lay open the anterior membrane of the capsule with it, and to suffer the dissolved lens to flow into the aqueous humour. We must, however, not merely puncture the crystalline membrane, but also, by moving the needle upwards, downwards, and laterally, form a considerable aperture in it; and if not entirely, yet in a great measure to lacerate and destroy it, which may likewise be most conveniently performed with a two-edged needle.

The milky or gelatinous substance which has found its way out of the capsule into the aqueous humour, generally renders

renders this turbid, but in general it gradually becomes again clear. However, when there is so large a quantity of the milky fluid as to render the aqueous humour altogether opaque, it seems to be most advisable to evacuate the watery fluid, together with whatever remains of the opaque substance, by an aperture in the cornea. If we know with certainty before-hand, that the cataract is of a fluid consistence, we may, with a view of entirely avoiding the lesion of the vitreous humour behind the cataract, and shortening the operation, thrust the needle at once into the eye, in such a manner as to make it penetrate straight into the capsule, and then perforate its anterior membrane in the manner before-mentioned. Nay, it has been advised in this case, even to thrust the needle through the transparent cornea and pupil, to open the anterior membrane of the capsule, and let out the fluid.

When the soft cheesy cataract has some degree of consistence, and the capsule is not very thin or easily lacerated, the lens passes downwards to the bottom of the eye together with its capsule, and the operation may be easily and successfully completed according to the ordinary method; though, on account of the greater violence done to the vitreous humour, its event is always doubtful. When the cataract is very soft and the capsule thin, the needle is generally soon seen behind the pupil, in the middle of the lens; and in this case it will be best, as in the fluid cataract, when the needle is seen in the capsule, to perforate the anterior membrane of the capsule with its point, to enlarge the orifice sufficiently to procure a free passage for the aqueous humour into the capsule, in order that it may dissolve the lens, and then to roll the needle round between the fingers, in order to break the lens into several small pieces, and thereby to promote its dissolution and complete absorption. If we see before hand, with certainty, that the cataract is soft, we ought, in order to prevent the lesion of the vitreous humour, rather immediately to thrust the needle through in such a manner as to make it penetrate into the capsule, and then destroy the lens and open the capsule. Should we, however, observe, after some time has elapsed, that there remain behind more solid portions of the lens, which do not seem likely to be dissolved, we have it still in our power to open the cornea and extract them.

The hæmorrhage which occurs either during or after the operation, arises perhaps from injuring a vessel in the tunica conjunctiva or the choroid membrane, or else from a lesion of the iris or ciliary processes. The hæmorrhage from the conjunctiva may sometimes be prevented by rubbing the eye, at the external canthus, with the finger, before we introduce the needle. This hæmorrhage is, nevertheless, of little consequence, and generally ceases gradually, even when it excites a spreading echymosis. The hæmorrhage from the choroid membrane is, indeed, most easily excited by a two-edged needle, but it is then also least to be dreaded, as the blood is always discharged externally through the small incision in the sclerotica. Moreover, a hæmorrhage will seldom occur, even though we use a two-edged needle, provided we introduce it according to the method above directed, namely, with one of its flat sides directed upwards and the other downwards. Though, when the round needle is used, a hæmorrhage more rarely occurs; yet, should it occur, it is also more dangerous, as the blood cannot be discharged externally through the small puncture that has been made with the needle. However, a small quantity of extravasated blood is soon re-absorbed under the use of general remedies. When the bleeding proceeds from the iris or ciliary processes, the blood generally penetrates immediately into the anterior and posterior chamber of the eye, and imparts

a red tinge, more or less deep, to the aqueous humour. Should the hæmorrhage (which, indeed, rarely happens,) be very profuse and of long continuance, as may be known from the deep, opaque, and continually augmenting redness of the aqueous humour, we ought to draw the needle as soon as possible out of the eye, open the transparent cornea, and let out the aqueous humour together with the extravasated blood. When the hæmorrhage is slight, it is no impediment to the operation, and the extravasation soon disappears under the use of antiphlogistic remedies, though we should always be very attentive to check the violent inflammation which may supervene. The small puncture in the membranes of the eye generally heals up without any difficulty; and when, as sometimes happens, a little fungous excrescence arises, this commonly yields soon to the application of astringent remedies.

Of extracting the cataract.

The operation by *extraction* requires the same preparation and position both of the patient, surgeon, and assistant, as have already been directed for the operation of depression; the prognosis also depends upon the same circumstances; but with regard to this operation, the following particulars are to be observed. In patients, whose eyes are situated very deep in the head, and the division of the eye-lids is very short, the operation is always attended with some difficulty; whilst, on the contrary, it is always easier in proportion as the eye-lids are more open and the ball of the eye more prominent. In persons whose cornea is uncommonly convex, and consequently the anterior chamber of the eye large, the operation is particularly easy and secure; whilst, on the contrary, with those persons whose cornea is flat, it is always attended with the danger of injuring the iris. When the eye is very restless, it is likewise difficult and dangerous; and in children it is sometimes entirely impracticable.

Whatever the consistence of the cataract may be, it may always be extracted, though this can be done most easily when it is firm. The fluid cataract generally discharges itself as soon as the capsule is opened, but frequently a portion of opaque mucus remains behind, which must be extracted separately. The worst for extracting is the soft or cheesy cataract, which either is protruded at once and entire, in which case, as it is generally very large, it distends the pupil to a great degree, and requires a strong and continued pressure to be made upon the eye; or it breaks, and must be extracted piecemeal. When the pupil is wide, open, and moveable, we may, *ceteris paribus*, expect an easy and successful operation. When it is very small, but yet moveable, it does not, indeed, hinder the operation, but it renders the passage of the lens difficult. Also, when it is small and immoveable, the operation may still be performed, provided it does not at the same time adhere to the lens. When it does not dilate itself during the operation, it perhaps admits of being widened with the lancet. When the pupil is large and immoveable, provided this does not proceed from amaurosis, there can be no objection against the operation.

With a view to render the operation as accurate as possible, several means have been proposed for fixing the eye in an immoveable position. La Faye's method of fixing the eye, by means of the middle finger of the hand with which the inferior eyelid is drawn downwards; Beranger's double hook, and the small forceps which Le Cat employed for laying hold of the conjunctiva; are rough expedients, by which the eye is very much irritated and inflamed. A better mode is Pamart's spike, to which Cafaamata gave the form of an S, whereby the assistant is enabled to lay the hand in which he holds the instrument upon the cheek of the patient, and moderate the pressure which it gives to the eye. But

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as, with this construction of the instrument, four hands must always be applied to the cheek of the patient, which is very inconvenient both to him and to the operator, this spike has been fixed to a thimble or ring, which is put upon the middle finger of the hand with which the lower eyelid is drawn downwards. Even this instrument, however, is still defective: Mr. Demours has lately proposed another, which has great advantages over all that had before been invented. It represents a thimble, with a wide opening before and behind, which when put upon the finger, covers only both sides of it, leaving the back and inside of the finger entirely bare. From the superior central point a small hook proceeds, first perpendicularly upwards, and then horizontally sideways. The advantages of this instrument are, that the finger which draws down the lower eyelid also applies the hook, and consequently no more fingers are required than in the ordinary operation. As the finger is applied close to the patient's cheek, the operator has it in his power to moderate the degree of pressure with which the hook is introduced into the eye more than he can with other instruments of this kind. And, finally, the inner side of the finger, which touches the lid and ball of the eye is bare, and consequently lies soft upon the eyelid. It likewise always remains in the operator's option, after he has applied the instrument to his finger, whether to introduce the hook or not, as he may think proper. The hook must be inserted at the same place at which Pamart's spike is usually inserted; namely, as Mr. Gleize advises, into the conjunctiva at the side of the superior margin of the cornea in the inner angle of the eye.

However, all these, and several other instruments of the same kind, as perfect and well adapted to this purpose as they may appear, are in most cases productive of far more injury and inconvenience than benefit; and it likewise always is a difficult task for the surgeon to operate at one and the same time with both hands, and pay the necessary attention to each. In fact these instruments are in most cases really superfluous. For the voluntary as well as the involuntary motion of the eye may be checked by other and gentler means, some of which have already been mentioned. In order entirely to obviate the necessity of fixing the eye, for performing the operation for the cataract, Mr. Mina visits his patient twice a day for some time before he undertakes the operation, and places himself with his lancet in his hand before him, just as if he was about to operate. He directs him to turn his eyes in various directions, and endeavours to render him so practised in doing this as to be able to obey him without being terrified. In the space of 12 or 14 days the eye becomes so easy and obedient, as never to require any instrument for fixing it during the operation.

As to the position of the patient and operator, the same applies here that has been said in speaking of the operation of couching, and in the same manner also are the eyelids to be opened and secured. The operator holds his lancet like a writing pen, and presses the hand in which he holds it as close as possible to the patient's cheek. As soon as the eye is in a position convenient for the operation, the lancet must be thrust in suddenly, in the same manner as the needle. The incision into the cornea through which the lens is to be extracted, must be semicircular; beginning rather above the centre of the cornea towards the external angle of the eye, and extending through its lower half as far as its middle towards the inner canthus, at all points a quarter of a line from the albuginea, and separating the lower half of the conjunctiva in such a manner as to form a flap of the form of a crescent. In order to form this incision, the lancet is introduced with its edge downwards and its back upwards, at the external canthus of the eye, a quarter of a line from the albuginea, into

the transparent cornea; it is then thrust, in the direction of the transverse diameter of the cornea, through the anterior chamber, in such a manner that its point comes out again from the cornea, in the inner angle of the eye, at the same distance from the albuginea. This incision forms an orifice which is full as large as the transverse diameter of the cornea, that is, as large as it ought and can be; it is no where opposite to the pupil, and, consequently, if it should have a cicatrix, vision will not thereby be impeded. When we can foresee with certainty that the cataract is hard and small, or fluid or very soft, and consequently that no large orifice will be necessary for its extraction, we may introduce the lancet and bring it out again at the distance of half a line from the margin of the cornea, and thereby greatly diminish the danger of injuring the iris. When the cornea is very flat, its distance from the iris very small, and consequently the anterior chamber of the eye also very small, there is great danger of injuring the iris; on which account the operator is necessitated, in making his incision into the cornea, to keep as far as possible from the iris. When, on the contrary, the cataract is very large, the surgeon must rather be careful to make the incision sufficiently large, than attend too much to the possibility of injuring the iris.

In making this incision, we are particularly to attend to the rule, that the aqueous humour must not be suffered to flow out till after the incision into the cornea has been completed. With the view to prevent this occurrence, only one instrument must be used for the operation, and the lancet or knife with which the incision into the cornea is made, must possess the following properties: the blade, from the point towards the handle, must increase, not abruptly, but gradually and regularly, both in breadth and thickness, in order that as it penetrates deeper into the cornea and the anterior chamber of the eye, the wound of the cornea may not only be gradually lengthened, but at the same time also so accurately filled up as entirely to prevent the aqueous humour from issuing through it; moreover, the blade must be at its widest part as broad as the half of the cornea, that is, three lines. We must be particularly attentive not to suffer the instrument to lose these dimensions in sharpening it. The blade of the lancet must be from $1\frac{1}{2}$ to 2 inches in length, for were it longer, the surgeon would not be able to apply the hand in which he holds it close to the cheek of the patient, at the beginning of the operation. The handle must be so long, that when the instrument is held like a pen, it can lie firmly upon the back of the hand. Both sides of the blade must be slightly convex, partly in order that the blade may have the requisite degree of strength, and partly that it may accurately fill up the wound of the cornea. When the sides of the blade are flat, the aqueous humour always issues out along them. The back of the lancet must be blunt, but by no means thick and broad; it must also be rectilinear, not curved and bending.

The operator holding the knife in the manner already described, and applying his hand to the cheek of the patient, thrusts in the point of the instrument, as soon as the eye is directed straight forwards, but at the same time a little upwards and outwards. The lancet is first directed straight forwards, with its point towards the iris, so as to form a right angle with that part of the cornea into which it is inserted. As soon as the point of the lancet has arrived at the chamber of the eye (of which, however, the operator ought to be perfectly certain, for if it has not, he pushes the point between the lamellæ of the cornea in turning the lancet), he changes the direction of the lancet, so as to turn its point directly towards that place in the cornea at which it is to be brought out again at the internal angle of the eye. In this

direction the lancet is thrust *slowly*, and without turning it any more, straight through the anterior chamber of the eye. The lancet, after it has once been pushed into the eye, must on no account be retracted, though ever so little, as this can never be done without letting out the aqueous humour. It must always be thrust with an uninterrupted course through the anterior chamber of the eye. The knife must be put into the cornea in such a manner that its back is directed a little towards the iris, and its edge from off it. Should the operator by mistake have thrust in the lancet in a faulty direction, this must immediately be corrected before he proceeds to push it farther. Only he must take care not to turn the lancet too suddenly, or else the aqueous humour will certainly flow out too soon; he should therefore rectify the direction of his lancet gradually, whilst he is thrusting it deeper into the eye.

Though all these rules should be observed, the incision sometimes happens to be too small, which is owing either to the motion of the eye towards the inner canthus, or to the iris coming before the edge of the lancet. The latter very embarrassing circumstance may be prevented, by removing all unnecessary pressure or irritation from the eye, according to the rules before mentioned, by thrusting in the lancet at a proper distance from the margin of the cornea, and by preventing the too early discharge of the aqueous humour. Should the iris nevertheless come to be situated opposite to the point of the lancet, it must not be retracted, as this would occasion a discharge of the aqueous humour, and a still greater protrusion of the iris; but it ought also not to be thrust in further, as in that case the iris would be injured. If the surgeon is not able, in this case, to bring the point of his lancet over the iris, by moving it a little forwards towards the cornea, his best method will be, to press the lancet straight downwards, without moving it either forwards or backwards, and in this manner to complete only half of the incision, that is, to make an incision resembling only a quarter of a circle, and afterwards to enlarge this with the scissars.

When the iris comes under the edge of the lancet, the back of it should be turned strongly towards the iris, and the edge forwards towards the cornea, in order to remove the edge from the iris, and complete the incision. In this case, indeed, the incision never goes so far downwards as it ought; however, it may afterwards be enlarged if it be too short, and we may still hope that it will not leave behind any opaque cicatrix, which would certainly be some impediment to vision.

If, after the lancet has been thrust through the anterior chamber, the eye should turn towards the inner canthus, the incision cannot be completed in the proper manner; in which case one of three expedients may be adopted. As soon as the operator perceives that the eye begins to turn, he may immediately apply the instrument for fixing it; or he may endeavour to draw back the eye from the canthus with the lancet inserted in it, and then complete the incision; or he may desist from the attempt to complete the incision with the lancet, press the lancet straight downwards, so as to separate only a quarter of the cornea, and afterwards enlarge the incision with the scissars.

The incision in the cornea may be too small in three different ways. It may either be only a quarter of a circle, with its beginning externally at the middle, and its termination downwards at the middle of the cornea; or the incision may approach more or less towards a rectilinear direction, that is, with its middle too far distant from the lower margin and too near to the pupil; or, finally, the termination of the incision at the inner angle, though in the middle of the cor-

nea, may be too far from its margin, and too near to the pupil. In the first case, which is the most favourable, the enlargement is performed by a double incision, that is, by an incision first in a horizontal direction, and afterwards directed obliquely upwards and outwards. The two latter cases are most embarrassing. In the second case, to bring the incision as near as possible to its proper length and form, its two ends must be lengthened straight upwards. In the third case, the best practice is to enlarge the inner end of the wound obliquely upwards. When the incision is so misshapen that it is impracticable to enlarge it, the best method will be to desist from the operation for the present, and after having suffered the wound to heal, to repeat it again in some days time. In each of these cases the wound may best be enlarged with the scissars, the handle of which ought to be short, in order that the surgeon may apply the hand in which he holds them close to the cheek of the patient. Their points should be smooth and round, in order to avoid injuring the iris, when they are introduced into the anterior chamber of the eye.

As soon as the incision into the cornea has been completed, the capsule must be opened by means of some cutting instrument, for which purpose La Faye's *Cyfitome* seems to be very well adapted. The blade, as well as the sheath in which it is concealed, must be thin and narrow, in order that they may be easily introduced into the pupil without injuring the iris. Two rings are attached to the two sides of the instrument. In using it the fore-finger is put into one and the middle finger into the other ring, whilst the thumb is applied below to the knob, and in this manner it may be held steady and secure. It is held in the right hand, which is applied to the patient's cheek; the flap of the cornea is raised by means of the sheath, introduced into the pupil, upon which the blade is repeatedly pushed out of the sheath, and whilst this is done, the instrument is moved backwards, and forwards, upwards and downwards. This being done, the blade is suffered to draw back completely into the sheath, and the cyfitome is withdrawn from the eye. Only we must take care, in applying this instrument, not to press it too forcibly against the lens. In order that the blade may be prevented from being thrust too far out of the sheath, a director is adapted to it, which enables the operator, by screwing it higher or lower, to determine with accuracy how far the blade can be protruded out of the sheath.

However, as this part of the operation, even though we use the instrument just described, is always attended with much difficulty and danger, Mr. Siegerist has invented a new instrument for performing it. This is a knife with a straight back, and with a blade gradually increasing in breadth, both of the sides of which are gently convex; but which differs from all others in this circumstance, that its point terminates in a thin two-edged needle, full half an inch in length, and of equal thickness and breadth from its point to the blade of the knife. At the place where the needle terminates, and the blade of the instrument begins, it is very sharp, and does not form an abrupt angle, but the needle gradually extends and loses itself in the blade; if this construction be not observed, the instrument cannot be pushed forwards without much difficulty, after it has penetrated into the cornea as far as the abovementioned point.

This knife is thrust, according to the ordinary method, through the cornea, into the anterior chamber of the eye, till its point is opposite to the pupil, the point is then pressed down into the pupil, and the capsule opened, after which the knife is drawn back a little, the point again raised out of the pupil, and then the incision in the cornea completed according to the usual method. Thus, with the same instrument, and with the same operation, both the cornea and the

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capsule are opened, and the operator is spared the trouble and danger of having to open the capsule with another instrument and by another operation, after having completed the incision in the cornea. Only in case the crystalline membrane is opaque, or the pupil contracts strongly during the passage of the knife through it, or when any obstacle prevents the capsule from being opened during the incision of the cornea, it will be advisable to defer the opening of it till after the incision has been completed.

As soon as the crystalline membrane is cut through, the lens is protruded into the pupil, and dilates it forcibly, and by a small pressure with the finger, applied to the lower part of the ball of the eye, it is forced through the pupil and out of the eye. We must, however, take great care to apply this pressure in a gradual manner, otherwise as the lens is suddenly forced out of the eye, it dilates the pupil so suddenly as to lacerate or render it paralytic; in the latter case the pupil loses its power of motion, or its form is changed, and both are generally attended with injury to the sense of vision. Hence much depends upon our moderating the pressure applied to the eye, and increasing it in a gentle and gradual manner.

It is a very embarrassing circumstance, when, after the incision has been made into the cornea, the pupil is violently contracted, and does not dilate, even though a strong pressure is applied to the eye. As in this case we can seldom obtain our purpose by using force, which indeed it will not be advisable to attempt; our best method will be to close the patient's eyelids for some moments, as the pupil sometimes dilates spontaneously after a short time, or upon the application of gentle pressure. Should it still remain obstinately contracted, we may apply externally to the eyelids a cataplasm with saffron, camphor, milk, fol. cicut. hyoscyam. alb. capit. papav. alb. or extr. belladonn.; but if the contraction still continues after several hours have elapsed, and cannot be removed by the application of moderate pressure, it will be better either to depress the lens, or to enlarge the pupil at both sides by two small cuts with the scissors than to incur a greater danger by applying more violent pressure to the eye.

Whilst we are pressing the lens out of the eye, it may not be amiss to darken the chamber a little; but as soon as it has been extracted, it ought to be as light as possible, in order that we may be able accurately to examine whether the pupil be completely clean, as sometimes some opaque substance remains behind, which, if not extracted, will subsequently be more or less an impediment to vision. Whilst we are making this examination, the light should fall obliquely upon the eye, lest the reflection from the pupil might prevent the surgeon from observing any opaque substance that may exist there, particularly as even after the most careful examination some opaque substance may still remain undiscovered in the eye.

Any thing of this kind that may be found still remaining in the eye, must be extracted by means of David's spoon. This spoon must be somewhat curved, every where smooth and even, and made either of gold or silver. When the spoon is introduced, a slight pressure must be applied to the eye, below the cornea, (but with great caution, for fear lest the vitreous humour might be protruded) in order to dilate the pupil and facilitate the introduction of the instrument. During its introduction the concave side of the spoon must be directed forwards towards the cornea, and the convexity backwards towards the capsule. When we have brought the opaque substance into the hollow of the curette, we should let the anterior and superior margin of the instrument

slide downwards, along the internal surface of the cornea, and out of the eye. Sometimes it is not necessary that the spoon should be introduced into the eye; as, by gently stroking the cornea with the convex side of the curette from above downwards, and at the same time applying a gentle pressure with the fingers below the cornea, all the remaining opaque particles may be brought out of the eye without irritation. This operation must, however, be performed with great care, lest a prolapsus of the vitreous humour should be produced.

When the eye is so restless that the spoon cannot be introduced without injuring the internal parts of the eye; when repeated experiments to lay hold of and extract the remaining opaque particles with the spoon have miscarried; when the spoon has already been introduced several times, and the extraction has generally been attended with irritation and difficulty, and only a very small quantity of opaque matter remains behind; it is better to suffer what is still left of the cataract to continue in the eye, than by repeated introductions of the curette, to expose the patient to the danger of a violent inflammation and even total loss of his eye; especially as such remaining particles have repeatedly been known to be absorbed and disappear gradually, which might perhaps also be promoted by the use of discutient remedies.

In consequence of various faults that may be committed both by the surgeon and the assistant during the performance of the operation, especially by an incautious application of pressure to the eye, the vitreous humour may be protruded, and the cataract, or part of it, remain behind. Moreover the cystic cataract, the passage of which through the pupil is generally attended with difficulty, and requires a long continued and pretty forcible pressure, generally flies suddenly through the pupil; and, if the operator be not very much upon his guard, the vitreous humour comes after it. Sometimes also this happens without any particular occasional cause, in which case the vitreous humour is generally found to be preternaturally thin and dissolved. It is also frequently protruded, when the capsule of the crystalline lens has not been opened by means of a cutting instrument, but burst by the accidental or intentional pressure of the finger. And even after the operation has been completed, we cannot be secure against this accident, as it sometimes occurs, from various causes, several hours, nay even days, after the operation. Many methods have indeed been proposed for preventing this occurrence, but they are all inadequate, as most depends upon shunning the occasional causes, which for the greater part are of that nature that they may very well be avoided. When the eye is in a spasmodic state after the operation, quieting and sedative remedies should be applied to the eye, and also exhibited internally: during the first days after the operation, the patient should be directed not to open his eyes without necessity, and should it be necessary for him to open them, to do it as cautiously as possible; and finally, during the first nights after the operation, he ought to have some person to attend him, in order to prevent him from rubbing, or in any way pressing his eyes.

But though the greatest skill and caution should be employed, we are not always secure against this accident; however it is frequently unattended with any bad consequence, nay even sometimes it is productive of advantage, and may commonly be soon removed. Moreover the loss of a small portion of the vitreous humour is generally restored in the space of a few days; nay, instances have even been known in which half of it has been lost, and yet the eye has after some time recovered its natural size, and the patient his perfect sense

sense of vision. Some indeed recommend immediately to cut off the part of the vitreous humour that is protruded during the operation, with the scissars, near to the cornea; but this practice is very much to be reprehended: on the contrary our best method will be, as soon as we see it protruded, immediately to let the patient shut his eyes, and without minding the protrusion, to bind up the eye. The wound of the cornea gradually contracts, and separates the protruded portion of the vitreous humour, as if by means of a ligature. The wound of the cornea, at the place where it has been kept open longer than elsewhere by the protruded portion of the vitreous humour, generally remains for some time opaque, white, thick and misshapen; but these irregularities generally disappear sooner or later under the external use of a lotion containing vitriolated zinc, or acetated cerus.

When the vitreous humour is not protruded till after the operation, and the eye has been bandaged, it is frequently not discovered till the eye is again opened, on the 8th or 10th day. But it is seldom of any consequence that we are able to discover the protrusion earlier, since even though we should discover it, we can do nothing to remedy it, but must leave the whole to nature.

When the cataract has formed such extensive adhesions with the iris, that the patient cannot distinguish light from darkness; when the cataract is situated immediately behind the pupil; and this is angular, preternaturally small, and quite immoveable, the probability of the operation not succeeding is so great, that we had better not undertake it. But when the patient's eye is still sensible to the impression of light at one side or the other; when the cataract on that side is not quite close to the pupil, and the pupil has still some degree of mobility at this point; and while it moves becomes oblique, angular and wrinkled; the adhesion of the cataract with the iris is not so considerable as to deprive us of all hopes of succeeding with the operation: only in giving our prognosis we must not forget the difficulties with which it is likely to be attended.

In order to separate the cataract from the iris, we introduce a flat probe, pretty much curved towards the point, into the anterior chamber of the eye, between the cataract and the iris; and then endeavour, partly by turning the probe round its axis, and partly by pressing it against the cataract, so as to push it back from the iris, to separate these two parts at the points where they adhere.

The adhesion of the lens with its capsule cannot be discovered before the operation; and should it ever be discovered, it would be impossible to separate the parts. Sometimes the lens is protruded, together with its capsule, upon the application of slight pressure, and then this species of cataract requires no particularity of operation.—The third species of the adhering cataract, in which the lens has formed adhesions not only with its capsule, but also with the hyaloid membrane, may be suspected to exist; if, after the incision into the cornea has been judiciously made, and we are convinced that the capsule has been properly opened by means of La Faye's *Cystitome*, the lens shews no disposition to be protruded upon pressure applied first gently and gradually increased, even though the pupil be dilatable, and presents no obstacle to the passage of the lens.

The best method of separating this species of cataract is, to introduce a round cataract-needle through the pupil into the posterior chamber of the eye, and giving it a rotatory motion with the fingers, to push it into the centre of the lens; then to move the lens by means of the needle, at first gently; but, by degrees, somewhat more firmly, in every direction, upwards and downwards, right and left; after which the needle is again to be withdrawn from the eye,

and the eye pressed with the finger, in the usual manner, to promote the passage of the lens through the pupil. Frequently the lens protrudes readily; and when it does not, the former manœuvre is to be repeated; and should it still remain immoveable, it will be advisable to desist from the operation.

When, in the *membranous* cataract, the anterior membrane of the capsule is opaque, no deviation from the ordinary mode of operating is required; or, if any, it is only that in opening the capsule, the crystalline membrane should be cut a little more open than usual. As soon as this has been done, the lens falls into the pupil, and must be extracted whether it be opaque or not. When, after the extraction of the crystalline lens, the orifice in the opaque membrane of the capsule is not sufficiently large, and its opaque edges can be distinctly seen in the pupil, we may, perhaps, attempt to seize and extract them by means of a very small forceps. If we know with certainty before the operation, that the anterior membrane is opaque, we may also, after opening the cornea, introduce a small pair of forceps into the pupil, lay hold of and extract the anterior membrane of the capsule with it, and then press out the lens.

When, after the lens has been extracted, the pupil remains equally opaque, and this opacity is situated farther behind the pupil than before; when the preternatural colour of the pupil is not exactly the same after the operation as it was before; when the opacity resembles a convex surface anteriorly; or when the crystalline lens that has been extracted is transparent, and the pupil remains still equally opaque as it was before the operation, there is reason to believe, that the posterior membrane of the capsule, or the hyaloid membrane, is opaque: only we must be well assured that the opacity of the pupil does not proceed from any thick mucus remaining behind in the capsule. In this case it will probably be the best practice, to perforate the posterior membrane of the capsule, with the cystitome or some other instrument, repeatedly, and as completely as possible; at the same time gently pressing the finger upon the eye below the cornea, in order to bring the opaque membrane nearer to the pupil, to dilate the pupil, to expose the greater part of the opaque membrane, and thus to be able to make a larger orifice in it. When, in performing this operation, the vitreous humour protrudes, it is not only advantageous, but some surgeons think it is even advisable to promote this protrusion by a gentle and cautious pressure upon the eye.

The *secondary cataract*, which takes place soon after the operation, sometimes within a few days, always supervenes during a violent inflammation, and frequently also disappears together with it. Every thing which tends to prevent the inflammation of the eye after the operation, as also what tends most powerfully to remove it after it has come on, tends equally to prevent and remove the secondary cataract. As long as the eye still appears red, there is always ground to hope that the secondary cataract will disappear, together with the inflammation, under the use of cold saturnine lotions, and other antiphlogistic remedies. And should it even remain behind after the inflammation, we may still hope that it will gradually vanish, with the use of internal discutient means, especially sulph. aurat. antimon. mercury, cicuta, &c. But when the secondary cataract comes on later, frequently months or even years after the operation, it is an effect of some internal cause; and this cause, which is generally of an arthritic kind, then requires remedies particularly adapted to counteract it. When these means produce no benefit, the cornea might be opened a second time, and the opaque capsule extracted the more easily and successfully, as in this case there has been no previous inflammation; and, consequently,

C A T A R A C T.

consequently, adhesions of the capsule with the neighbouring part are not so much to be apprehended as in the former case.

As the symptoms of the membranous cataract are frequently very uncertain, and as the opacity of the posterior membrane of the capsule cannot possibly be discovered before the operation, if the lens be likewise opaque; and, consequently, however favourable the circumstances may appear, the event of the operation is always precarious; the best practice will be always to extract the capsule at the same time with the lens. For this purpose, nothing more is necessary than to omit the opening of the capsule, and after the incision into the cornea has been made, immediately to press out gradually both lens and capsule by a cautious application of pressure. Sometimes the capsule, after having been entirely protruded, together with the lens, out of the orifice in the cornea, still remains adhering a little to the vitreous humour. In this case, it must be carefully separated by means of Daviel's spoon, and at the same time we must be cautious not to draw forwards the vitreous humour. But though this operation may frequently be performed with great facility and success, it is, nevertheless, often combined with so many difficulties, that it will scarcely be generally adopted.

The iris always protrudes more or less forwards during the operation, approaching nearer to the cornea; and sometimes it becomes distinctly convex. The more this takes place, the greater is the danger of injuring the iris, for sometimes, in spite of all the caution that may be used, it gets before the point and under the edge of the instrument, especially when part of the aqueous humour is lost. When the latter circumstance is observed to take place, the edge of the lancet must immediately be turned a little upwards, and thus the incision completed; which, in this case, does not become altogether of the form of a crescent, but, however, is generally still sufficiently large for the extraction of the lens. When the iris gets before the point of a knife, the point need only to be inclined a little outwards towards the cornea, in order to remove it from the iris, and as soon as this is done, it may be pushed a little farther forwards, but afterwards again moved downwards, and thrust completely through in the common direction. When this cannot well be accomplished, the lancet ought to be pressed straight downwards, without pushing it forwards, and thus half of the incision completed, which may afterwards be finished with the scissors. Otherwise, the lesion of the iris is seldom attended with very bad consequences, as experience has shewn that it may be injured in various ways without producing violent inflammation.

Of the symptoms particularly to be apprehended after the operation, inflammation is the chief, on which account it will be far more safe for us to endeavour to prevent it, than to rely upon the remedies usually recommended for discussing it. In order to prevent it, the following rules are principally to be observed, besides those preparatory to the operation:

As soon as the lens has been got out of the eye, and the pupil is clean, the eye must be dressed, and all attempts, particularly repeated ones, to investigate the power of vision which the eye has acquired, are to be wholly omitted. Should the flap that has been cut out of the cornea be reverted, it must be reduced by means of Daviel's spoon into its natural situation, so as to make it fit close at every point. When any part, for example the lower part of the iris, projects a little out of the wound, it must be gently pressed back by means of Daviel's spoon, in order that the lips of the wound may fit close together. But when the eye is suffered to close, the upper eye-lid must first be permitted to fall down as low as possible, in order that it may

cover the whole cornea, before we allow the lower eye-lid to rise upwards; for otherwise the latter sometimes gets under the flap of the cornea and produces violent irritation.

The dressings ought properly not to press the eye in the smallest degree, nor leave any access for the air or light to the eye. For this purpose, a very thin compress is applied, which must be long, and broad enough to reach at the bottom, as far as the cheek, at the side, as far as the nose, and at the superior extremity to the eye-brows. This compress is generally secured by means of the monocular bandage. When we have no other end in view in applying the dressings, than to close the eye, the upper eye-lid may be fastened to the lower by means of two narrow slips of adhesive plaster. Besides these, we may also, with a view to keep the rays of light from the eye, apply an eye-bandage that occasions but little pressure, and which consists of a roller to which a compress is attached, to hang down loose over the eye upon which the operation has been performed.

The patient may choose his posture as he finds most convenient, after the operation; that is, he may either lie down in bed, or sit upon the chair: only he must avoid all concussion or violent motion of the head and body, and not suffer his head to fall forwards. But it is indispensably necessary, during the first nights after the operation, that the patient should have some person to watch beside him, in order to prevent his lying in his sleep upon the wounded eye, or applying his hands to it either to rub or press it.

When the patient experiences no disagreeable sensation at all in his eye after the operation, it will be best to abstain entirely from the use of external remedies, and merely to apply dry bandages. If, on the contrary, he experiences various symptoms that require attention, some external applications are, indeed, necessary, but they ought always to be adapted to the particular state of the eye; consequently, they are not to be exclusively emollient, as some recommend, or spirituous, as is recommended by others. The same applies also to the use of internal remedies, the choice of which is likewise to be directed according to the peculiar state of the symptoms that supervene upon the operation; and consequently, none can be recommended indiscriminately.

When no troublesome symptoms are observed, and the patient feels himself in all respects well, no internal remedies are required; and all that can and ought to be done, with a view to prevent inflammation and other symptoms, is to recommend repose to the patient, to remove all accidental causes or irritation, to direct a strictly antiphlogistic regimen, and daily to administer one or two gently opening injections.

The wound of the cornea generally unites within the space of 48 hours, during which the aqueous humour flows out. Should this discharge continue longer, we may suppose some preternatural cause of it to exist in the eye, and examine it in order to find it out. When the aqueous humour ceases to be discharged at the proper time, and the patient experiences no pain or other troublesome symptom about his eye, the eye ought not to be opened before the eighth day; at farthest, it may be opened on the tenth day, even though no bad symptoms be present; and afterwards it must be opened daily, and gradually accustomed to the air and light.

However it is not always in our power, by the observance of these general rules, to prevent the inflammation and other troublesome symptoms; and it is always necessary to pay the greatest attention to the particular state of the patient. Sometimes he experiences, soon after the operation, tension, and spasms; sometimes he is very languid and debilitated; sometimes he is depressed and low-spirited without any apparent cause; sometimes he is affected with great anxiety or vomiting, or colic pains, or obstruction and

an inflated state of the abdominal viscera; and sometimes he is attacked with spasmodic horrors. Whilst these spasmodic symptoms continue, most patients complain that the eye is very restless, and moves backwards and forwards. Some imagine they see light or other appearances before the eye upon which the operation has been performed, notwithstanding that it is covered with the bandages. Sometimes the eyelids open themselves against the will of the patient. In this spasmodic state, external and internal sedative and antispasmodic remedies are necessary; such as warm pediluvia, warm fomentations applied to the abdomen, frequent emollient injections: internally, a mixture of antimonial wine and tincture of opium, or extract of hyoscyamus, &c. When the eye is very restless, we may apply to it a thin-spread, warm cataplasm of bread-crumbs, elder-flowers, saffron, &c. or frequently moisten the compress with a decoction of capit. papav. alb. and flor. malv. &c.

Sometimes, (especially when the eye has suffered much during the operation,) it becomes painful immediately after the operation, and at the same time the pulse is irritated, full, quick, the patient restless, heated, &c. in which case we must endeavour to moderate the violence of the impending inflammation by immediately letting blood, and by administering nitrous remedies, cooling laxatives, glysters, &c. Sometimes there appear symptoms indicative of an effusion of bile, such as a foul tongue, a bitter, disagreeable taste in the mouth, a sense of pain and weight in the forehead, vertigo, &c. in which case the irritating bile must be timely evacuated by means of purgatives and emetics, in order to prevent fever and inflammation.

Should an inflammation of the eye come on in spite of all the caution that we may use to prevent it, it is to be treated according to the manner directed under the article OPTHALMIA. When, after the inflammation has been removed, a languid redness remains for a long time in the eye, whilst the sense of vision is weak, and the cornea dull, and tears are discharged from the eye, these symptoms may be owing to the application of the bandages having been too long continued: and in this case the eye must be opened and washed with fresh water. Sometimes at the end of the inflammation an acrid watery fluid flows out of the eye, which keeps it for a long time red, painful, and inordinately sensible to the light.

Sometimes, in the cataract, the vessels of the retina and choroidea are varicose, in which case, shortly after the operation, a hæmorrhage may supervene, which is profuse, but generally ceases spontaneously; however, in these cases the operation is seldom successful. Sometimes a small vesicle full of water, which is transparent, very tense, and sensible, projects out of the wound of the cornea, some days after the operation; this can only be cut off with the scissors close to the cornea: but sometimes the vesicle returns again.

When the edges, especially the superior edges, of the wound of the cornea become white, thick, and soft, or actually suppurate in a small degree, the external application of saturnine remedies is to be recommended. When the cornea is dim after the operation, white vitriol may be employed.

The patient must be very cautious in making use of his new-restored sense of vision, as the eye is not able immediately to support the action of a strong light. At first, therefore, it will be proper to let him have his eye open for only one hour in the morning and evening, or till he feels that it becomes fatigued, irritable, or even painful. After some days the patient may be suffered to remain during the whole day, with his eyes open, in not too light a chamber; and when at length

he goes into the open air, he should for some time have his eyes covered with a piece of black crape.

Finally, we ought to mention the method which Mr. Conradi has proposed, for performing the operation of couching in a similar manner, which is grounded upon the gradual dissolution of the cataract. According to his method, we are to introduce into the cornea a small, lancet-like, cataract-needle, (in the same manner as the knife in the operation of extraction, only at a little greater distance from the iris); then to bring its point into the pupil and open the capsule, after which the needle is to be withdrawn, and slight bandages applied to the eye for two or three days, as in that space of time the small wound of the cornea in general disappears entirely. After this, we are to await the gradual dissolution of the lens. The needle used for this purpose needs not be quite so long as Richter's cataract knife, and not more than $1\frac{1}{2}$ or two lines in breadth. It ought not to be thicker than is necessary in order to render the blade sufficiently strong, and it ought to be two-edged throughout half of its length.

The advantages of this method of operating are said to consist in the following circumstances: it is much more easily performed than the others; the very small and insignificant wound of the cornea produces none of the troublesome symptoms that are to be apprehended partly during, and partly after, the extraction and depression of the lens. Should the cataract not be dissolved within eight or twelve weeks, any other operation may still be performed upon it equally well as if the former puncture had never been made. Bernstein's Handbuch für Wundärzte, Leip. 1799.

As this article would be extended to a disproportionate length, if we were to subjoin all the observations which relate to *cataract*, it is our design to offer some further remarks, (chiefly including the practice of English surgeons,) under the two heads of COUCHING and EXTRACTING; to which we therefore refer our readers.

CATARACTA, in *Ancient Geography*, a town of Italy, in the country of the Samnites, according to Diodorus Siculus, who says that it was taken by the Romans.

CATARACTA, in *Ornithology*; *catarractes*, Gesh.; *catarracte*, Aldr. &c.; synonymous names among old naturalists for the skua gull; *LARUS catarractes*, which see.

CATARACTE, in *Military Language*, signifies a wooden grate, lattice, or portcullice, made in the form of a harrow, with several pieces of timber laid lengthwise and crosswise, and strongly fastened together, armed with iron spikes. It is let down by means of a moulinet or roller, to which it is suspended by a rope, to cover any breach or opening that is made by a petard or otherwise. It is not so good, however, for this purpose as an *orgue*, which is composed of several long and thick pieces of timber that are armed with iron at the bottom, are about six inches apart from one another, and are in like manner suspended perpendicularly by a rope, but have no cross pieces except those that are fastened across them near the top to keep them steady, and in their respective places. For the catarracte may be prevented from coming down by setting a piece of wood upright in one of the grooves, made in the door-case or gate for it to slide in, or by placing a piece of wood upright, or nearly so, against the gate, or by putting a *chevalet* under it.

The catarracte goes also by the name of *herse* or harrow, and sometimes under the denomination of *sarrazine*. Both the besiegers and besieged, for want of chevaux de frise to throw into the ways or roads where cavalry must pass, and on the breaches where the infantry enter, make use of them occasionally.

fionally to retard and interrupt the march both of cavalry and infantry.

CATARACTES, in *Ancient Geography*, a river, so called from its impetuosity, which seems to have been the fame with the Marfyas. Quintus Curtius, l. iii. ch. i. § 3. Herodot. l. viii. c. 26.

CATARACTONIUM, CATARRACTONIUM, or CATARACTO, a town of the ifle of Albion, placed by Ptolemy in the country of the Brigantes. In the fecond route of Antonine's itinerary it is placed between Lavatris (Bowes) and Ifurium (Aldborough); and, without doubt, is the preſent Cattarick near Richmond, in Yorkſhire.

CATARACTUM, a river in the iſland of Crete.

CATARI, a people placed by Ptolemy in Pan-
nonia.

CATARIA, *ſloribus inverſis*, in *Botany*, Hall. Gott.
344. See *HYSSOPUS lophanthus*.

CATARIA *foliis cordatis*, Hall. helv. 246.—Herba. Dod.
pempt. 99. See *NEPETA cataria*.

CATARIA *Hiſpanica*, Tourn. Juſt. 202. See *NEPETA violacea & nuda*.

CATARIA *Montana*, Buxb. Cent. See *DRACOCEPHALUM Sibiricum*.

CATARINGA, in *Geography*, a town of the iſland of
Borneo, on a river of the fame name.

CATARRH, in *Medicine*, *defluxus*, *diffillatio*, from *καταρρέω*, *deſtuo*, *I flow down*, a diſeaſe which conſiſts principally in an unuſual diſcharge of mucus from the membranes lining the noſe, throat, or *bronchiæ* (the branches of the *trachea* or windpipe, leading to the air-cells of the lungs), accompanied generally with fever. From its well known and univerſal cauſe, except when epidemic, the diſeaſe is commonly denominated *a cold*.

The attack of catarrh is uſually marked by a ſenſe of fullneſs about the noſe and forehead, and of a ſtraightening of the paſſage of the noſtrils, which is either accompanied, or ſoon followed, by a diſcharge of a thin, watery, and ſomewhat acrid fluid, from the Schneiderian membrane lining thoſe paſſages. There are alſo a dull pain and a ſenſe of weight in the head, from which the Roman phyſicians gave theſe ſymptoms the appellation of *gravedo*. Hippocrates, probably from the heat and acrimony of the diſcharge, deſcribed them under the term of *coryza*, which has been deduced from *κόρυς*, *caput*, and *ῥέω*, *bullio*. Sometimes cold ſhiverings, or a ſenſe of chillineſs, are among the firſt ſymptoms. The eyes are frequently ſlightly inflamed, with ſome degree of ſtiffneſs in their motion, and an increaſed and acrimonious ſecretion from the lachrymal glands. There is a frequent diſpoſition to ſneeze from the irritation of the noſtrils, and the voice becomes more obtuſe in conſequence of the impediment to the paſſage of the air through them. The diſcharge gradually becomes more copious and thicker, ſometimes aſſuming an appearance ſimilar to that of *pus*; and, after a courſe of ſome days, gradually dimin iſhes and diſappears. In the mean time a ſenſe of roughneſs is felt in the throat, and a troubleſome irritation about the *glottis* or entrance of the wind-pipe, which excites a dry and ſlight cough; ſome pains are felt about the cheſt, but eſpecially under the ſternum; the neck, back, and limbs are alſo ſometimes affected with pains reſembling thoſe of rheumatism; there is a ſenſe of general laſſitude; the pulſe is quickened, eſpecially towards evening; the appetite fails, and ſome degree of thirſt ariſes, and the palate is depraved. In a ſhort time the febrile ſymptoms abate, generally after a free perſpiration; an excretion of mucus, at firſt thin and in ſmall quantity, gradually becoming more thick and copious, attends the cough,

which becomes leſs frequent and leſs laborious, until all the ſymptoms diſappear.

The diſeaſe, it is obvious, conſiſts in an inflammation of the membrane which lines the noſe and the paſſages to the lungs; the thickening of the membrane, by which the paſſages become ſtraightened, being produced by the increaſed flow of blood to the veſſels, which alſo gives riſe to the increaſe of the mucous ſecretion. The ancients imagined that this diſcharge proceeded from the head, and was determined to the membrane of the different paſſages by circumſtances: hence the name of the diſeaſe, which, both among the Greeks and Romans, ſignified *defluxion*; and hence Celfus thus begins his account of the different forms of the diſeaſe: “*Diffillat autem humor de capite interdum in nares, quod lene eſt; interdum in fauces, quod pejus eſt; interdum etiam in pulmonem, quod peſſimum eſt.*” Lib. iv. cap. 4.

The mode of operation of cold on the body, when it gives riſe to catarrh, has been variously explained by different writers. It has been moſt generally ſaid to conſiſt in a ſuppreſſion of the perſpiration, by which the matter that ſhould have been thrown off by the cutaneous veſſels is carried back, and determined upon the membranes, ſubject to this inflammation. This has been particularly ſtated by Dr. Cullen, upon his favourite notion of a balance of circulation between the external and internal parts, eſpecially between the lungs and the ſkin. But this mechanical account of the fact is ſomewhat unſatisfactory. The matter of perſpiration, and the mucus produced in the catarrhal ſtate of the membranes of the noſtrils and bronchiæ, are altogether different in nature, and are elaborated by the veſſels of the ſkin and of thoſe membranes reſpectively. There cannot therefore be a transportation of a matter, which ſhould be diſcharged by the one, back again through the circulating maſs, to be excreted by the other. All that the external application of cold can produce, is a diminution of the action of the cutaneous veſſels by which a larger proportion of blood muſt circulate to the internal parts; but how this ſhould be determined upon the membrane of the noſe it is not eaſy to explain. An application of cold to the ſkin, indeed, is not neceſſary to produce catarrh, according to an obſervation ſtated by Mr. Mudge; who cautions people in health, from trying his “*Inhaler*” with cold water, as breathing through it for a ſhort time will almoſt infallibly produce a catarrh. In this caſe, then, the ſpeculations on the ſuppreſſion of the cutaneous diſcharge, and on the balance of circulation, are altogether nugatory.

Dr. John Brown, on the other hand, denied that catarrh was the immediate reſult of the operation of cold, and affirmed that it was rather the conſequence of the ſubſequent application of heat. As in other *ſthenic* diſeaſes, the excitability of the body having been accumulated or increaſed by the application of cold, which is but the abſence of the ſtimulus of heat, when that ſtimulus is again applied, it produces the inflammatory action, which in one caſe conſtitutes *catarrh*, in another pleuriſy, and ſo on. This hypotheſis, however, is not, we believe, generally true; as many people muſt have had experience of the commencement of the ſymptoms of catarrh, even during the expoſure to cold, which excited it. It is not eaſy, in this, as in many other forms of diſeaſe, to give any account of its production that may be completely ſatisfactory.

The immense number of people, who ſuffer repeated attacks of catarrh with impunity, is a proof, as Dr. Cullen has obſerved, that the diſeaſe is generally devoid of danger. But this is far from being the caſe invariably. In any ſtate of conſtitution,

constitution, if it be neglected, or if cold is repeatedly applied during its course, it may lead to inflammation of the lungs, and all its dangerous consequences. In old people, and those of relaxed and debilitated habits, it thus often goes on to a fatal form of peripneumony, which has been called *peripneumonia notha*; in which a rapid effusion takes place into the cells of the lungs, which suddenly depresses the powers of life, and often proves fatal. In those who are predisposed to pulmonary consumption a neglected catarrh frequently lays the first foundation for, or accelerates the approach of the disease; and in others a permanent asthma has been often traced to the same source, or a constant and troublesome dyspnoea. In the old and infirm, it has been occasionally observed to induce hydrothorax, or dropsy of the chest, and sometimes even to bring on a general dropsy. So that, although simple catarrh is a slight complaint, when carefully attended to, great numbers die of its occasional consequences: an observation which strongly points out the necessity of not neglecting it.

In common cases of the disease, when the symptoms are moderate, it is merely necessary to avoid any exposure to cold, to dispense with the use of animal food, and of wine, and fermented liquors, and to drink freely of gruel or some diluting liquor, by which a gentle perspiration may be kept up. Saline diaphoretic medicines may be administered; and to those of weak habits a little thin wine-whey may be proper. A few days will generally remove every symptom under this management. When the symptoms are more violent, the disease must be treated as a slight degree of *pneumonia*, or pulmonary inflammation; the antiphlogistic regimen must be more strictly adhered to; and more active remedies employed. The most useful expedient, especially if there is pain in the chest, is the application of blisters to some part of the thorax. For allaying the cough, which is often troublesome, and produces considerable irritation by the mechanical agitation of the body, mucilaginous medicines are useful; they are less disagreeable to the stomach, in general, than oily medicines, or even spermaceti. The stimulant expectorants, such as gum ammoniac, squill, volatile alkali, &c. are frequently employed for the same purpose; but their efficacy is doubtful. If the inflammatory symptoms are considerable, they are probably hurtful. When the inflammatory condition is allayed, opium constitutes the most effectual remedy for the cough; but there is little doubt, that the free use of it, from the early stage of a severe catarrh, has contributed to render it extremely obstinate, and sometimes to extend it to a severe pneumonia. When properly used, opium not only allays the irritation of a frequent cough, but seems to contribute even to render the expectoration more free and easy: by diminishing the sensibility of the parts, it produces a temporary suppression of the expectoration, during which the mucus and exhaling fluid of the lungs accumulate, and are then removed with greater facility.

An expedient has been suggested by Mr. Mudge of Plymouth, which he terms "a radical cure for a catarrhus cough;" namely, the inhalation of the vapour of warm water into the lungs, by means of an instrument, which he calls an "Inhaler." He observes, that when the inhaler is used in the very recent and ordinary state of the cough, viz. the evening of the attack, the patient is sure of being surprised with an immediate cure; so sudden, indeed, that it is more than probable he will cough no more, except once or twice perhaps the succeeding morning, to discharge what is drilled into the branches of the bronchiæ, and which, as the thinner parts have during the night evaporated, is easily,

and with a very gentle effort, spit off in a concocted state." p. 129. Mr. Mudge's inhaler is now to be procured in the shops. Where there is a sense of rawness in the trachæa, the steam alleviates the uneasiness considerably, and in most cases relieves the cough; but in some instances it rather aggravates the symptoms and oppresses respiration.

Where the catarrh is violent, the patient must of course avoid every source of irritation which may tend to render the symptoms more inflammatory; such as great heat, exertions of body, stimulating diet, &c.; and the bowels must be kept moderately loose.

The best means of removing the chronic remains of a catarrhal affection is by some exercise of gestation diligently employed, according to Dr. Cullen; and the best means of securing the patient from a recurrence of the disease after a recovery, is by the use of warm clothing, especially by casing the body in flannel, as the susceptibility of the skin to the impression of cold is sometimes very great, particularly where much perspiration has been excited.

CATARRH *chronic*, or *catarrhus jenilis*, as it is sometimes denominated, differs so much from simple catarrh in its nature, and requisite mode of treatment, as to render a distinct consideration of it necessary. In old people, of relaxed constitutions, catarrh, after being frequently repeated, becomes at length almost habitual, and is much aggravated by cold seasons, or by occasional exposure. The mucous glands of the bronchiæ pour out a large quantity of fluid, and this secretion contributes in every way to increase the debility of the patient: not only by a diminution of the circulating mass, but by clogging up the air-cells, and thus preventing a free and regular circulation through the lungs, and a proper change in the blood, and by rendering great exertions necessary, to expel the load of mucus from the lungs, which exhaust his strength. Hence the symptoms of this form of catarrh are, a constant, harassing cough, with a copious expectoration of viscid mucus; great difficulty of breathing; a sense of load, fullness, and constriction in the breast, with much anxiety; a feeble, labouring, and often irregular, pulse; a slightly livid tinge in the lips and cheeks; inability of much exertion; occasional vertigo; and lowness of spirits, with languor, loss of appetite, &c.

The object of medicine in simple catarrh, in young and strong habits, is to avoid, or to allay any tendency to inflammation, to support a diaphoresis, and to obviate particular symptoms as they occur: but in the *chronic* form of the disease, the chief object obviously is to enable the patient to free his lungs from the load of accumulating mucus, to lessen the secretion, and to support his strength. Expectorants, emetics, blisters, gentle sudorifics and stimulants, are the remedies which seem best adapted for these purposes.

Of the expectorant medicines, the active or stimulant ones, such as have been called *incidentia*, must be employed; as gum ammoniac, asafoetida, &c. Where the heat of the body is not much increased, the volatile alkali is extremely beneficial, and when combined with squill, or the gum-resins just mentioned, it appears to afford the most effectual assistance to the expectoration, and also contributes to support the strength. When the mucus becomes hard and difficult to be moved, the inhalation of the steam of warm water is sometimes of material benefit in softening and loosening it. But the most considerable and immediate relief is frequently obtained from emetics, which not only evacuate the contents of the stomach, but also of the bronchial vessels, and excite a diaphoresis. Blisters too are often productive of relief, especially where there is any particular

pain of the breast: they seem also to promote expectoration. Antimonials are occasionally useful, but chiefly where some degree of feverishness is present.

While these medicines are administered with a view to relieve the lungs, we should endeavour to support the general strength of the patient. A light and nutritious diet should be taken, such as milk; and the chamber of the invalid should be well supplied with a pure air, by which the important function of respiration may be aided. Rest should be also obtained from the exhausting exertions of coughing; with which view a small quantity of opium may be combined with the volatile alkali, or other expectorants, which will counteract the detrimental effects that might ensue from opium given alone.

CATARRH epidemic. See INFLUENZA.

CATARRHAL FEVER signifies that form of catarrh, in which the symptoms of general fever are considerable, and which requires a strict adherence to the antiphlogistic method of treatment. See CATARRH.

CATARRHUS SUFFOCATIVUS, of some of the older authors, is the more active form of the catarrh of old people, or the *peripneumonia notha* which ensues, when this catarrh is aggravated by a fresh application of cold. It was so denominated, because it often terminates speedily by inducing suffocation. See Chronic CATARRH.

CATARRHUS vesicæ, a term used by Lieutaud and other writers to designate a disease, which consists in a copious discharge of mucus from the bladder along with the urine. Other authors, especially the nosologists, have applied various other denominations to the same complaint. Sauvages, by a sort of solecism, has described it under the terms of *pyuria mucofa*, and *P. viscida*. (Nosol. Method. class ix. ord. iii. genus 28.) Linnæus denominates it *glus*, and defines it simply, "Urinæ viscosæ micturitió." (Class ix. ord. iv.) Dr. Cullen considers it under the genus *dysuria*, species 6. *D. mucofa*. And Hoffman has detailed a case at length, under the title of "*Rarus vesicæ morbus*," in his *Confus. et Respons. Med. Cent. II. cas. 93*. By some it has been termed *cystirrhœa*.

The patient is troubled with a frequent desire of making water, which passes with some difficulty, and in a small stream. He feels a painful sensation of resistance about the neck of the bladder, which extends, together with a sense of great heat, along the urethra. The urine has a whitish milky appearance when emitted, and frequently contains many floating filaments; and after standing some time, a thick, viscid mucus, not unlike the white of eggs, is deposited in the vessel.

A discharge of mucus from the bladder is frequently a consequence of the existence of a calculus in that organ, and is generally enumerated among the symptoms of that complaint. And other discharges, as of purulent matter, or sanies, occasionally occur from the same cause, or from ulcerations and injuries of the substance of the bladder. These disorders can only be removed by curing the original disease, of which they are merely symptoms. But there are several cases on record; and other examples must have occurred to the observation of every experienced practitioner, in which such discharges with the urine appeared to arise from some particular condition of the internal surface of the bladder, which, without any extraordinary or morbid irritation, poured out the unusual secretion. Such cases have continued for some time; and, either by the aid of medicine, or the efforts of the constitution, have at length terminated in perfect health. The remedies recommended for the relief of this discharge, have been chiefly such as are obviously carried in part to the bladder, and probably exert some stimulus

there; such are the various balsams, especially *balsamum copaibæ*; the oil of turpentine, &c. Linnæus affirms that he has seen the disease cured by a copious use of onions in diet. On the same principle the cantharides might perhaps be usefully administered. Hoffmann recommends two medicines, which he thinks he has found beneficial; these are a compound of essence of cascarilla with essence of amber; and amber prepared in the form of a dry powder with deliquesced kali, or oil of tartar per deliquium. Alkaline medicines, as in other irritations of the bladder, have been found to give relief; and the uva ursi has also been recommended. It must be added, however, that, in some cases, a variety of medicines has been successively tried with little benefit; and, after they were altogether relinquished, a spontaneous cure has ensued. Hoffmann suggests the propriety of avoiding great corporeal agitations, particularly on horseback, and of dispensing with the use of strong liquors.

CATARZENA, in *Ancient Geography*, a country of Asia, in Greater Armenia, placed by Ptolemy in the vicinity of the Moschic mountains.

CATASARCA, from *κατα*, under, and *σάρξ*, flesh, in the *Greek Church*, denotes the undermost altar-cloth, or that next the altar; which see.

Over the catafarca is the antimenfa; which see.

CATASCOPIUM, from *κατασκοπεω*, I explore, in *Antiquity*, an exploratory vessel, answering in some measure to a brigantine among us. See BRIGANTINE.

We find *catascopium* used in this sense by Cicero, ad Attic. lib. v. ep. 11.

CATASCOPUS, in *Antiquity*, denotes a spy; which see.

In *Ecclesiastical Writers*, *catascopus* is said sometimes to denote an archdeacon.

CATASTA, from *καθίστημι*, I place, in *Antiquity*, a wooden scaffold, wherein slaves were placed for sale naked, that those disposed to purchase might see every limb and part. The word was also used for an elevation, on which persons were executed; and for an engine of torture, otherwise called *equuleus*.

The *catasta* does not appear to have been the same with the *equuleus*, but rather a kind of frame or scaffold, on which the *equuleus* was mounted, to render the executions more public and visible. Prudentius calls the *cratis*, or grid-iron, on which some of the martyrs were broiled, "*igneæ catasta*."

CATASTASIS, in *Poetry*, the third part of the ancient drama; being that wherein the intrigue or action, set on foot in the epistasis, is supported, carried on, and heightened, till it be ripe for the unravelling in the catastrophe. The word comes from *καταστασις*, constitution; this being, as it were, the mean, tenor, state, or constitution of the piece.

CATASTROMATA, from *καταστρωνυμι*, I cover, in *Ancient Military Writers*, a sort of scaffolds or floorings in ships of war, whereon the soldiers were posted for their defence in fight. The *catastromata* appear to have been chiefly erected over the head and stern of the vessel, it being in these parts that the soldiers were most commonly posted.

CATASTROPHE, from *καταστροφή*, I finish, in *Poetry*, the change or revolution of a dramatic poem: or the turn which unravels the intrigue, and terminates the piece. The catastrophe made the fourth and last part in the ancient drama, or that immediately succeeding the *catastasis*; or, its seat in modern tragedy is the fifth act. See ACT.

The catastrophe is either simple, or complex; whence also the fable and action are denominated. In the first there is no change in the state of the principal persons, nor any discovery or unravelling; the plot being only a mere passage out

of agitation, to quiet and repose. This catastrophe is rather accommodated to the nature of the epopea, than of tragedy. Indeed, we meet with it in some of the ancients, but it is rejected by the moderns. In the second, the principal person undergoes a change of fortune; sometimes by means of a discovery, and sometimes without. Mr. Dryden thinks a catastrophe resulting from a mere change in the sentiments and resolutions of a person, without any further machinery, may be so managed as to become exceeding beautiful, nay preferable to any other. The qualifications of this change, or peripetia, are, that it be probable and necessary: in order to be probable, it is required to be the natural result or effect of the foregoing actions; i. e. it must spring from the subject itself, or take its rise from the incidents; and not to be introduced merely to serve a turn. The discovery in the catastrophe must have the same qualifications as the catastrophe itself, of which it is a principal part: it must be both probable and necessary. To be probable, it must spring out of the subject itself; nor be effected by means of marks or tokens, rings, bracelets, or by a mere recollection, as is frequently done, both by the ancients and moderns. To be necessary, it must never leave the persons it concerns in the same sentiments they had before, but always produce either love or hatred. Sometimes the change consists in the discovery; sometimes it follows at a distance; and sometimes results immediately from it, which last is the most beautiful kind.

Bossu divides the catastrophe, at least, with regard to the epopea, into the unravelling, or *denouement*, and the *achievement*, or finishing; the last of which he makes the result of the first, and to consist in the hero's passage out of a state of trouble and agitation, to rest and quiet. This period is but a point without extent or duration; in which it differs from the first, which comprehends every thing after the knot, or plot laid. He adds, that there are several unravellings in the piece; because there are several knots, which beget one another: the finishing is the end of the last unravelling.

The ancients were fond of unravellings, which turned upon what is called an "Anagnorisis," or, a discovery of some person to be different from what he was taken to be. When such discoveries are artfully conducted, and produced in critical situations, they are extremely striking; such as that famous one in Sophocles; which makes the whole subject of his *Œdipus Tyrannus*, and which is, undoubtedly, the fullest of suspense, agitation, and terror, that ever was exhibited on any stage. Among the moderns, two of the most distinguished Anagnorises are those contained in Voltaire's *Merope*, and Mr. Home's *Douglas*; both of which are great master-pieces of the kind.

Another rule concerning the catastrophe is, that it ought always to be simple; to depend on few events, and to include but few persons. Passion never rises so high when it is divided among many objects, as when it is directed towards one, or a few. And it is still more checked, if the incidents be so complex and intricate, that the understanding is put on the stretch to trace them, when the heart should be wholly delivered up to emotion. Dr. Blair observes, that the catastrophe of the *Mourning Bride* offends against both the preceding rules. In the last place, the catastrophe ought to be the reign of pure sentiment and passion. In proportion as it approaches, every thing should warm and glow. No long discourses; no cold reasonings; no parade of genius in the midst of those solemn and awful events, that close some of the great revolutions of human fortune. There, if any where, the poet must be simple,

serious, pathetic; and speak no language but that of nature.

It is a dispute among the critics, whether the catastrophe should always fall out happily, and favourably on the side of virtue, or not? i. e. whether virtue is always to be rewarded, and vice punished, in the catastrophe? But the reasons on the negative side seem the strongest. Aristotle prefers a shocking catastrophe to a happy one; because the moving of terror and pity, which is the aim of tragedy, is better effected by the former than the latter. But it is not essential to the catastrophe of a tragedy, that it should terminate unhappily. In the course of the play, there may be sufficient agitation and distress, and many tender emotions raised by the sufferings and dangers of the virtuous, though, in the end, good men are rendered successful. The tragic spirit, therefore, does not want scope upon this system; and, accordingly, the *Athalie* of Racine, and some of Voltaire's finest plays, such as *Alzire*, *Merope*, and the *Orphan of China*, with some few English tragedies likewise, have a fortunate conclusion. But, in general, the spirit of tragedy, especially of English tragedy, leans more to the side of leaving the impression of virtuous sorrow full and strong upon the heart. See *DRAMA* and *TRAGEDY*.

CATATANUS, in *Ancient Geography*, an episcopal see of Asia Minor, in Lycia.

CATATHRÆ INSULÆ, islands belonging to Africa; being the same, according to Ptolemy, with the *Chalontides*.

CATAVANA, CATABANA, or CATAMANA, a place of Asia, marked in the Itinerary of Antonine upon the route from Germanicia to Edeffa, by Samofata.

CATAWESSY, in *Geography*, a township of America, in the county of Northumberland, and state of Pennsylvania; situated on the S.E. bank of the east branch of Susquehanna river, opposite the mouth of Fishing creek, and about 20 miles N.E. of Sunbury.

CATAX, in *Entomology*, a species of *PHALÆNA*, (*Bombyx*) with ferruginous one-coloured wings, and a white point: found in the European oak.

CATAZETI, in *Ancient Geography*, a people of Asiatic Sarmatia, whose habitation is assigned by Pliny on the other side of the Tanais.

CATBALOGAN, in *Geography*, a town of the island of Samar, one of the Philippines, in the East-Indian ocean.

CATCH, in *Musick*, is a song in parts generally of a facetious kind; in which, by the disposition and arrangement of the words, some latent humour or jest is produced in singing, which, in reading the words, does not appear. We can trace attempts at this species of humour up to the time of Henry VII. and canons much higher. See *CANON*. But among the productions for vocal purposes must not be forgotten canons, rounds, and catches; of which ingenious and exhilarating species of composition, the first collection that was ever printed, appeared during the reign of James I. under the title of "*Pammelia Musicks Miscellanie*; or mixed varieties of pleasant roundels and delightful catches of 3, 4, 5, 6, 7, 8, 9, 10 parts in one. None so ordinarie as musical, none so musical as not to all very pleasing and acceptable. Lond. printed by William Barley, for R. B. and H. W. and are to be sold at the Spread Eagle at the north doore of Pauls, 4to. 1609." The names of none of the composers of these epigrammatic and pointed effusions have been preserved; but many of them seem of great antiquity, which is discoverable both by the words and style of composition. Great musical science is manifested in the canons, and the harmony and contrivance of the rest

are excellent. The words, indeed, except those of the canons, which consist of small portions of the Psalms and other parts of Scripture, in Latin (which seems to imply that they were set before the reformation), are, in general, devoid of wit, humour, poetry, and common sense. But our lyric poetry, during the 16th and part of the 17th century, was in a barbarous state, and far inferior to the music of the times. But the composers seemed so little solicitous about the words they had to set, as frequently to prefer the syllables of solmisation "Ut re mi fa sol la; hey down down, derry down;" or merely, fa la, to songs of Spencer and Shakespeare.

The second collection of catches, Hilton ventured to publish in 1652, in spite of the Psalm-roaring, and fanatic gloom which then prevailed, under the title of "Catch that Catch can," or a choice collection of catches, rounds, and canons, for three and four voices. They helped to solace the royalists in private, during the triumphs of their enemies, and suppression of all public amusements. Though many of these rounds and catches were afterwards reprinted by Playford, and retailed in later collections; the book, which is of a small oblong form, is not only scarce, but valuable; as it contains several canons and ingenious compositions which are not yet common.

The third publication of catches had John Playford for editor, in 1667, under the same title as that of Hilton; "Catch that Catch can," or the musical companion; which was, indeed, but a second edition. However, in a second part to this publication, there appeared dialogues, glees, ayres, and ballads, of two, three, and four voices, wholly different from Hilton's second part, which consists of about 40 hymns and canons.

But we must not terminate this article without an honourable and grateful memorial of the catches, rounds, and glees of Purcell, of which the humour, ingenuity, and melody, were so congenial with the national taste, as to render them almost the sole productions of that facetious kind that were in general use for near fourscore years. And though the countenance and premiums bestowed of late years upon this species of composition, as well as modern refinements in melody and performance, have given birth to many glees of a more elegant, graceful, and exalted kind, than any which Purcell produced; yet he seems hardly ever to have been equalled in the wit, pleasantry, and contrivance of his catches.

Canons, rounds, and catches were never published in score till after the institution of the Catch-Club, in 1762. This society was first suggested by the then earl of Eglington, lord March, the present duke of Queensbury, and — Meynel, esq. who soon invited under their banners the lords Sandwich, Orford, Fortescue, &c. &c. This institution has given birth to many excellent glees, in purer harmony and more polished melody than those of former times could boast; but of catches and canons the stock has not been equally augmented. Purcell's catches are still the best models of that species of composition; and except Dr. William Hayes's pleasant canon, "Let's drink and let's sing together," Bird's "Non nobis Domine" is the only canon that has continued in constant favour and circulation, among all our efforts at similar productions.

CATCH-drain, in the *Construction of Canals*, is the same with *Counter-drain*; and sometimes it denotes a sort of levels or feeders for a reservoir.

CATCH-fly, in *Botany*. See *LYCHNIS*.

CATCH-land, in *Agriculture*, is a name given to such common field-land as is not certainly known to which parish it

belongs; and, therefore, the minister who first gets the tithes of it enjoys it for the year.

CATCH-pole, or *CATCH-polle*, (one that catches by the pole,) a term now used, by way of reproach, for a bailiff's follower, or assistant. Anciently, it was a term of credit, applied to those we now call *serjeants of the mace*, *bailiffs*, or any other that use to arrest men on any action.

CATCH-word, among *Printers*, denotes the last word of a page, which is put also at the top of the succeeding page, in order to shew how the leaves and sheets follow each other, and facilitate the folding and binding.

The French sometimes only put the catch-words at the end of each sheet, or even quire or gathering.

CATCH-work, in *Husbandry*, is a term made use of in the practice of irrigation, to signify the method of forming the cuts and trenches for throwing the water of springs and small streams over such lands as lie on the sides, slopes, and declivities of hills.

CATCH-work meadow, that sort of meadow which is formed by turning the water of a spring or a streamlet along the slope of a hill or declivity, so as to water the lands between the cut or *main-carriage*, and the original water-course, which, in this instance, becomes the main drain. This is sometimes effected in particular cases, simply by making the new-cut level, and stopping it at the end; so that when it is full, the water may run out at the side, and flood the land below it. But, as the water would soon cease to run equally for any great length, and would wash the land out in gutters, it has been found necessary, according to the Agricultural Survey of the county of Wiltshire, to cut small parallel trenches or carriages, at distances of 20 or 30 feet, to catch the water again; and each of these being likewise stopped at its end, lets the water over its side, and distributes it till it is caught by the next, and so on over all the intermediate beds, to the *main drain* at the bottom of the meadow, which receives the water, and carries it on to water another meadow below; or, if it can be so contrived, another part of the same meadow, on a lower level. And in order to draw the water out of these parallel trenches or carriages, and lay the intermediate beds dry, a narrow, deep drain crosses them at right angles, at about every nine or ten poles' length, and leads from the main-carriage at top to the main-drain at the bottom of the meadow. When this meadow is to be watered, the ends of the carriages adjoining the cross-drains are stopped with turf dug on the spot, and the water thrown over as much of the meadow as it will cover well at a time, which the watermen call a *pitch of work*; and when it is necessary to lay this pitch dry, they take out the turfs and let the water into the drains, and proceed to water another pitch.

This sort of watered meadow is seldom expensive. The stream of water being usually small and easily manageable few hatches are requisite; and the land lying on a declivity much less manual labour is necessary to throw the water over it regularly, and especially to get it off again, than in other sorts of watered meadows. The expence of forming such meadow-lands is, in general, from about three to five pounds the acre; while the improvement is frequently from fifteen to forty shillings the acre, and the usual charge for keeping up the works and watering the lands, which is mostly done by the acre, seldom comes so high as seven and sixpence. See *IRRIGATION, and WATERING of Land*.

CATCHER, *CRAB-CATCHER*, in *Ornithology*, the name by which Sloane distinguishes *alcedo alcyon*, var. β ., *Martin-pêcheur de la Louisiane* of Buffon.

CATCHER,

CATCHER, SPIDER-CATCHER, *certhia muraria*, is so named by Willughby.

CATCHES, in *Clock Work*, those parts of a clock that hold by hooking, and catching hold.

CATCH-OWL, in *Geography*, one of the Nicobar islands. N. lat. $7^{\circ} 55'$. E. long. $93^{\circ} 58'$.

CATCHWANA, a town of Hindoostan, in the country of Agimere; 36 miles W.N.W. of Agimere.

CATEAU CAMBRESIS, or *Le Cateau*, a town of France, in the department of the North, and chief place of a canton, in the district of Cambray, belonging, before the revolution, to the archbishop of Cambray, and exempt from imposts. In 1559, a treaty of peace was made here between Henry II. king of France, and Philip II. king of Spain: 15 miles S.E. of Cambray. The place contains 4000, and the canton 17,026 inhabitants; the territory comprehends $162\frac{1}{2}$ kilometres, and 16 communes. Near this place the French were defeated, in 1794, by the prince of Coburg, with the loss of 5000 killed.

CATECHESIS, from *καταχρησ*, *I teach first principles*, in a general sense, denotes an instruction given any person in the first rudiments of an art or science, but more particularly in the principles of the Christian religion.

Those who give such instructions are called CATECHISTS, and those who receive them CATECHUMENS.

CATECHESIS is also used for a book containing the rudiments of the Christian religion, adapted to the use and instruction of novices. See CATECHISM.

The catecheses of St. Cyril, are the principal works of that father.

CATECHETIC, or CATECHETICAL, something that relates to oral instruction in the rudiments of Christianity. In the early ages of the church there were catechetical schools, wherein sacred learning and philosophy were taught. These were public auditories, distinct from the church, but probably adjoining to them. In a novel of the emperor Leo, they are called *καταχρησται*, and represented as a sort of edifices belonging to the church. St. Ambrose speaks of these auditories as held in the baptistery. Bingham. Orig. Eccles. lib. iii. cap. 10. § 4.

CATECHISM, *Catechismus*, in its primary sense, an instruction or institution in the principles of the Christian religion, delivered *viva voce*, and so as to require frequent repetitions from the disciple or hearer of what had been said. Anciently, the candidates of baptism, were only to be instructed in the secrets of their religion by tradition, *viva voce*, without writing; as had also been the usage among the Egyptian priests, and the British and Gaulish druids, who only communicated the mystery of their theology by word of mouth. Shaftesb. Charact. vol. iii. p. 241. not.

CATECHISM is more frequently used in modern times, for an elementary book, wherein the principal articles of religion are summarily delivered in the way of question and answer.

CATECHIST, *Catecheta*, he that catechises, i. e. instructs novices in the principles of religion.

CATECHIST more particularly denotes a person appointed by the church to instruct those intended for baptism, by word of mouth, in the fundamental articles of the Christian faith.

The catechists of churches were ministers usually distinct from the bishops and presbyters, and had their auditories or *catechumena* apart. Their business was to instruct the catechumens, and prepare them for the reception of baptism. But the catechists did not constitute any distinct order of the clergy, but were chosen out of any other order.

CATECHU, in *Botany*. See ARECA.

CATECHU, in *Chemistry* and the *Materia Medica*, or *Terra Japonica*, (improperly so called,) is an extract prepared in several parts of India from a species of *Mimosa*, by decoction of the inner wood, evaporation, and inspissation in the sun. The tree is called in the Bahar province *coira*, and the name given to the extract in the country is *catechu*, *cutch*, or *cachou*.

Mr. Kerr gives the following account of its preparation. (Medical Observations, vol. v.) After the trees are felled, all the exterior white part of the wood is cut off and rejected. The inner wood, which is red, is then cut into chips and boiled with water, till half of it is evaporated. This strong decoction is then poured off, without straining, into a shallow earthen vessel, and evaporated to one third by fuel, after which the thorough drying is completed by the heat of the sun, the soft extract being spread on a mat, and exposed to the air.

There are two varieties of catechu brought to this country, that from Bombay and that from Bengal, each differing but slightly from the other in chemical qualities.

Catechu is of a reddish brown colour, sometimes nearly black, shining in its fracture, and without smell. When taken in the mouth, it gives an astringent and rather bitterish taste, which is succeeded by a peculiar sweetness, which is very permanent, and by no means disagreeable. It dissolves slowly and totally in the mouth, the foreign impurities excepted.

By the analysis of Mr. Davy, (Phil. Transf. for 1803,) it appears, that there is very little difference between the two species, and they are both very remarkable for containing a larger portion of *tan* than any other vegetable matter, the gall-nut not excepted.

Catechu is almost totally soluble in hot water. This solution is of a deep reddish brown, and slightly reddens litmus. By adding the solution of isinglass, or other animal jelly, a very copious precipitate is formed indicating a large quantity of *tan*; and the solutions of iron strike a deep black, shewing the presence of gallic acid. Besides these two important ingredients, catechu contains a peculiar extract, and also a substance resembling mucilage. The latter is left nearly pure after the action of alcohol, which dissolves all the other ingredients. This mucilage scarcely differs from common gum mucilage, which latter is also procured from another species of *mimosa*. The extractive matter of catechu is soluble in water, but less easily than the *tan* is, and hence, they may be separated almost with accuracy, by repeatedly pouring cold water on the powdered catechu, and allowing it to remain only a short time in digestion. The *tan* will be known to be exhausted, when the water, the last added, no longer gives any precipitate with solution of isinglass, after which the red extract is left nearly pure, most of the mucilage being also dissolved by the water. This residuary extract is but slightly astringent, but considerably sweet.

Mr. Davy found that 200 grains of the Bombay catechu contained about 109 of *tan*, 68 of extract, and 13 of mucilage, with 10 of earthy residue. The same quantity of the Bengal catechu contained of the above substances, in the same order, 97 grains, 73, 16, and 14.

Catechu is used largely in the East, medicinally, but especially when mixed with the betel-nut, for chewing, a practice almost universal over the Indian continent.

In this country it is employed medicinally in those cases in which a mild unirritating and powerful astringent is required, as in immoderate alvine flux, autumnal diarrhoeas, &c. It is one of the most useful medicines of this kind, and is employed either in watery solution, or tincture.

The

The former is the mildest form, and is prepared almost immediately by pouring hot water on the powdered catechu. With this indication it may be usefully joined with the bitter, tonic, and aromatic barks.

It is also used in the form of troches, mixed with gum-arabic and sugar, to dissolve slowly in the mouth, and in this form it often much assists the clearness of the voice, in persons that have occasion to speak long in public. Catechu is, besides, applied externally as a topical astringent, to ulcers in the mouth, and other parts of the body.

CATECHUMEN, compounded of *κατὰ* and *ἡγεῖω*, *I found*, in *Ecclesiastical History*, a candidate for baptism; or, a person who prepares himself for receiving it. Towards the end of the first century Christians were divided into two orders, distinguished by the names of *believers* and *catechumens*. The latter, as contradistinguished from the former (see *BELIEVERS*), were such as had not yet been dedicated to God and Christ by baptism, and were, therefore, admitted neither to the public prayers, nor to the holy communion, nor to the ecclesiastical assemblies. They were distinguished from the *fideles*, or believers, not only by name, but also by their place in the church: being disposed of with the penitents, in the portico or gallery at the extremity of the church, opposite to the choir. As they were not allowed to assist at the celebration of the eucharist, the deacon dismissed them, after sermon, with this formula, proclaimed three times, "Ite, Catechumeni; missa est." Catechumens formed the lowest order of Christians in the primitive church; and were admitted into this state by the imposition of hands, and the sign of the cross. The children of believing parents, it is said, were admitted as catechumens, as soon as they were capable of instruction, but it is not certain at what age those of heathen parents might be admitted; nor does the time of their continuance in this state seem to have been fixed by any general rules. The methods of instructing the catechumens differed according to their various capacities. Those, in whom the force of natural reason was small, were taught no more than the fundamental principles and truths, which are, as it were, the basis of Christianity. Those, on the contrary, whom their instructors judged capable of comprehending, in some measure, the whole system of divine truth, were furnished with superior degrees of knowledge; and nothing was concealed from them, which could have any tendency to render them firm in their profession, and to assist them in arriving at Christian perfection. The care of instructing such was committed to persons who were distinguished by their gravity and wisdom, and also by their learning and judgment. Hence it was, that the ancient doctors generally divide their flock into two classes; the one, comprehending such as were solidly and thoroughly instructed; the other, those who were acquainted with little more than the first principles of religion; nor do they deny that the methods of instruction applied to these two sorts of persons were extremely different.

There were divers orders or degrees of catechumens in those churches and ages where the term of catechising for two or three years was observed; but ecclesiastical writers are not agreed as to the precise number and appellations of these different orders. Some, however, have reckoned four orders; the first were those that were instructed privately without the church, and who were kept at a distance for some time from the privilege of entering the church, in order to make them more solicitous for obtaining it. Those of the second degree were the "audientes," or "auditores," (see *AUDIENTS*), so called from their being admitted to hear sermons, and the scriptures read in the church; but not allowed to join in the prayers. The third sort is said to have

comprehended the catechumens, denominated "genuflectentes," because they received imposition of hands kneeling. Those of the fourth order were the "competentes," (see *COMPETENTES*) and "electi," denoting the immediate candidates for baptism, or such as were appointed to be baptized at the next approaching festival; before which, they were strictly examined as to their proficiency in the several stages of catechetical exercises. After examination they were exercised for twenty days, and laid under an obligation of fasting and confession: for some days before baptism they wore a veil; and it was customary to touch their ears, saying "ephatha," be opened; and also to anoint their eyes with clay; both which ceremonies professed to be imitations of the practice of our Saviour, and intended to shadow out to the catechumens their true condition both before and after their admission into the Christian church.

CATECHUMENUM, a name given to an upper gallery in the ancient churches. The name catechumenum was also given to a sort of school-house near the church, where the catechumens met to receive the instruction of the catechists.

CATEGOREMA, from *κατογορεύω*, *I declare*, is defined a noun substantive, so absolute and independent, that it may stand at the head of a class apart.

CATEGOREMA properly denotes the name whereby a category, or class of beings, is represented. See *CATEGORY*.

CATEGORIÆ, in *Literary History*. Aristotle has a book extant under the title of *Κατηγορημαί*, which Curio, Tontius, Vives, and others, deny to be written by him, and ascribe to Andronicus; but without much foundation, since that work is cited as Aristotle's by Simplicius, Ammonius, and Lucianus.

CATEGORIARES, a minister in the Greek church, whose business is to publish or proclaim the feast days. He had also the care of the lights, and to see the church kept clean.

CATEGORICAL, in a general sense, is applied to those things ranged under a category.

CATEGORICAL, also imports a thing to be *ABSOLUTE*, and not restrained to conditions. In which sense it stands opposed to *HYPOTHETICAL* and *CONDITIONAL*. A categorical answer denotes an express and pertinent answer, made to any question or objection proposed.

CATEGORUMENUM, denotes the *PREDICATE*, or that part of a proposition which is affirmed of the subject. Some mistakenly call this *categorema*.

CATEGORY, in *Logic*, a system, or assemblage, of all the beings contained under any *genus*, or kind; ranged in order. The word category was borrowed by the schools from the *forum*, or courts of justice; for as, in a trial, the plaintiff or prosecutor in accusing the criminal, or prisoner, must charge him expressly, or affirm that he did this or that in positive terms: whence the word category, viz. from *κατογορεύω*, *to aver*, or *declare a charge of accusation*: so in the doctrine of categories every higher may be expressly and absolutely predicated, or affirmed, of every lower.

The school philosophers distribute all beings, all the objects of our thoughts or ideas, into certain *genera*, or classes, in order to get a more distinct and precise notion thereof; which classes the Greeks call categories, and the Latins *predicaments*: and which Mr. Harris has styled in the title of his work, *Philosophical Arrangements*.

The ancients, after Aristotle, generally make ten categories; under the first all substances are comprised; and all accidents or attributes under the nine last; viz. quantity, quality,

quality, relation, action, passion, time, place, situation, and habit; which are usually expressed, or signified by the following technical distich:

"Arbor, sex, servos, ardore, refrigerat, ustos,
Ruri, cras, stabo, nec tunicatus ero."

But as these ten categories of Aristotle, which logicians make such mysteries of, are arbitrary, they are now almost excluded. Accordingly, some philosophers think all nature may be better considered under these seven things, spirit, matter, quantity, substance, figure, motion, and rest: and others make but two categories, substance and attribute, or subject and accident. This arrangement of the ten categories was borrowed from the Pythagorean school, in which the number ten was esteemed the most perfect. It is said to have been first invented by Archytas of Tarentum. From him Plato received it, when he conversed with him in Italy; and from Plato it would of course pass to Aristotle. See on the subject, and in vindication of the categories of Aristotle, Harris's *Philosophical Arrangements*, chap. ii. where this ingenious writer represents the doctrine of categories, predicaments, primary genera, or philosophical arrangements, as a valuable, copious, and sublime theory; a theory which, when well understood, leads, by analogy, from things sensible to things intelligible; from effect to cause; from that which is passive, unintelligent, and subordinate, to that which is active, intelligent and supreme; a theory, which prepares us not only to study every thing else with advantage, but makes us knowing withal in one respect, where particular studies are sure to fail; knowing in the relative value of things, when compared with one another; and modest, of course, in the estimate of our own accomplishments. In another part of his work (ch. xviii.) he observes, that in contemplating these orderly, these comprehensive arrangements, we may see whence the subordinate sciences and arts all arise: history, natural and civil, out of substance; mathematics, out of quantity; optics, out of quality and quantity; medicine, out of the same; astronomy, out of quantity and motion; music and mechanics, out of the same; printing, out of quality and site; ethics, out of relation; chronology, out of when; geography, out of where; electricity, magnetism, and attraction, out of action and passion; and so in other instances.

CATEIA, in *Ancient Writers*, a kind of dart or javelin, in use among the ancient Gauls and Germans, made of heavy matter, and therefore not fitted to fly far, but doing great execution where it did reach, having withal an apparatus by which the person who threw it might draw it back again. It is spoken of by Virgil, *Æn.* lib. vii. ver. 741.

"Teutonico ritu soliti vibrare cateias."

CATEL, WILLIAM, in *Biography*, a learned counsellor of the parliament of Toulouse and a good magistrate, was born at Toulouse in 1569; and being profoundly versed in literature, he wrote "A History of the Counts of Toulouse," 1623, fol. and "Memoirs of Languedoc," fol. 1633. He was the first who verified history by ancient charters and other documents. He was a judicious writer, and rejected false or exaggerated facts. Catel died in 1621. *Nouv. Dict. Hist.*

CATELA, in *Ancient Geography*, a place of Syria, on the route from Constantinople to Antioch, six miles from Laodicea, according to the Itinerary of Antonine.

CATELÆ-VEGON, in *Botany*, Rheed. Mal. See *ARISTOLOCHIA indica*.

CATELLA. Among the Romans this was a small chain which was put round the neck, and was a sort of military present.

CATEMA, in *Geography*, a town of Arabia; 120 miles S.E. of El Catif.

CATENA, in a general sense, a CHAIN.

CATENA, in *Anatomy*, a muscle, otherwise called *TIBIALIS anticus*.

CATENA patrum, in *Ecclesiastical Writers*, denotes a sort of commentary on scripture, composed of separate passages or interpretations of the fathers, reduced to the order of chapters and verses of the book. The first who used catena in this sense was Thomas de Aquinas. The reason of the appellation seems to be this: that a chain consists of several links connected together, so do these commentaries consist of a number of different passages, or the sentences and explications of different writers, tacked together so as to form one work. *Fabr. Bibl. Græc.* tom. vii. lib. v. cap. 17.

CATENARIA, in the *Higher Geometry*, a mechanical curve line, which a chain, or rope, forms itself into, by its own weight, when hung freely, between two points of suspension, whether those points be horizontal or not. It is otherwise called the *Elastic curve*.

The nature of this curve was investigated by Galileo, who supposed it to be the same with the parabola; but though Jungius detected this mistake, its true nature was not discovered till the year 1691, when M. J. Bernouilli published it as a problem in the *Acta Eruditorum*. Dr. D. Gregory, in 1697, published a method of investigating the properties before discovered by Bernouilli and Leibnitz; (*Phil. Trans.* ab. vol. i. p. 39, &c.) where he undertakes to shew, that an inverted catenaria is the best figure for an arch. Bernouilli *Opera*, vol. i. p. 48, &c. and vol. iii. p. 491, &c. Cotes's *Harm. Menf.* p. 108. To conceive the general nature or character of this curve, suppose a line heavy and flexible (See *Plate Geom.* III. fig. 49), the two extremes of which, F and D, are firmly fixed in those points; by its weight it is bent into a certain curve FAD, which is called the *catenaria*.

Let BD and *bd* be parallel to the horizon, AB, its axis, perpendicular to the horizon and to BD, and D δ parallel to AB; and the points B, *b* infinitely near to each other. From the laws of mechanics, any three powers in equilibrio, are to one another as the lines parallel to the lines of their direction (or inclined in any given angle), and terminated by their mutual concourses: hence, if D δ express the absolute gravity of the particle D δ (as it will, if we allow the chain to be every way uniform), then D δ will express that part of the gravity, that acts perpendicularly upon D δ ; and by the means of which, this particle endeavours to reduce itself into a vertical position; and as it proceeds from the ponderous line DA, it is, *ceteris paribus*, proportional to the line AD, which is the cause of it. Farther, the lineola *d δ* will express the force which acts against that conatus of the particle D δ , by which it endeavours to restore itself into a position perpendicular to the horizon, and hinders it from doing so. This force is constant, being no other than the resistance of the point A; and may therefore be expressed by any given right line *a*. Supposing the curve FAD, therefore, as before, whose vertex (the lowest point of the *catena*) is A, axis AB, ordinate BD; fluxion of the axis D δ =B δ ; fluxion of the ordinate *d δ* ; the relation of these two fluxions is thus expressed, viz. D δ : δ *d* :: DA curve : *a*; which is the fundamental property of the curve, and may be thus expressed (putting AB=*x*, and BD=*y*, and AD=*z*),

$$\dot{x} : \dot{y} :: z : a, \text{ or } a \dot{x} = \dot{y} z \text{ i. e. } \dot{y} = \frac{a \dot{x}}{z}.$$

From this fundamental equation, we may easily deduce by proper analogy, or similar combinations of the terms, this other property; $\dot{x} : \sqrt{\dot{x}^2 + \dot{y}^2}$ or $\dot{z} :: z : \sqrt{a^2 + z^2}$, or

$$z \dot{z} =$$

$z \dot{z} = \dot{x} \sqrt{a^2 + z^2}$, or $\dot{x} = \frac{z \dot{z}}{\sqrt{a^2 + z^2}}$; and the fluents of

these give $x = \sqrt{a^2 + z^2}$. But, at the vertex of the curve, where $x = a$, and $z = 0$, this becomes $a = \sqrt{a^2 + 0} = a$; and, therefore, by correction, the true equation of the fluents is $x = \sqrt{a^2 + z^2} - a$, or $a + x = \sqrt{a^2 + z^2}$; and hence also $z = \sqrt{a + x}^2 - a^2 = \sqrt{2ax + x^2}$, and $a = \frac{z^2 - x^2}{2x}$.

Any of these expressions will give the equation of the curve in terms of the arc and its absciss; in which it appears, that $a + x$ represent the hypothenuse of a right-angled triangle, whose two legs are a and z . So that if in BA and HA, parallel to BD, and representing the direction in which the tension at A acts, produced, there be taken AD = a , and AE = the curve z or AD; then will the hypothenuse DE be = $a + x$ or DB. And hence, any two of these three, a , x , z , being given, the third is given also.

Again, from the first simple property, viz. $\dot{x} : \dot{y} :: z : a$, or $a \dot{x} = z \dot{y}$, by substituting the value of z above

found, it becomes $a \dot{x} = \dot{y} \sqrt{2ax + x^2}$, or $\dot{y} = \frac{a \dot{x}}{\sqrt{2ax + x^2}}$,

and the fluent of this equation is $y = 2a \times \text{hyp. log. of } \sqrt{x + \sqrt{2a + x}}$. But, at the vertex of the curve, where $x = 0$, and $y = 0$, this becomes $0 = 2a \times \text{hyp. log. of } \sqrt{2a}$; therefore the correct equation of the fluents is $y = 2a \times$

hyp. log. of $\frac{\sqrt{x + \sqrt{2a + x}}}{\sqrt{2a}}$; an equation to the curve

also, in terms of x and y , but not in simple algebraic terms. This last equation, however, may be brought to much simpler terms in different ways; as, first, by squaring the logarithmic quantity, and dividing its co-efficient by 2: then y

= $a \times \text{hyp. log. of } \frac{a + x + \sqrt{2ax + x^2}}{a} = a \times \text{hyp. log.}$

$\frac{a + x + z}{a}$; and secondly, by multiplying both numerator

and denominator by $\sqrt{2a + x} - \sqrt{x}$, then squaring the product, and dividing the co-efficient by 2, which gives y

= $a \times \text{hyp. log. } \frac{z + x}{\sqrt{z^2 - x^2}} = a \times \text{hyp. log. } \frac{z + x}{z^2 - x^2} =$

$z \times \text{hyp. log. } \frac{z + x}{a - x}$.

CATENATION, in *Medicine and Physiology*, from *catena*, a chain, a term, employed by Dr. Darwin, and adopted by some other modern writers, to express the connection or association of certain actions of animal bodies. "All animal motions which have occurred at the same time, or in immediate succession, become so connected, that when one of them is reproduced, the other has a tendency to accompany or succeed it." *Zoonomia*, sect. iv. 7. This law of the animal economy, which Dr. Darwin has illustrated, is one of important consideration, not only with the physiologist, but with the practical physician. All the mechanical arts of man consist in the acquisition of these catenations, by which the motions of many of his muscles become gradually linked together in trains, tribes, or circles of motion. However difficult the first attempt at these combinations may be, the force of the catenations is pointed out by this circumstance, that when they have been once formed by frequent repetitions, we can exert our attention strongly on other objects,

and the concatenated circle of motions will nevertheless proceed in due order; as whilst we are thinking on any subject, we use a variety of muscles in walking along the street, or directing a horse on which we ride. This may be most satisfactorily exemplified in the art of playing on a musical instrument; "and when we recollect," says the author of *Zoonomia*, "the variety of mechanic arts which are performed by associated trains of muscular actions catenated with the effects they produce, as in knitting, netting, weaving; and the greater variety of associated trains of ideas caused or catenated by volitions or sensations, as in our hourly modes of reasoning, or imagining, or recollecting, we shall gain some idea of the innumerable catenated trains and circles of action, which form the tenor of our lives, and which began will only cease entirely with them." Sect. xvii. 2. In beginning to learn music, we first voluntarily apply ourselves to the characters of the music book, and endeavour by many repetitions to catenate them with the proportions of sound of which they are symbols. The ideas excited by the musical characters are slowly connected with the keys of the harpsichord, and much effort is necessary to produce every note with the proper finger, and in its due place and time; till at length a train of voluntary exertions becomes catenated with certain irritations. As the various notes by frequent repetitions become connected in the order in which they are produced, not only the musical symbols of crotchets and quavers, but the auditory notes and tones, at the same time, become so many successive or synchronous links in this circle of catenated actions. At length the motions of the fingers become catenated with the musical characters, and these no sooner strike the eye, than the finger presses down the key; without any voluntary attention between them; the activity of the hand being connected with the irritation of the figure of the musical symbol on the eye. But not only is this facility acquired, we can even play with great exactness an accustomed tune, and think, and converse at the same time on other subjects. To the same tendency to catenation of motions, the odd habits and singularities of individuals are to be attributed.

In diseases the catenation of motions is frequently conspicuous, and contributes to prolong their continuance. Thus in typhous fever, even if it commences with violence, the affusion of cold water on the body of the patient, or the exhibition of a strong emetic, will often completely interrupt the progress of the disease, if resorted to within the first three days; but if the febrile action, however slight, be allowed to continue longer, they become so strongly catenated, that no expedient is sufficient to dis sever the associated trains.

By some extension of the meaning of the term, many other animal actions are said to be *catenated* with our daily habits of life, or with certain portions of time, or degrees of exhaustion, &c. Thus, if the pain of hunger be not relieved by taking food at the usual time, it is liable to cease till the next period of time, or other habits recur. "Our times even of respiration are not only governed by the stimulus of the blood in the lungs, or our desire of fresh air, but also by our attention to the hourly objects before us. Hence, when a person is earnestly contemplating an idea of grief, he forgets to breathe, till the sensation in his lungs becomes very urgent; and then a sigh succeeds for the purpose of more forcibly pushing forwards the blood, which is accumulated in the lungs."

Upon the same principle our periods of sleeping and waking, of evacuating the bowels, &c. are much regulated; and hence the propriety of Mr. Locke's recommendation for obviating costiveness. The periods of female menstruation are catenated with longer but more regular times. In diseases the

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the hectic and quotidian fever obey the intervals of solar or lunar periods; the tertian is connected with a solar interval of 48 hours; the quartan with one of 72. Similar periods are observed in gout, in asthma, in hemicrania, in hæmorrhoids often, and in returns of arterial hæmorrhages; and often in lunacy, whence its name has been derived. See Darwin Zoonom. vol. i. sect. xxxvi.

CATENNENSES, in *Ancient Geography*, a people of Asia, in Pamphylia, who, according to Strabo, inhabited the territory of Selga.

CATERER. See PURVEYOR.

CATERGI, the name of the public carriers in the Grand Seignior's dominions, who give earnest to the merchants, and others, as a security that they will carry their goods, or not set out with them.

CATERPILLAR, in *Botany*. See SCORPIURUS.

CATERPILLAR, in *Entomology*, more properly LARVA, the worm-like state in which all the lepidopterous, and most other insects appear on quitting the egg. See LARVA, article ENTOMOLOGY.

CATERPILLAR, in *Gardening*, a well-known highly destructive insect, that frequently does great injury to various sorts of trees of the fruit and other kinds, by stripping them of their foliage, and preventing the setting of the fruits.

There are several kinds; but those that are most destructive to vegetables and fruits in the garden or field are the yellowish-green, the black, and the dark rough-skinned leathery sorts. The first is generated from the ova of the white butterfly, deposited upon the leaves and other parts of the plants. Those of the second sort mostly shew themselves in March, when the weather is dry, upon trees of the pear, apple, and other kinds, sometimes contained in large webs: they deposit their ova on the leaves, and in the crevices of the bark of the trees, from which new insects are generated during the summer months. Mr. Hit supposes some of them to remain in these situations during the winter; having found them in nail-holes and under pieces of old bark in February. The last sort is generated in the middle of the inclosed leaves of different sorts of plants; such as those of the cabbage, brocoli, and other similar kinds. These produce much mischief by eating through the stems and other parts of the plants. Darwin observes that there are two breeds of these insects in the year, the larvæ of the first devouring the spring leaves, and those of the second the summer shoots. Various methods have been attempted for destroying the different sorts of caterpillars, both such as are destructive to esculent plants, and to trees of the fruit kinds. With respect to the first, much advantage may be gained by a careful attention in picking them off from the leaves or other parts of the plants on their first appearance. The beds or other places where the vegetables grow should also be carefully examined early in the mornings, in order to destroy them before they retire into the holes and crevices that conceal them during the day-time; and as they are in general the most prevalent when the weather is dry, it seems not improbable that considerable benefit may be obtained by watering the plant frequently, both with common water, and with such liquids as contain ammonia or volatile alkali, either from the effects of such waterings on the caterpillars themselves, or from their promoting the growth of the plants in so vigorous and rapid a manner as to render them incapable of being devoured by them.

Mr. Forsyth advises that during the winter and spring months, every *chrysalis* that can be discovered, either under the copings of walls, on gates or palings, and about the eaves, doors, and windows of houses, should be completely removed and destroyed. Where caterpillars abound, all the

leaves that are affected should be removed with care, and swept up in order to be destroyed by fire, or formed into a compost with other substances.

The ten-threaded caterpillar is eagerly fought after by birds, and is capable of being easily destroyed; but when neglected, the ova are deposited in great abundance in the latter part of summer, as about July, on the undersides of the leaves in rows, with little white specks, and quickly hatched on account of the heat of the season, the young caterpillars coming forth in swarms to destroy the autumnal leaves. At this season they may be picked off the infected leaves, and their generation be by that means prevented.

Bushes or plants that are much affected with caterpillars one year, are extremely liable to be attacked with them afterwards.

In the second case, or with fruit-trees, "the best method of preventing them from being infested is, according to Mr. Forsyth, to scrape the stems with a piece of bone or wood, made in the form of a knife, taking care not to bruise the bark; and afterwards to wash the tree and wall with an equal quantity of soap-suds and urine mixed, and as soon as the leaves are off the trees in autumn, they should be raked and swept up; then carried to the melon-ground, and mixed up with other leaves and dung for hot-beds;" by this means a great number of eggs of insects that are deposited on the under sides of the leaves may be got rid of. Afterwards all the stems of the trees, and all the ends of the buds, should be washed, taking care not to hurt the buds; in doing this, it is observed, that what falls will destroy the slugs that take shelter on the offsets of the walls and in the borders, before they are dug for planting lettuces, endive, &c. This washing should be repeated about the beginning of February, which will destroy any eggs of different insects that may still remain about the trees. A painter's brush may be used for laying the mixture on the trees, and a soft broom or brush made of the ends of garden matting for washing the wall. The matting seems preferable, as, being soft and flexible, it will enter the holes and crevices. And the mixture that falls on the borders and offsets of the walls, in this second washing, will destroy those slugs and insects that made their appearance early. The stems and branches of the trees may be washed two or three times, or oftener, in the spring, before the buds begin to swell: but the branches must not be rubbed after the trees come into flower; they may, however, be sprinkled over with the mixture from a watering pot with a rose just before the buds begin to open, but by no means after they are open; as it would, by its glutinous nature, render the bloom liable to be scorched by the sun. These washings, &c. are recommended for all trees, standards as well as those on walls; particularly apple, cherry, and plum-trees. Where any caterpillars remain, they may be discovered by the curling of the leaves; for every curled leaf has one or more caterpillar, or other insect in it; such leaves should therefore be carefully pulled off, and the insects crushed, as when neglected they frequently devour every leaf, leaving the tree quite naked, and of course destroy the fruit for that season at least.

In order to remove the gregarious sorts of caterpillars, which are inclosed in great numbers in nets or bags resembling strong cobwebs, and fixed to the branches of trees or shrubs, the nets should be carefully picked off, and the insects crushed, by which vast numbers of them may be destroyed. After the trees have been thus cleared, they should be washed as above, to destroy those stragglers that may still remain on them. But after the trees come into flower, instead of washing them with urine and soap-suds, they should

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be well watered with clear lime-water, and cleaned with tobacco-water.

It is remarked by Mr. Forfyth, that as there are several sorts of moths, that in the caterpillar state are very hurtful to plums and other fruit-trees, it would be a great advantage to destroy them on their first appearance. In clearing trees from insects of other kinds, caterpillars should also be carefully looked for and picked off. They will be found to shelter themselves at the ends of the shoots in the flowers, and at the bottoms of the footstalks of the flowers. It is added, that there are two or three sorts that infest fruit-trees, two of a brown and one of a green colour.

The success of this method of clearing and washing has been very evident in the practice of Mr. Forfyth, in different sorts of apple-trees, they recovering themselves afterwards in a rapid manner.

It has long been a common opinion that cold and severe frosts have considerable effects in destroying caterpillars as well as the *larvæ* and *ova* of different insects: but the experiments of Reaumur and Bonnet seem to shew that this is not the case, as on the former subjecting a "parcel of young caterpillars to a degree of cold lowered to fifteen degrees below zero on his thermometer, according to Dr. Anderson, they suffered no injury; and the latter found the same thing to be the case with the common cabbage caterpillar, and also the chrysalis of the common butterfly. It seems therefore not improbable but that cold frosty winters produce the good effects that are generally said to be found from them, in destroying these animals, by preventing them from obtaining food in that proportion which is necessary for their existence. The circumstance of long frosts being the most effectual is also favourable to the same supposition."

With respect to the gooseberry caterpillar, a method that has been recommended as successful by Dr. Anderson, is "to notice the bushes with care in passing through the garden, towards the beginning of June, and whenever the appearance of a leaf stripped by the caterpillar is perceived, instantly to examine the place with a view to eradicate the disease. It will always be perceived that the first appearance of this malady is towards the bottom of the bush. If one leaf be eaten up, you may be assured the caterpillar has been there; and if search be made with care it will infallibly be found. This is a gregarious reptile, and while they are young they herd very close together; so that at this early period, the whole nest will frequently be found upon one leaf, and by picking off that leaf the whole destroyed at once. As they advance in size they grow more hardy, and separate more, and therefore spread upon a number of leaves at once; but before they have attained the size of half an inch in length; they are generally found in large clusters, and may be easily destroyed. Their progress is always from the bottom upwards; and this will generally be found upon those leaves, on the same branch, that are immediately above those that have been already eaten and abandoned, leaving only the hard ribs of the leaf standing. They always fix on the under side of the leaf, and begin to gnaw off its edges. If they have but newly fixed on the leaf, no indication of them will be perceived there when viewed from above, but if the least bit be seen wanting, on one side of a leaf, it may be concluded they are there. These leaves and all others suspected should be pulled off, by pinching away the footstalk, with the thumb gently, so as not to shake them off; though they adhere to it so firmly when thus small, as not to be easily disengaged from it. If there be several leaves in one tuft, they may

be all taken off at once; or if the malady appears upon a young shoot of this year (which is very often the case), the easiest and shortest way is to take away the whole branch entirely.

All the leaves, thus picked off, should be either carried away in a basket, or laid in a heap upon the ground at some distance from the bush, and crushed by the foot before they are left, for it is an active reptile, and if left in life, may regain the tree afterwards. If this operation be performed with due attention, at a sufficiently early period, few will escape: nor is it a tedious process; for the most part twenty or thirty large bushes may be thus cleared by one person in the space of an hour, not one of which would perhaps have been left with a single leaf upon it, had no pains been bestowed upon them. But it is not right, says he, to trust to once searching only, for in spite of ever so much attention, it will often happen that a whole loaded leaf will escape unnoticed; and more frequently a few stragglers will pass unobserved. It is right, therefore, to look at the bushes afterwards, to see if any more leaves are bitten, and to pick them off after the same manner. This becomes the more necessary, because the eggs do not all hatch at one time, so that a whole brood may be hatched after your first search, which would of course totally escape were it no farther attended to. The task is easy if taken in time, and many thousands may be thus destroyed in the space of an hour; but if they be once suffered to disperse, and have fixed themselves about the middle of the bushes, among the small leaves that spring out of the old wood, the task then becomes much more difficult. It is advised that those who wish to try the efficacy of this mode of proceeding should never depend upon the efforts of others to ascertain whether it is effectual or not. They may order servants to practise it; but if they wish never to be deceived; let them make choice of one, two, or more bushes, to be picked by themselves only, and they will thus, with little trouble, satisfy themselves whether it be practicable or not, and can check their servants if they attempt to impose on them."

In the third volume of an useful periodical work, the Farmer's Magazine, some observations are offered on the destruction of this and the cabbage caterpillar. The writer says, he has "tried the effect of tobacco juice, and of quick-lime, both to bushes and cabbages, to destroy these insects, but without accomplishing the end in view; he took every different method that solicitude could suggest or sedulous attention could execute; and that smoking with brimstone has been lately recommended. This method he has also attempted, but without success. He applied quick-lime in two ways, first by wetting the infected bush or cabbage with a watering pan, and then scattered on it powdered quick-lime: and secondly by putting quick-lime into a watering pan, with which the infected bush or plant was sprinkled; but also with little effect. It is further stated that tobacco is noxious to all the insect tribe. Gardeners scatter the snuff of it upon their hot-beds and on their flower-beds, when their delicate plants become in danger of being destroyed by minute vermin, which completely answers the purpose. A pinch of snuff put on the back of a frog or toad, occasions to these reptiles instant convulsions and death. One might therefore, he says, expect that the application of tobacco, or snuff, to bushes swarming with caterpillars, would be attended with a powerful effect. But having applied it to his bushes in both ways, in which he tried the quick-lime, he found it unavailing; for caterpillars, though easily crushed to death, are otherwise wonderfully tenacious of life. Failing in these modes of application of those remedies, he wished

wished to see what power they had to destroy caterpillars, when applied to them in the closest possible manner. With this view he put a small quantity of tobacco snuff into one plate, and some quick-lime into the other. Into these he put a number of caterpillars; but they having crawled off without being hurt, he mixed these articles with water. Out of this solution the insects also crawled, seemingly unhurt; he then prevented them from getting out of the liquor, and they expired. This was satisfactory evidence to him that caterpillars cannot be destroyed by any ordinary application of tobacco or quick-lime to a bush on which they swarm. Afterwards he tried how far the smoke of brimstone is baneful to these insects, by the following experiment. He put a dozen of them on a plate, over this he inverted a bowl which had in it some burning brimstone. This did not kill the caterpillars, which made him have recourse to a more effectual method of confining the vapour. He placed a few of these insects in a small bottle, into which, having thrust a bit of paper with inflamed sulphur, he stopped the aperture of the bottle with a cork. The effect of the vapour then became too powerful for any animal life to resist, and the insects died. This experiment, however, convinced him that the smoke of brimstone cannot be effectually applied for exterminating caterpillars on bushes. Despairing of success from any mode of general destruction of these vermin, he set servants and others to work to pick them off as above, or rather to crush them on the bushes. This effectual method at first glance may, he says, appear an insurmountable labour; but let it be tried, and it will be found by no means so tedious or laborious as at first suspected. Indeed it is a matter of absolute necessity, and as such is practised by some gardeners, who know well, that if a swarm of caterpillars, on any one bush, are not quickly destroyed, they will go over and ruin every bush and berry in the garden. Not only will black currant bushes, which they are not so fond of, become a prey to their voracity, but he has had experience of the same vermin adjourning to peach trees, and other fruit trees. Nor is there any tree, though even distant, that they will not rob of its leaves, rather than want food for their voracious appetites. Neither is this all, for if these vermin are left to plunder and to live, they infallibly secure an abundant posterity to destroy all the small fruit of the ensuing and succeeding summers." The only effectual means are, he thinks, by picking them off as directed above, the labour of which may, it is supposed, be somewhat abridged by shaking well the infected bush, and crushing with the foot those caterpillars that fall to the ground. The writer is informed that the Messrs. Culleys, those active and enterprising farmers, on the same principle, make the caterpillars be hand-picked from their extensive crops of turnips. And it is remarked that cabbages and greens may in general be preserved from caterpillars by plucking off the large undermost leaves (which may be given to cows) in the month of August, or when the common white butterfly begins to appear in numbers. These butterflies lay their eggs, which produce the cabbage caterpillar, on the under side of the largest leaves of the cabbage and kale plants. There is also said to be another remedy, which he cannot answer for. The learned professor of natural history in the university of Edinburgh has assured him, that sowing beans among cabbages will greatly prevent the breeding of these worms. It is said the butterfly has an antipathy to the flavour of beans. And he adds that "the moths (*phalane grossulariæ* of Linnæus) from which the gooseberry and currant caterpillars (which are the same) are bred, are small, having yellow bodies, with many black spots, and their wings white, with yellow streaks spotted with black. They

appear in the month of July, in the evenings, and ought to be carefully killed by all attentive gardeners. They seldom fly far from the bushes on which they deposit their eggs. They live about twenty days, during which (for many of the moth tribe have not even mouths) they eat little or none. The eggs, which are yellow, are glued below the clefts, and under the longer arms near the bottom, and sometimes on the leaves of the bushes that are proper for serving the young progeny for food. One moth produces upwards of one hundred and fifty eggs: the young worms generally appear, he thinks, in spring, but they are frequently hatched in autumn. He has observed the young in great numbers devouring the leaves of the gooseberry bush as early as the 15th of August, that is about three weeks after the eggs are laid. They sometimes eat up the embryo of the new leaves and flowers of the bush in October, which renders any hope of fruit for the ensuing year abortive. Neither the frost or snow of winter destroys them. He has taken particular notice of some of these remaining on a currant bush, without being affected with cold or hunger, from November till March. During winter, and the early parts of spring, they lurk in clusters below the cleft, and then is the time they ought to be crushed. At all times, till they are ready to go into the intermediate, or nymph state, previous to their being changed into moths, they have, though ordinarily voracious, a vast power of living without food. If put into a box, even in summer, they will not seem the worse for being kept without meat."

Another writer in the same work has found great advantage from the use of *sulphur vivum* in destroying these caterpillars, after other methods had failed. "It was used," says he, "in the following manner: the bush was first lightly sprinkled with water, so as to moisten the upper part of the leaves, and immediately after dusted with the sulphur, which was put into a tin box, with the lid perforated like a pepper holder. The moistening of the leaves made the sulphur adhere to them; and the weather continuing dry, it remained upon them. The consequence was, that by next morning not a single caterpillar could be seen upon any of the bushes that had been so treated, unless in crevices, or upon some of the grains that it had not reached. Hitherto, he says, the sulphur does not appear to have been at all hurtful to the foliage, as the bushes, to which it was applied, are in the same state of forwardness, and look equally well as others that were not infested with the vermin. To ensure success, it seems essential, he says, that the sulphur should be used in dry weather, as, if rain fall immediately after the application, it will be washed off and its effect lessened."

It is ingeniously suggested by Mr. Forsyth, that by a better and more intimate acquaintance with the habits and economy of these animals, we might, probably, be enabled to discover more certain methods of destroying them.

CATERPILLAR-eaters, in *Entomology*; see ICHNEUMON.

CATERVA, in *Ancient Military Writers*, a term used in speaking of the Gaulish or Celtiberian armies, denoting a body of 6000 armed men.

The word *caterva*, or *catervarius*, is also frequently used by ancient writers to denote a party or corps of soldiers in disorder or disarray: by which it stands distinguished from *cohort* or *turma*, which were in good order.

CATESBÆA, in *Botany* (a name formed by Gronovius, in honour of Mark Catesby, author of the Natural History of Carolina). Linn. Gen. 130. Willd. 153. Schreb. 166. Juss. p. 199. Vent. vol. ii. 571. Class and order, *tetrandria monogynia*. Nat. ord. *Lurideæ*, Linn. *Rubiaceæ*, Juss. Vent.

Gen. Ch. *Cal.* perianth superior, very small, four-toothed, acute, permanent. *Cor.* monopetalous, funnel-shaped; tube long, straight, gradually enlarging upwards; border semi-quadrifid, broad, erect, flat. *Stam.* filaments four, within the neck of the tube; anthers oblong, erect, rather longer than the corolla. *Pist.* germ inferior, roundish; style filiform, the length of the corolla; stigma simple. *Peric.* berry oval, crowned, one-celled (two-celled, Vahl). *Seeds* many, angular.

Ess. Ch. *Cor.* monopetalous, funnel-shaped, very long, superior; flaments within the throat of the corolla. *Berry* many-seeded, two-celled, Willd.

Sp. 1. *C. spinosa*, Linn. Sp. Pl. Lam. Illust. Pl. lxvii. fig. 1. Curtis, Bot. Mag. Pl. 131. (*C. longiflora*, Swartz. Prod. 30. Frutex spinosus, &c. Catesby carol. tab. 100.) "Tube of the corolla very long; berries oval." A shrub. *Stem*, twelve or fourteen feet high, about four inches thick; bark smooth, of a greenish russet colour; wood tough and hard. *Leaves* small, resembling those of box, growing in clusters, with intervals of about an inch; each cluster accompanied by two sharp piliant thorns. *Flowers* five or six inches long, yellowish, pendant, solitary in the axils of the upper leaves. *Fruit* the size of a pullet's egg; with a smooth yellow skin, and a pulp like that of a ripe apple, which has a grateful tartness and a pleasant smell. Found by Catesby, near Nassau Town, in Providence, one of the Bahama islands, who brought seeds to England. 2. *C. parviflora*, Willd. Mart. Swartz. Prod. 30. Vahl. symb. ii. p. 31. Eclog. i. p. 12. Lam. Illust. Pl. xlvii. fig. 2. bad. (*Rhamnus foliis buxeis*, &c. Sloane, Jam. 2. tab. 207, fig. 1.) "Tube of the corolla four-cornered, abbreviated; berries roundish." A native of Jamaica. Obs. Swartz, though at first he received this species as a catesbæa, has since made it a distinct genus, which he calls scolofanthus, with the following character: *Cal.* very small, four-cleft; *Cor.* tubular, border curved, four toothed. *Stam.* four. *Pist.* germ superior; style bifid. *Peric.* drupe white, one-seeded. A branched, thorny shrub. *Leaves* opposite, nearly sessile, roundish. *Flowers*, some solitary; at the extremity of the young spines, abortive; others in the axiles of the leaves fertile. Bosc. in Nouv. Dict. art. Scolofanthe.

Propagation and culture. The first species has been propagated in England both by seeds and cuttings. The seeds succeed best when they are brought over in the entire fruit preserved in sand. They should be sown in small pots filled with light sandy earth, and plunged into a moderate hot-bed of tanner's bark. The plants will appear in about six weeks if the seeds were good, and the pots have been occasionally, but sparingly watered. It will then generally be proper to turn over the tan to the bottom; and if the heat be not sufficient, to increase it by adding a little fresh tan. When the pots are plunged again into the tan-bed, they should be supplied with fresh water every day according to the warmth of the season, and frequently refreshed with water in small quantities: if the weather prove cold, the glasses should be covered with mats every evening. In the autumn the pots should be removed into the stove, and plunged into the tan-bed: during the winter the plants should be watered with great caution; and in the spring should be carefully taken up and planted in separate pots, which should be plunged into a fresh hot-bed of tanner's bark. In summer they should have a good deal of air; but in autumn must be removed into the stove, where they should afterwards constantly remain, and be treated like other tender exotic plants.

The cuttings should be planted during the months of June

and July, in small pots filled with light earth, plunged into a moderate hot-bed of bark, and closely covered with small bell-glasses. In two or three months they will put out roots, when they should be transplanted into separate pots, and treated as the seedling plants. Miller.

CATESBY, MARK, in *Biography*, an eminent English naturalist, was born about the latter end of 1679, or the beginning of 1680. An early propensity to the study of nature first led him to London, which he emphatically styles "the centre of science;" and afterwards impelled him to search further scenes of information on this favourite subject in distant parts of the globe. Having some relations in Virginia, he visited that country in 1712, where he remained seven years, industriously employing himself in collecting the various productions of the country, and occasionally transmitting seeds and specimens of plants to his correspondents in England, and particularly to Dr. William Sherard. On his return to England in 1719, he was encouraged by the assistance of several of the nobility, of Sir Hans Sloane, Dr. Sherard, and other naturalists, to return to America, with the professed design of describing, delineating, and painting the more curious objects of nature. He arrived in Carolina, which was selected as the place of his residence, in 1722; and having first examined the lower parts of the country, on occasional excursions from Charlestown, he afterwards sojourned, for some time, among the Indians in the mountainous regions at and about Fort Moore; and he also extended his researches through Georgia and Florida. Having spent nearly three years on the continent, he visited the Bahama islands; and residing in the Isle of Providence, he prosecuted his plan, and made various collections of fishes and submarine productions. After his return to England in 1726, being well received by his patrons, he acquired the art of etching; and, retiring to Hoxton, he devoted his time to the completion of his great work, which he published in numbers, of 20 plants each. The figures were etched by himself, from his own paintings; and the coloured copies were done under his own inspection. Although his attention was principally restricted to plants, yet most of his plates exhibit some subject of the animal kingdom. The first number appeared towards the close of the year 1730; and the first volume, consisting of 100 plates, was finished in 1732; the second in 1743; and the appendix, of 20 plates, in 1748. Of each number, a regular account, written by Dr. Cromwell Mortimer, secretary of the Royal Society, was laid before the society as it appeared, and printed in the Philosophical Transactions. The whole work is entitled, "The Natural History of Carolina, Florida, and the Bahama Islands, &c.;" and is comprised in two volumes, imperial folio. It contains descriptions of many curious and important articles of food, medicine, domestic economy, and ornamental culture; and has been allowed to be the most splendid work of its kind that had then been published in England, or even on the continent; that of Mad. Merian excepted. The principal defect of the work is the want of a separate delineation of all the parts of the flower, the necessity and importance of which, however, the state of botanical science at the time did not suggest. This work has been republished in 1754 and in 1771; and, to the last edition, a Linnæan index has been annexed. Soon after his second return from America, Mr. Catesby was elected a fellow of the Royal Society, and lived in social and friendly intercourse with many of the most respectable members of that body; being "greatly esteemed for his modesty, ingenuity, and upright behaviour." He was the author of a paper, printed in the 44th volume of the Philosophical Transactions, "On Birds

Birds of Passage;" in which he proves the reality of their emigrating in search of proper food, from a variety of observations which he had an opportunity of making during his voyages across the Atlantic. He died in London in 1749, at the age of 70, leaving a widow and two children. His name has been perpetuated by Dr. Gronovius, in the plant called "Catebæa." Pulteney's Hist. and Biog. Sketches of the Progress of Botany in England, vol. ii. cli. 44.

CATFALL, in *Ship-Rigging*, denotes the rope that forms the tackle for heaving up the anchor from the water's edge to the bow. It reeves through the sheaves at the outer end of the cat-head, (which see,) and through the sheaves of the cat-block alternately.

CATFINTHVOE, in *Geography*, a bay on the north-east coast of the island of Shetland; 10 miles N. of Lerwick.

CATHA, in *Botany*, Forsk. Arab. See *CELASTRUS edulis*, and *paniflorus*.

CATHÆI, in *Ancient Geography*, a people of India, mentioned by Arrian, who says, that they selected the most handsome man among them for their king; that they were valiant, and surpassed their neighbours with regard to their experience in the military art; and that their females had the custom of burning themselves after the death of their husbands. Strabo adds, that they determined, within two months after the birth of a child, whether his form was so perfect as to render him worthy of being preserved; otherwise they destroyed him. They are also said to have tinged their beards with various colours by way of ornament; and their marriages were the result of mutual choice on the part of the contracting parties. See *CATHAIA*.

CATHÆNA, a town of India, mentioned by Steph. Byz.

CATHÆRETICS, in *Surgery*, καθαρητικά, from καθαίρειν, to remove; corrosive remedies which destroy and eat off superfluous flesh, by chemically decomposing its natural texture. Cathæretics have been otherwise denominated *sarcophagous medicines*, q. d. *flesh-eaters*; such as red precipitate of mercury, burnt alum, verdigris, preparations of vitrol, &c. &c. which differ only in degree from *caustics*, or *escharotic* applications, these latter being much more violent and destructive in their operation. Dr. Cullen observes that, as the operation of the different medicines of this class is not always the same, nor their different operations well explained, the propriety of the general term may be doubtful.

CATHAIA, or ΚΑΤΗΛΑ, in *Geography*, a country in the north-eastern part of Asia, about the precise situation of which authors are not agreed. Some have supposed that it was the country of the Sophites, and that it was called by Curtius Sophites; and they place it between the rivers Hydaspes and Acesines, where lay the extensive and rich country of Porus, containing about 300 cities. Others say that it lay beyond the Acesines and Hydraotes, on the borders of the territory of Porus, a cousin of the Porus who was captured by Alexander. Arrian says, that Sangala, which probably lay between Lahore and Moultan, was a city of great strength and importance in the country of the Cathæi. Diodorus Siculus calls the same people "Catheri," or "Katheri," and they may very easily be recognized under the name of "Catry," in Thevenot; that is, the "Kuttry" tribe, or "Rajpoots." Thevenot, speaking of the people of Moultan, says, "there is a tribe of Gentiles (i. e. Gentoos, or Hindoos,) here, called Catry, or Rajpoots; and this is properly their country, from whence they spread all over the Indies. Diodorus Siculus marks them by the custom of their women burning themselves alive, on the

funeral piles of their husbands. From Arrian we learn that the Cathæi were confederated with the Malli and Oxydracæ, that is, the people of Moultan and Outch, and which lay to the S.W. of the place where Alexander might be supposed to cross the Hydraotes (or Rauvee) in his way into India. Sangala, therefore, lies to the S.W. of Lahore; and as to its distance, Alexander reached it the third day after crossing the Hydraotes, and for these three marches it will be sufficient to allow 48 road miles or 36 geographical miles in horizontal distance. Although no idea is given in Arrian, Diodorus, or Quintus Curtius, of the distance between Sangala and the Hyphasis; yet we may collect from Arrian's manner of speaking, that they were not near each other. Diodorus places the kingdom of Sophites and of Phigeus between the Catheri and the Hyphasis; and hence we may infer that there was a considerable space between them. See *SANGALA*. In the name of this country the learned Bryant (*Anal. Mythol.* vol. iii. p. 553.) perceives traces of the Cuthite migration. One of the most considerable colonies, (he says) which went from Babylonia, was that of the Indi, or Sindi; who had been further distinguished by the name of the Eastern Ethiopians. They settled between the Indus and Ganges; and one of their principal regions was Cuthaia, rendered Cathaia by the Grecians. They traded in linen and other commodities, and carried on an extensive commerce with the provinces to the south. A large body of them passed inland towards the north, under the name of Sacæ, or Sacaians; who ranged very high and got possession of Sogdiana, and the regions upon the Jaxartes. From thence they extended themselves eastward quite to the ocean. They were (says Bryant) of the Cuthic race, and represented as great archers: and their country was called Sacæia and Cutha. The chief city was Sacaitan. These people got possession of the upper part of China, which they denominated Cathaia; and this learned writer suggests, that Japan was in some degree peopled by them.

CATHARA, a town of Asia, in Mesopotamia, situated near the Tigris, according to Ptolemy.

CATHARCLUDORUM REGIO, a country placed by Pliny in the mountains which lie to the west of the Indians.

CATHARI, in *Ecclesiastical Writers*, ancient Christians, who made profession of greater purity in discipline and sanctity of life than others. The appellation cathari was chiefly given to the sect of NOVATIANS. In after-times, however, the same was also applied to several other sects, who pretended to extraordinary purity, and particularly to a fanatical sect, who came from Greece into Italy, and were first discovered in the Milanese about the middle of the 11th century. They were called in France, and other countries, ALBIGENSES, BONSHOMMES, PATERINI, and PUBLICANS. See also PAULICIANS and PURITANS.

These Cathari held many tenets of the Manichean heretics, blended with other opinions, common to them and the Vaudois, against the doctrines, and hierarchy, and superstitious practices of the church of Rome. The Cathari, however, were entirely free from the Manichean errors, and would not have consented to a public confession of the Roman Catholic doctrines, as the true Christian faith, even to save their own lives. But the Cathari thought it lawful to dissimble in these points, and had secret or inward doctrines. It appears that on their examination before the inquisitorial commissioners at Toulouse, they scrupled to swear to their belief of opinions which they falsely professed; yet, at the end of a written declaration of their faith, they inserted words which in reality amounted to an oath. But though they adopted many inconsistencies and absurdities among

among their articles of belief, the severe inquisition which they underwent could not discover a single evidence of any criminal act, punishable by the lay courts, that could be alleged against them. However, in 1179, the council of Lateran issued a canon, for excommunicating all the Cathari in the southern parts of France, as audacious heretics, who openly propagated their notions, and likewise all who afforded them protection or harbour in their houses or lands, or carried on traffic with them; declaring, that any persons who should die in that sin should have no benefit from any indulgence granted to them, nor from any oblation made for them, nor be allowed Christian burial. After all, it is certain that many, who held none of the errors of the Cathari, but only joined them in opposing the flagrant corruptions of the church of Rome, were, in the following century, confounded with them, and involved in the massacre, which, under the orders of Simon de Montfort, the general of the pope, deluged all the south of France with innocent blood. See the articles above cited, and particularly ALBIGENSES.

CATHARI, or CATHERI, in *Ancient Geography*, a people of India. See CATHAIA.

CATHARINE of France, in *Biography*, the youngest child of Charles VI. and Isabella of Bavaria, was born in 1401, and in 1420, by the conditions of the treaty of Troyes, married to Henry V. king of England, then declared successor to the crown of France. In consequence of this marriage she became mother to Henry VI. crowned in his cradle king of both countries. After the death of Henry V. Catharine formed a connection with sir Owen Tudor, a gentleman of Wales, of small fortune, but descended from the ancient princes of the country. By a clandestine marriage with him, she had two sons, the eldest of whom, Edward earl of Richmond, was father of Henry VII. king of England, the first of the line of Tudors. Catharine died in 1438, and was buried at Westminster. Hume's Hist. vol. iii. Moreri.

CATHARINE of Arragon, the fourth daughter of Ferdinand and Isabella, king and queen of Castile and Arragon, was born in 1483, and married in 1501, in pursuance of a design that had been projected and negotiated for 7 years, to Arthur, prince of Wales, son of Henry VII. At this time the prince was nearly 16 years of age, and the infant 18. In a few months after this marriage, the young prince sickened and died, much regretted by the nation. Henry, desirous of continuing his alliance with Spain, and also unwilling to restore Catharine's dowry, which was 200,000 ducats, obliged his second son Henry, whom he created prince of Wales, to be contracted to the infant. The prince, who was then a youth of 12 years of age, resisted this injunction to the utmost of his power; but the king was invincible, and the espousals were at length, by means of the pope's dispensation, contracted between the parties. Immediately after the accession of Henry VIII. to the crown, in 1509, the king began to deliberate on his former engagements. The previous marriage of Catharine with his brother, and the inequality of their years, were the chief objections urged against his espousing her; but, on the other hand, the advantages of her known virtue, modesty, and sweetness of disposition were insisted on; the affection which she bore to the king; the large dowry to which she was entitled as princess of Wales; the interest of cementing a close alliance with Spain; the necessity of finding some confederate to counterbalance the power of France; and the expediency of fulfilling the engagements of the late king, were considerations which determined the council, though contrary to the opinion of the primate, to give Henry their advice for celebrating the marriage. Notwithstanding the submissive deference paid to

papal authority before the reformation, the prejudices of the people were in general averse to a conjugal union between such near relations, as Henry and his brother's widow; and the late king, though he had betrothed his son, at the age of 12 years, gave evident proofs of his intention to avail himself of a proper opportunity of annulling the contract. He ordered the young prince, as soon as he came of age, to enter a protestation against the marriage; and on his death-bed, he charged him, as his last injunction, not to finish an alliance so unusual, and exposed to such insuperable objections. In the year 1527 several circumstances occurred which combined to excite scruples in the king's mind concerning the lawfulness of his marriage. The states of Castile had opposed the emperor Charles's espousals with Mary, Henry's daughter, and, among other objections, had insisted on the illegitimate birth of the young prince. And when the negotiations were afterwards opened with France, and mention was made of betrothing her to Francis, or the duke of Orleans, the bishop of Tarba, the French ambassador, revived the same objections. These events naturally raised some doubts in Henry's mind, and they concurred, with other causes, which tended much to increase his remorse, and to render his conscience more scrupulous. The queen was six years older than the king; and the decay of her beauty, together with particular infirmities and diseases, had contributed, notwithstanding her blameless character and deportment, to render her person unacceptable to him. Though she had borne him several children, they all died in early infancy, except one daughter, Mary, afterwards queen of England; and he was the more struck with this misfortune, because the curse of being childless is the very threatening, contained in the Mosaic law, against him who espoused his brother's widow. The succession too of the crown was a consideration that occurred to every one, whenever the lawfulness of Henry's marriage was called in question; and it was apprehended, that if doubts of Mary's legitimacy concurred with the weakness of her sex, the king of Scots, the next heir, would advance his pretensions, and might throw the kingdom into confusion. Besides, Anne Boleyn had lately appeared at court, as maid of honour to the queen, and had acquired an entire ascendancy over his affections. The king was thus impelled, both by his private passions, and by motives of public interest, to seek the dissolution of his inauspicious, and, as it was esteemed, unlawful marriage with Catharine. The archbishop of Canterbury was consulted, and he was required to advise with his brethren. All the prelates of England, except Fisher, bishop of Rochester, unanimously declared, under their hands and seals, that they deemed the king's marriage unlawful. Wolsey also fortified the king's scruples; partly with a view of promoting a total breach with the emperor, Catharine's nephew; partly desirous of connecting the king more closely with Francis, by marrying him with the duchess of Alençon, sister to that monarch; and perhaps too somewhat disgusted with the queen herself, who had reproved him for certain freedoms, unbecoming his character and station. Accordingly Henry determined to apply to the pope, Clement VII. for a divorce. He founded his application, not on any general doubts concerning the papal power to permit marriage in the nearer degrees of consanguinity, but on particular grounds of nullity in the bull, which Julius had granted for this particular marriage. It had been said in the preamble, that the bull had been granted upon Henry's solicitation; though, it was known, that at that time he was under 12 years of age. It was also affirmed, as another motive for the bull, that the marriage was requisite in order to preserve peace between the two crowns; though it is certain, that no ground or appearance of quarrel then subsisted between them.

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These false premises in Julius's bull seemed to afford Clement a sufficient reason or pretence for annulling it, and granting Henry a dispensation for a second marriage. Clement, though at first disposed to favour Henry's application, and though he actually concerted measures for its successful issue, was overawed and embarrassed in his proceedings by the interference of the emperor, Charles V., Catharine's nephew; and the negotiation was protracted to such a length as to tire Henry's patience, and to induce him to adopt other measures for accelerating the accomplishment of his wishes. The pope, importuned by the English ministers, put into their hands a commission to Wolsey, as legate, in conjunction with the archbishop of Canterbury, or any other English prelate, to examine the validity of the king's marriage, and of Julius's dispensation. He also granted them a provisional dispensation for the king's marriage with any other person; and promised to issue a decretal bull, annulling the marriage with Catharine; but he enjoined secrecy, and conjured them not to publish these papers, or to make any farther use of them, till his affairs with regard to the emperor were in such a train as to secure his liberty and independence. After considerable hesitation and delay, the legates, Campeggio and Wolsey, to whom the pope had granted a new commission for the trial of the king's marriage, opened their court in London, May 31st, 1729, and cited the king and queen to appear before it. They both presented themselves, and the king answered to his name, when called; but the queen, instead of answering to her's, rose from her seat, and throwing herself at the king's feet, made a very pathetic harangue, which her virtue, her dignity, and her misfortunes rendered the more affecting. She concluded with declaring, that she would not submit her cause to be tried by a court, whose dependence on her enemies was too visible, even to allow her any hopes of obtaining from them an equitable or impartial decision. She then rose, and making the king a low reverence, she departed from the court, and never would again appear in it.

After her departure, the king did her the justice to acknowledge, that she had ever been a dutiful and affectionate wife, and that the whole tenor of her behaviour had been conformable to the strictest rules of probity and honour. He only insisted on his own scruples with regard to the lawfulness of their marriage; and he explained the origin, the progress, and the foundation of those doubts, by which he had been so long and so violently agitated. He acquitted cardinal Wolsey from having any concern in encouraging his scruples; and he craved a sentence of the court agreeable to the justice of his cause. The legates, after citing the queen anew, declared her *contumacious*, notwithstanding her appeal to Rome, and then proceeded to the examination of the cause. After the prolonged investigation of various particulars, Campeggio, very much to the surprise of the king, who every day expected a sentence in his favour, suddenly, without any warning, and upon very frivolous pretences, prorogued the court to a future day; and the evocation of the cause to Rome terminated all the hopes of success which the king had so long and so anxiously cherished. Thus disappointed, the king's mind was agitated by a variety of contrary motives; but at length an expedient was proposed, which, as it promised a solution of all difficulties, was embraced by him with the greatest joy and satisfaction. Dr. Cranmer suggested, that the readiest way, either to quiet Henry's conscience, or extort the pope's consent, would be to consult all the universities of Europe with regard to this controverted point: If they agreed to approve of the king's marriage with Catharine, his remorse would naturally cease; if they condemned it, the pope would find it difficult to resist

the solicitations of so great a monarch, seconded by the opinion of all the learned men in Christendom. The king was delighted with the proposal, and swore, with more alacrity than delicacy, that Cranmer had got the right sow by the ear: and having previously consulted the learned divine, engaged him to write in defence of the divorce; and immediately employed his agents to collect the judgments of all the universities in Europe. Several of these, without hesitation, as well as without interest or reward, gave verdict in the king's favour. Those of Oxford and Cambridge made some difficulty; because, being alarmed by the progress of Lutheranism, and dreading a defection from the holy see, they scrupled to sanction measures, which in their consequences might prove fatal to the ancient religion. Their opinion, however, conformable to that of the other universities of Europe, was at last obtained; and the king, in order to give additional weight to all these authorities, engaged his nobility to write a letter to the pope, recommending his cause to the holy father, and threatening him with the most dangerous consequences in case of a denial of justice. The convocations too, both of Canterbury and York, pronounced the king's marriage invalid, irregular, and contrary to the law of God, with which no human power had authority to dispense. But Clement, still subject to the influence of the emperor, continued to summon the king to appear, either by himself or proxy, before his tribunal at Rome; and the king, apprized that no fair trial could be expected there, refused to submit to such a condition, and would not admit of any citation, which he regarded as a high insult, and a violation of his royal prerogative. In the progress of this business, the queen's appeal was received at Rome. The king was cited to appear; and several consistories were held to examine the validity of their marriage. The king retained his purpose of not sending any proxy to plead his cause before this court, and alleged, that the prerogatives of his crown must be sacrificed, if he allowed appeals from his own kingdom. For the purpose of adding greater security to his intended defection from Rome, he procured an interview with Francis at Boulogne and Calais, and renewed his alliance with that monarch; and it is said, that he even persuaded Francis to follow his example, in withdrawing his obedience from the bishop of Rome, and administering ecclesiastical affairs without having further recourse to that see. Fully determined in his own mind to hazard all consequences, he privately celebrated his marriage with Anne Boleyn, Nov. 14th, 1532; and in April of the following year he publicly owned it; and in order to remove all doubts with regard to its lawfulness, he prepared measures for declaring, by a formal sentence, the invalidity of his marriage with Catharine. Catharine, however, did not quit the kingdom; but fixed her abode for some time at Ampthill, near Dunstable in Bedfordshire, where, after several preliminary steps, Cranmer pronounced a sentence which annulled the king's marriage with her as unlawful and invalid. By a subsequent sentence he ratified the marriage with Anne Boleyn, who was soon after publicly crowned queen, with all the pomp and dignity suited to that ceremony. Catharine still continued obstinate in maintaining the validity of her marriage; and she would admit no person to her presence who did not approach her with the customary formalities. Although Henry employed menaces against such of her servants as complied with her commands in this particular, he was never able to make her relinquish her title and pretensions. As far as the pope was concerned in this business it terminated in the king's final breach with Rome; and in a parliament assembled in 1534, the marriage of the king with Catharine was declared unlawful, void, and of no effect; the primate's sentence, annulling it, was ratified; and

the marriage with queen Anne was established and confirmed. Catharine had removed from Dunstable to Kimbolton castle in the county of Huntingdon, where she was seized with a lingering illness, which at last brought her to her grave. She died on the 6th of January, 1536, in the 50th year of her age. A little before she expired, she wrote a very tender letter to the king, in which she addressed him as "her most dear lord, king, and husband," and inculcated upon him counsels of moral and religious prudence; concluding with these words; "I make this vow, that mine eyes desire you above all things." The king is said to have shed tears on occasion of receiving this last tender proof of Catharine's affection. In her retreat she is said to have composed some devotional treatises. Hume's Hist. vol. iii. and iv.

CATHARINE *De Medicis*, queen of France, was the only daughter of Lorenzo de Medici, duke of Urbino, and of Magdalen de la Tour. She was born at Florence in 1519, and by the influence of her uncle, pope Clement VII., was married in 1534 to Henry, duke of Orleans, son of Francis I. She contributed, in a high degree, by her personal and mental accomplishments, to adorn the splendid court of her father-in-law, and by her complaisance and dissimulation contrived to ingratiate herself with persons of opposite characters and interests. At the death of Francis I., her husband succeeded to the crown under the title of Henry II., and she became queen. Although she had been barren for the first ten years after her marriage, she had afterwards ten children; three of her sons being successively kings of France, and one daughter queen of Navarre. During Henry's life, she devoted herself to the education of her children; and in this employment she gained that ascendancy over them, which enabled her for a long time to maintain supreme authority. Upon the death of her husband, in 1559, her son, Francis II., succeeded to the throne, at the age of 16 years; and during his reign, though she was obliged to concur in some degree with the violent and persecuting measures of the family of the Guises, they were not agreeable to her inclinations, and she manifested her desire of more moderate proceedings, by raising to the post of chancellor, the virtuous Michael de l'Hopital. In 1560, Henry II. was succeeded by his brother, Charles IX., in his eleventh year. Catharine still maintained her authority, and, in order to counteract the power of the Guises, inclined to the party of the king of Navarre and the associated princes. Upon the death of the duke of Guise in 1562, the two contending parties, that had occasioned a civil war, were reconciled; and Catharine, possessed of full powers, began to display in their full extent her dissembling politics. Whilst she courted the catholics, she laid plots for the total destruction of the Hugonots, the consequence of which was the renewal of civil war; and she pursued such a course of dissimulation and treachery, in her attempts to destroy that party which could not be subdued by force of arms, and received such assistance from her execrable son, whom she had initiated in every art of disguise, as to prepare the way for that massacre on ST. BARTHOLOMEW'S day, 1571, which has doomed to infamy the name of Catharine de Medicis, one of its chief contrivers. Instead of thus composing the troubles of France, every thing remained in a tumultuous state during the remainder of this reign, which was terminated by the death of Charles in 1574. Upon this event Catharine was declared regent, till the return of her next son, Henry III., from Poland, of which kingdom he had been elected the sovereign. In this high official character, she exerted herself with wisdom and vigour, in preventing those disturbances which the collision of existing parties had a tendency to produce, and thus delivered the kingdom to her son

in a condition, which, with prudence and virtue, on his part might have augured a prosperous reign. But he had derived his principles from her instruction, and his conduct was formed on her example of insincerity and dissimulation. Her own character was such, that it warranted no confidence in any measures of which she had the direction. The party of the Guises revived; the league was formed; war was renewed with the protestants; and during the prevalence of public disorders, aggravated by Henry's attachment to his minions on the one hand, and the popularity of the Guises on the other, Catharine lost her authority, and she lived only to lament the misgovernment of her son, as the result of the insidious policy, which she had laboured to inculcate. Soon after the assassination of the duke of Guise, from the guilt and reproach of which she endeavoured to exculpate herself with strong execrations, Catharine, having incurred the detestation of all parties, died in January 1589, in her 70th year. Under a suspicion of having been concerned in the duke's murder, notwithstanding all her protestations, the Parisians threatened to throw her body, if it was brought into their city for interment, into the river or common sewer. On her death-bed she is said to have given excellent advice to her son; though little conformable to her former precepts and example.

"Catharine de Medicis," as one of her biographers closes his brief account of her, "is said to have been possessed, in a degree superior to any woman of her time, of all the arts of insinuation and allurements, of all the graces of her sex, and the splendid qualities of her station; she was affable, courtous, magnificent, and a liberal encourager of learning and the polite arts. She was likewise endowed with extraordinary courage and presence of mind, strong judgment, and great fertility in expedients. But she had the common fault of her country, of aiming at excessive refinement of policy; and by alternately caressing and siding with every party, she in the end lost the confidence of all. With respect to her moral qualities, there is nothing diabolical in the human character with which she has not been charged by her enemies; and even her friends are obliged to make large concessions on this head. Scarcely preserving the decorum of her sex, she was loose and voluptuous in her own conduct, and was continually attended by a train of beauties, whose complaisant charms she employed in debauching those minds which she could not gain by the common allurements of interest. Nearly indifferent to modes of religion, she was much addicted to superstition of the darkest kind; and believed in and employed the delusive practices of magic and judicial astrology. The depth of her dissimulation, and bloody strain of her perfidious policy, have sufficiently been shewn in the sketch of her actions; and many instances might be brought of the savage pleasure or indifference with which she viewed the cruelties she had dictated. Perhaps the heaviest charge against her is the detestable principles in which she brought up her children, whom she early inured to blood and perfidy, while she weakened their minds by debauchery, that she might the longer maintain her power over them. Accordingly, except Francis, who can scarcely be said to have displayed any character, her other sons, Charles, Henry, and the duke of Alençon, were compounds of every thing abominable and despicable. To conclude, the historian Davila, who was peculiarly attached to her service, and favoured by her, terminates a copious eulogy on her personal and mental qualifications, with confessing that she was totally void of faith, and more indifferent to the shedding of human blood than became a woman." Moreri. *Nouv. Dict. Hist. Mod. Un. Hist.* vol. xx. p. 373, &c. vol. xxi. p. 1. 40. *Gen. Biog.*

CATHARINE.

CATHARINE I. empress of Russia, was of obscure origin, being a natural daughter of a country girl at Ringen, a small village upon the lake of Virtcherve, near Dorpt, in Livonia, and where she was born, according to her own account, on the 5th of April, 1689, but according to other more probable statements, in the year 1683. Count Rosen, a lieutenant-colonel in the Swedish service, and proprietor of the village of Ringen, supported, according to the custom of the country, both the mother and child; and for this reason was supposed to be her father. At the age of three years she lost her mother; and, Rosen dying about the same time, she was left in a condition so destitute, that she was received by the clerk of the parish into his house. Soon afterwards Gluck, a Lutheran minister of Marienburgh, took her under his protection and employed her in attending his children. In 1701, she married a dragoon of the Swedish garrison of Marienburgh, who, as some say, lived with her eight days after their marriage; but others have asserted, that on the morning of the nuptials her husband was sent with a detachment for Riga, so that the marriage was never consummated. At the time, however, when Marienburgh surrendered to the Russians, the dragoon was absent, and Catharine saw him no more. On the capture of this place general Baner saw her among the prisoners, and being smitten with her beauty, took her to his house, where she superintended his domestic affairs, and was supposed to be his mistress. In a little while she passed into the family of prince Mentchikof, who was no less her admirer than the general, and she lived with him till the year 1704; when she became the mistress of Peter the Great, and gained such an interest in his affections, by her unremitting attention, by the gentleness of her disposition, and by the liveliness of her temper, that the emperor, who was thus soothed in his occasional intervals of gloom, suspicion, and even madness, privately married her in 1710 or 1711. From this time she became his constant companion in his journeys into foreign countries, and in all his military expeditions. In 1711, she attended him in his campaign against the Turks; and the peace of Pruth, which rescued the Russian army from certain destruction, has been ascribed to her powerful interposition. The occasion was this: when the emperor had led his troops into a very dangerous situation, he formed the desperate resolution of cutting his way through the Turkish army in the night; and retiring to his tent in an agony of despair, he gave positive orders that no one should be admitted, under pain of death. In this important juncture, the principal officers, and the vice-chancellor Shaffirof, assembled in the presence of Catharine, and drew up certain preliminaries for the purpose of obtaining a truce from the grand vizir. Plenipotentiaries were immediately dispatched, without the knowledge of Peter, to the vizir, and a peace was obtained on more reasonable conditions than could have been expected. With these conditions Catharine, notwithstanding the orders issued by Peter, entered his tent, and obtained his signature. By this conduct she gained great popularity, and the emperor himself specifies her behaviour at Pruth, as one of the reasons which induced him to crown her publicly at Moscow with his own hand. In 1712, her marriage, which had taken place secretly in the preceding year at Jawerof in Poland, was publicly solemnized at Petersburgh. Catharine maintained her influence undiminished until a short time before the death of Peter, when an event occurred, which might have occasioned a total rupture, if death had not intervened. The emperor, probably not apprized of some of her amours, suspected that she had an illicit connection with Mons, her first chamberlain. Having concerted measures for making a discovery, he surprised

Catharine in an arbour of the garden with her favourite; while his sister, madame Balke, who was first lady of the bed-chamber, was in company with a page, upon the watch without the arbour. Peter struck Catharine with a cane, and then retired without uttering a single word. Soon after Mons and his sister were taken into custody. The former was examined, on a charge of bribery, in the presence of major-general Uschakof, and being threatened with the torture, he confessed the corruption laid to his charge, and was beheaded. His sister received five strokes of the knout, and was banished into Siberia: two of her sons, who were chamberlains, were also degraded, and sent as common soldiers among the Russian troops, in Persia. On the day subsequent to the execution of the sentence, Peter conveyed Catharine in an open carriage under the gallows, to which was nailed the head of Mons; and the empress, without changing colour at this dreadful object, exclaimed, "What a pity it is, that there is so much corruption among courtiers!" This event happened in the year 1724, when she had been publicly crowned at Moscow, and had received the imperial insignia from the czar's own hands. As it was soon followed by his death, and as Catharine recalled madame Balke, she was suspected of shortening the days of her husband by poison. But, notwithstanding the critical situation of Catharine at the time of his decease, and her subsequent elevation, this charge is destitute of proof; for the nature of the disorder with which Peter had been long afflicted, and the peculiar symptoms of his last illness, sufficiently account for his death, without recurring to poison. As it had been decreed in 1722, that the reigning sovereign should have the power of appointing his successor, Peter ought to have made provision accordingly; but his last illness, and the circumstances of excruciating torture attending it, prevented the performance of this necessary duty. Amidst the cabals which succeeded his death, Catharine, by means of her friends, claimed the throne in right of her coronation and inauguration at Moscow; and these recent acts on the part of Peter were interpreted by them as a sufficient proof of his intentions. The art of Catharine, and the activity of Mentchikof, ultimately prevailed against the party, which supported the claims of Peter Alexowitz, the czar's grandson; and, notwithstanding her mean and base origin, she was established on the throne of the czars of Russia, to the prejudice of its lineal heirs. The empress, who had neither inclination nor abilities to direct the helm of government, placed implicit confidence in Mentchikof, the original author of her good fortune, and the sole instrument of her elevation to the throne; and the reign of Catharine was, in fact, the reign of this confidential favourite. To her humanity and compassion, which were distinguishing features in her character, may be imputed the recall of many exiles from Siberia, as well as the demolition of the wheels and gibbets on which the bodies of criminals had been exposed during the severe reign of her husband. She generally pursued in the course of her short administration the plans of Peter for the improvement of his dominions; and in 1725 completed the institution of an order of knighthood for the reward of those who had signalized themselves in the service of their country. See ALEXANDER NEVSKOI. Her life, during her short reign, was very irregular; averse from business, she would frequently pass whole nights in the open air, and indulged to excess in the use of Tokay-wine and strong liquors. These irregularities, joined to a cancer and a dropy, hastened her end; and she died on the 17th of May, 1727, a little more than two years after her accession to the throne, and in the 39th year of her age. The personal attractions and mental abilities of this empress have been much ex-

aggrated by her panegyrists. In her person she was under the middle size, and in her youth delicate and well-formed, but as she advanced in years inclined to corpulency. She had a fair complexion, dark eyes, and light hair, which she was accustomed to dye black. She could neither read nor write. She is said, however, to have maintained the pomp of majesty united with an air of ease and grandeur; and Peter himself frequently expressed his admiration at the propriety with which she occupied her high station, without forgetting that she was not born to that dignity. Her estimable qualities, after all the abatements of panegyric, were generally acknowledged. She was humane in an exemplary degree, good-humoured and obliging in her temper and manners, and duly mindful of the good offices which had been performed for her in her low condition. She availed herself of her ascendancy over Peter, in softening the asperity of his passions and restraining their violence; inasmuch that a word from her, in behalf of a wretch, who was about to be sacrificed to his anger, would instantly disarm him; and if he determined to indulge his resentment, he would give orders for the execution when she was absent, for fear she should plead for the victim. Upon the whole she merited the honourable title, bestowed upon her by the celebrated Muniz, of "the Mediatrice between the monarch and his subjects." *Coxe's Travels in Russia*, vol. ii. ch. 11.

CATHARINE II. empress of Russia, originally denominated Sophia Augusta Frederica, was the daughter of Christian Augustus, prince of Anhalt-Zerbst-Dornburg, and of the princesses of Holstein, a woman eminent for talents and beauty. She was born at Stettin in Prussian Pomerania, May 2, 1729, educated by her mother, and in early life distinguished by her good humour, intelligence, and spirit. During the first 15 years of her life, she lived alternately in Stettin and in Dornburg, or Zerbst, occasionally accompanying her mother in several little journeys, which much contributed to the forming of her mind and manners; and at this period, she devoted her time to reading, reflection, learning, and employment. About the beginning of the year 1744, she visited Berlin, and continued her journey to Russia. Her access to the court of Peterburgh was rendered easy by the marriage which had been projected between the empress Elizabeth, and her mother's brother, the prince of Holstein-Eutin, but which the premature death of the latter had prevented; and her mother, fully apprized of the tender remembrance preserved by Elizabeth for her brother, resolved to avail herself of it for securing a throne to her daughter. Accordingly, Elizabeth received the young princess with a partial regard; and determined to accomplish a matrimonial union between her nephew, the grand-duke, afterwards Peter III. and Sophia; who, though instructed, under the tuition of her mother, in the Lutheran doctrines, embraced the religion of the Greek church, and on this occasion changed her name to that of Catharine Aléxievna. As soon as the choice of Elizabeth had been announced to the council and to the foreign ministers, the day was fixed for the nuptials, and preparations were arranged for its celebration in a manner worthy of the heir of the throne of Russia. A circumstance, however, occurred, which retarded this wished-for event. The grand-duke was seized with the small pox, which, being of a very malignant nature, endangered his life; and so much deformed the comeliness of his face, as to render it for a time distorted, and almost hideous. This metamorphosis produced a horror in the mind of the young princess at the first interview, which, however, she had sufficient art to disguise, and which proved no impediment in the way of their speedy union. The empress contemplated this alliance with pleasure; the princess of Zerbst was pas-

sionately desirous to see it concluded; and the suggestions of ambition acting more powerfully on the heart of Catharine than the will of her mother, and that of the empress, did not allow her a moment's hesitation. In 1745 the nuptials were accordingly solemnized; but, notwithstanding the attachment which was so manifest between the grand-duke and the princess from the first moment of their meeting, their love was fated to be of no long duration; nevertheless, they lived for some time with an apparently good understanding, which Catharine supported as long as she conceived it to be necessary. Their dispositions and their accomplishments, however, were very different: whilst Peter blushed at the superiority of his wife, she often blushed at seeing him so little worthy of her; and, incapable of making each other happy, their mutual dislike was soon visible to those who frequented the court; it every day increased, and became more and more apparent. Whilst the enemies of Peter contrived to excite prejudices against him in the mind of the empress, and he was led by various artifices on their part, and by the jealousy manifested by Elizabeth, to retire from court, and to indulge himself in the vices of drinking and gaming, Catharine was busily employed in gaining partisans from the most powerful persons of the court. Her violent disposition to pleasure was controuled by views of ambition; and if she did not succeed so far as to captivate the friendship of the empress, she at least extorted her esteem. The princess of Zerbst, at the same time, abused the confidence reposed in her by the empress; and taking advantage of the influence she had acquired, she mixed in the intrigues of the courtiers, made herself the dispenser of imperial favours, and pryed into the secrets of the most important concerns. Her arrogance disgusted the favourites, and her curiosity was vexatious to the ministers. At length they united together to rouse the jealousy of the empress, and by degrees induced her not only to withdraw her misplaced confidence, but to issue orders that the princess should quit the empire. Catharine herself regretted her mother's departure; but the hope of the throne which had fortified her against other misfortunes, supported her under this; and love soon became a source of consolations, which heightened those which pride administered. In the number of those who formed the parties of the grand duke, Soltikof, the prince's chamberlain, was particularly distinguished by his taste for the arts, as well as by the graces of his person; and vanity, perhaps, more than love, led him to conceive the nefarious design of captivating the heart of Catharine. His continued attentions at length produced effect; he became master of the affections of the grand duchess; and the passion which was at first feigned on his part, grew up into a real attachment; their mutual partiality, avowed to each other, became too unguarded to be concealed from the courtiers, who envied the preference that wounded their pride. They therefore determined to communicate to the empress their suspicions of an amour between the chamberlain and the grand duchess. Elizabeth, though of an amorous disposition herself, declared, in the first bursts of her indignation, that Soltikof should pay for his temerity by an exile into Siberia: the chamberlain contrived to avoid the danger that menaced him by complaining to the grand duke of the calumnies that had been so audaciously spread; and by requesting that, in order to furnish no farther pretence to the jealousy of his enemies, and to calm the mind of the empress, he might obtain permission to retire to Moscow. The credulous prince, thus deluded, ordered him to remain in his station, and in an audience with the empress, vindicated the innocence of Soltikof, with so much vehemence and by such a variety of arguments, that Elizabeth herself was inclined to ascribe to envy the inju-

rious reports that had been circulated against him. Catharine also pleaded his cause, and that of her own honour, with so much eloquence, that her victory over the empress was more complete than that of the grand duke. The intercourse between Soltikof and the grand-duchess was renewed and continued; and Catharine acquired boldness from her success, and from the example of Elizabeth, whose manners were becoming daily more and more corrupt, and who, engaging from day to day in some new follies, seemed to afford some excuse for her passion. In 1754, when Soltikof thought himself perfectly secure, the grand chancellor Bestuchef contrived his ruin, and prevailed with the empress to appoint him minister plenipotentiary from the court of Russia to Hamburg, where he was to reside. He also counteracted the influence which the grand duchess was induced to employ for his recall; and her ambition imposed silence on love. For some time they corresponded with each other; but in 1755 the young count Stanislaus Poniatowsky supplanted Soltikof in the attachment of Catharine, and in the following year they declared to one another their mutual affection, and consulted on the means of indulging their inclinations without restraint. The empress Elizabeth was soon informed of this new intrigue of her adoptive niece, and she ordered Poniatowsky to quit Russia without delay. The chancellor Bestuchef, in the mean while, was gradually strengthening his party with that of the grand duchess; and in 1756 he engaged count De Bruhl, prime minister of the king of Poland, to procure the nomination of Poniatowsky as minister plenipotentiary of the republic and king of Poland to the empress Elizabeth. This measure having succeeded, the plenipotentiary arrived, and Catharine made so little secret of the intimacy subsisting between them, that public report was very loud to his prejudice. The grand duke was the only man at court who knew nothing of what was passing. His time was wholly occupied in attending the useless manœuvres and painful exercises of his soldiers, and when these were finished, in indulging the excesses of the table, and boasting, in the delirium of intemperance, that he would one day be conqueror of the north, and the rival of the Persian hero. At length, however, the jealousy of Peter was alarmed; and no time was lost in fostering the surmises of the husband into proofs of the infidelity of the wife, in her love for the Polisher, and the criminal correspondence they mutually entertained. The prince was overwhelmed with grief and consternation; forbade the grand duchess to be seen with Poniatowsky; and hastening to the empress, besought her to avenge the affront he had received; informing her, at the same time, that the grand chancellor had not only favoured the misconduct of the grand duchess, but had repeatedly betrayed the confidence of his imperial aunt. Elizabeth, moved at the sorrows of her nephew, and incensed at the treachery of Bestuchef, gave orders to arrest him; and in the sequel he was deprived of his place, tried, pronounced guilty of high treason, and sentenced to death, which sentence was afterwards commuted for banishment to an estate 120 versts beyond Moscow. Catharine, apprehending every thing from the resentment of her husband, and forsaken by her courtiers, was reduced to a very distressed and almost hopeless situation. In the year 1761, the health of Elizabeth began visibly to decline, and the necessity of repose, added to her natural indolence, made her more negligent than ever of the affairs of government. Woronzof was grand chancellor, and on him depended the conduct of the public business; and the empress, hardly able to pursue her customary dissipations, amused herself with the idle tales that were brought her of the amorous revels of her nephew Peter with one of the daughters of Woronzof. Catharine renewed her efforts for

a reconciliation with the empress; but she would listen to no accommodation, except on the most mortifying conditions. It was afterwards proposed to her by a message from Elizabeth, to confess her guilt, and to submit to the clemency of her husband and the empress. From this moment Catharine summoned up all her pride. She purposely avoided appearing at court, kept close to her apartments, and asked leave of the empress to retire into Germany; a permission which she knew would not be granted; because, well apprized of the extreme fondness of Elizabeth for the young Paul Petrovitch, she had no reason to apprehend that the princess would consent to the departure of the mother of a child, who would thereby be exposed to the hazard of being hereafter declared illegitimate. The stratagem succeeded, and an accommodation soon ensued. At the very moment when she was thought on the brink of irremediable disgrace, to the great astonishment of the court, she made her appearance at the theatre, by the side of the empress, who carefully drew upon her the notice of the spectators by the particularity of her attentions. The ambition of Catharine was roused by Elizabeth's approaching dissolution, and she felt the necessity of conciliating the popular favour by an exterior of piety, which, by those who best knew her, was supposed not to proceed from her heart. However, she was punctual in frequenting the churches at the stated times of public devotion; but more particularly at the prayers that were now daily put up for imploring the re-establishment of the health of the empress. She employed herself also for several days in framing the form of the proclamation acknowledging the emperor, as well as that of the oath to be taken by the troops. At length, on Christmas day, 1761, the empress Elizabeth expired; and Peter III. ascended the throne. In the beginning of his reign his conduct was not only blameless, but laudable; he appeared to be suddenly transformed into a different being; as grand duke, he had been inconsistent, impetuous, and wild; but as Peter III. he appeared equitable, patient, and enlightened. He was kind to all who had been attached to the late empress; he continued in their posts all the great officers of state: and he pardoned all his enemies. The grand duchess received from him the most flattering salutations and marks of the greatest confidence. He seemed to forget the wrongs he had suffered in the elegancies of her mind, and the force of her genius. He passed a great part of the day in her apartments, discoursed with her in a free and friendly manner, and consulted her on all affairs of delicacy and importance. The courtiers were surprised, and congratulated Catharine on her happy lot. Catharine was almost the only person who was not deceived. She saw that her husband was not capable of governing by himself, and she was too well acquainted with his character to mistake that for benevolence, which was only weakness. The first measures of his government were popular and auspicious. Unsteady and capricious in his temper, his private and public conduct was versatile and fluctuating, and indicated that levity of disposition which was the predominant feature in his character. His enthusiastic attachment to the king of Prussia gave offence to his subjects, led him to slight all the foreign ministers, excepting the Prussian envoy and Mr. Keith, the British ambassador, and occasioned alterations in his plan of conduct and government, which created a great number of enemies, and evinced, that if he had sometimes good intentions, he was deficient in judgment, and especially in that energy of character so necessary for the ruler of a nation. Together with the wisest plans, he often adopted such as were useless, and others that were even dangerous. The desire of making improvements induced him imprudently to hazard premature reformations. By converting the vast possessions of the

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aggrated by her panegyriſts. In her perſon ſhe was under the middle ſize, and in her youth delicate and well-formed, but as ſhe advanced in years inclined to corpulency. She had a fair complexion, dark eyes, and light hair, which ſhe was accuſtomed to dye black. She could neither read nor write. She is ſaid, however, to have maintained the pomp of majeſty united with an air of eaſe and grandeur; and Peter himſelf frequently expreſſed his admiration at the propriety with which ſhe occupied her high ſtation, without forgetting that ſhe was not born to that dignity. Her eſtimable qualities, after all the abatements of panegyric, were generally acknowledged. She was humane in an exemplary degree, good-humoured and obliging in her temper and manners, and duly mindful of the good offices which had been performed for her in her low condition. She availed herſelf of her aſcendancy over Peter, in ſoftening the aſperity of his paſſions and reſtraining their violence; inſomuch that a word from her, in behalf of a wretch, who was about to be ſacrificed to his anger, would inſtantly diſarm him; and if he determined to indulge his reſentment, he would give orders for the execution when ſhe was abſent, for fear ſhe ſhould plead for the victim. Upon the whole ſhe merited the honourable title, beſtowed upon her by the celebrated Munc, of "the Mediatrix between the monarch and his ſubjects." *Coxe's Travels in Ruſſia*, vol. ii. ch. 11.

CATHARINE II. empreſs of Ruſſia, originally denominated Sophia Auguſta Frederica, was the daughter of Chriſtian Auguſtus, prince of Anhalt-Zerbſt-Doraburg, and of the princeſs of Holſtein, a woman eminent for talents and beauty. She was born at Stettin in Pruſſian Pomerania, May 2, 1729, educated by her mother, and in early life diſtinguiſhed by her good humour, intelligence, and ſpirit. During the firſt 15 years of her life, ſhe lived alternately in Stettin and in Dornburg, or Zerbſt, occaſionally accompanying her mother in ſeveral little journies, which much contributed to the forming of her mind and manners; and at this period, ſhe devoted her time to reading, reflection, learning, and employment. About the beginning of the year 1744, ſhe viſited Berlin, and continued her journey to Ruſſia. Her acceſs to the court of Petersburgh was rendered eaſy by the marriage which had been projected between the empreſs Elizabeth, and her mother's brother, the prince of Holſtein-Eutin, but which the premature death of the latter had prevented; and her mother, fully apprized of the tender remembrance preſerved by Elizabeth for her brother, reſolved to avail herſelf of it for ſecuring a throne to her daughter. Accordingly, Elizabeth received the young princeſs with a partial regard; and determined to accompliſh a matrimonial union between her nephew, the grand-duke, afterwards Peter III. and Sophia; who, though inſtructed, under the tuition of her mother, in the Lutheran doctrines, embraced the religion of the Greek church, and on this occaſion changed her name to that of Catharine Aléxievna. As ſoon as the choice of Elizabeth had been announced to the council and to the foreign miniſters, the day was fixed for the nuptials, and preparations were arranged for its celebration in a manner worthy of the heir of the throne of Ruſſia. A circumſtance, however, occurred, which retarded this wiſhed-for event. The grand-duke was ſeized with the ſmall pox, which, being of a very malignant nature, endangered his life; and ſo much deformed the comelineſs of his face, as to render it for a time diſtorted, and almoſt hideous. This metamorphoſis produced a horror in the mind of the young princeſs at the firſt interview, which, however, ſhe had ſufficient art to diſguiſe, and which proved no impediment in the way of their ſpeedy union. The empreſs contemplated this alliance with pleaſure; the princeſs of Zerbſt was paſ-

ſionately deſirous to ſee it concluded; and the ſuggeſtions of ambition acting more powerfully on the heart of Catharine than the will of her mother, and that of the empreſs, did not allow her a moment's heſitation. In 1745 the nuptials were accordingly ſolemnized; but, notwithstanding the attachment which was ſo maniſeſt between the grand-duke and the princeſs from the firſt moment of their meeting, their love was fated to be of no long duration; nevertheless, they lived for ſome time with an apparently good underſtanding, which Catharine ſupported as long as ſhe conceived it to be neceſſary. Their diſpoſitions and their accompliſhments, however, were very different: whiſt Peter bluſhed at the ſuperiority of his wife, ſhe often bluſhed at ſeeing him ſo little worthy of her; and, incapable of making each other happy, their mutual diſlike was ſoon viſible to thoſe who frequented the court; it every day increaſed, and became more and more apparent. Whiſt the enemies of Peter contrived to excite prejudices againſt him in the mind of the empreſs, and he was led by various artifices on their part, and by the jealousy maniſeſt by Elizabeth, to retire from court, and to indulge himſelf in the vices of drinking and gaming, Catharine was buſily employed in gaining partizans from the moſt powerful perſons of the court. Her violent diſpoſition to pleaſure was controuled by views of ambition; and if ſhe did not ſucceed ſo far as to captivate the friendſhip of the empreſs, ſhe at leaſt extorted her eſteem. The princeſs of Zerbſt, at the ſame time, abuſed the confidence reſoſed in her by the empreſs; and taking advantage of the influence ſhe had acquired, ſhe mixed in the intrigues of the courtiers, made herſelf the diſpenſer of imperial favours, and pryed into the ſecrets of the moſt important concerns. Her arrogance diſguſted the favourites, and her curioſity was vexatious to the miniſters. At length they united together to rouse the jealousy of the empreſs, and by degrees induced her not only to withdraw her miſplaced confidence, but to iſſue orders that the princeſs ſhould quit the empire. Catharine herſelf regretted her mother's departure; but the hope of the throne which had fortified her againſt other miſfortunes, ſupported her under this; and love ſoon became a ſource of conſolations, which heightened thoſe which pride adminiſtered. In the number of thoſe who formed the parties of the grand duke, Soltikof, the prince's chamberlain, was particularly diſtinguiſhed by his taſte for the arts, as well as by the graces of his perſon; and vanity, perhaps, more than love, led him to conceive the nefarious deſign of captivating the heart of Catharine. His continued attentions at length produced effect; he became maſter of the affections of the grand duchefs; and the paſſion which was at firſt feigned on his part, grew up into a real attachment; their mutual partiality, avowed to each other, became too unguarded to be concealed from the courtiers, who envied the preference that wounded their pride. They therefore determined to communicate to the empreſs their ſuſpicions of an amour between the chamberlain and the grand duchefs. Elizabeth, though of an amorous diſpoſition herſelf, declared, in the firſt burſt of her indignation, that Soltikof ſhould pay for his temerity by an exile into Siberia: the chamberlain contrived to avoid the danger that menaced him by complaining to the grand duke of the calumnies that had been ſo audaciously ſpread; and by requeſting that, in order to furniſh no farther pretence to the jealousy of his enemies, and to calm the mind of the empreſs, he might obtain permiſſion to retire to Moſcow. The credulous prince, thus deluded, ordered him to remain in his ſtation, and in an audience with the empreſs, vindicated the innocence of Soltikof, with ſo much vehemence and by ſuch a variety of arguments, that Elizabeth herſelf was inclined to aſcribe to envy the inju-

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a reconciliation with the empress; but she would listen to no accommodation, except on the most mortifying conditions. It was afterwards proposed to her by a message from Elizabeth, to confess her guilt, and to submit to the clemency of her husband and the empress. From this moment Catharine summoned up all her pride. She purposely avoided appearing at court, kept close to her apartments, and asked leave of the empress to retire into Germany; a permission which she knew would not be granted; because, well apprized of the extreme fondness of Elizabeth for the young Paul Petrovitch, she had no reason to apprehend that the princess would consent to the departure of the mother of a child, who would thereby be exposed to the hazard of being hereafter declared illegitimate. The stratagem succeeded, and an accommodation soon ensued. At the very moment when she was thought on the brink of irremediable disgrace, to the great astonishment of the court, she made her appearance at the theatre, by the side of the empress, who carefully drew upon her the notice of the spectators by the particularity of her attentions. The ambition of Catharine was roused by Elizabeth's approaching dissolution, and she felt the necessity of conciliating the popular favour by an exterior of piety, which, by those who best knew her, was supposed not to proceed from her heart. However, she was punctual in frequenting the churches at the stated times of public devotion; but more particularly at the prayers that were now daily put up for imploring the re-establishment of the health of the empress. She employed herself also for several days in framing the form of the proclamation acknowledging the emperor, as well as that of the oath to be taken by the troops. At length, on Christmas day, 1761, the empress Elizabeth expired; and Peter III. ascended the throne. In the beginning of his reign his conduct was not only blameless, but laudable; he appeared to be suddenly transformed into a different being; as grand duke, he had been inconsistent, impetuous, and wild; but as Peter III. he appeared equitable, patient, and enlightened. He was kind to all who had been attached to the late empress; he continued in their posts all the great officers of state: and he pardoned all his enemies. The grand duchess received from him the most flattering salutations and marks of the greatest confidence. He seemed to forget the wrongs he had suffered in the elegancies of her mind, and the force of her genius. He passed a great part of the day in her apartments, discoursed with her in a free and friendly manner, and consulted her on all affairs of delicacy and importance. The courtiers were surprised, and congratulated Catharine on her happy lot. Catharine was almost the only person who was not deceived. She saw that her husband was not capable of governing by himself, and she was too well acquainted with his character to mistake that for benevolence, which was only weakness. The first measures of his government were popular and auspicious. Unsteady and capricious in his temper, his private and public conduct was versatile and fluctuating, and indicated that levity of disposition which was the predominant feature in his character. His enthusiastic attachment to the king of Prussia gave offence to his subjects, led him to slight all the foreign ministers, excepting the Prussian envoy and Mr. Keith, the British ambassador, and occasioned alterations in his plan of conduct and government, which created a great number of enemies, and evinced, that if he had sometimes good intentions, he was deficient in judgment, and especially in that energy of character so necessary for the ruler of a nation. Together with the wisest plans, he often adopted such as were useless, and others that were even dangerous. The desire of making improvements induced him imprudently to hazard premature reformations. By converting the vast possessions of the

church into domains of the crown, and assigning to the clergy yearly salaries, and by other measures of an ecclesiastical nature, he irritated a numerous class of men, whose influence was very extensive. His enemies spread a report from one end of the empire to the other, that he had only feigned to embrace the Greek communion in order to qualify himself for filling the throne; but that he was still a Lutheran at heart, of which he was every day giving fresh proofs, by shewing a profound contempt for the rites, the ceremonies, and the religion of the Russians. It was industriously propagated, that he never spoke but with disdain of the Russian empire, and never mentioned the Germans but with respect. All these reports, circulated with artifice, soon alienated from the prince those hearts which the first measures of his reign had attached to him. To the army, also, he gave great offence, by manifesting a decided preference of the German soldiers to the Russian troops, and by a variety of other measures, which were subjects of general murmur. Besides, he displeased all parties by his declared intention of retaking by force of arms the duchy of Schleswick, on which the kings of Denmark had seized to the prejudice of the dukes of Holstein. Many of his measures were adopted in direct opposition to the counsel of the king of Prussia, who was well acquainted with the character of Peter and that of Catharine, and who had long foreseen that event which afterwards happened. Moreover, Peter insensibly resumed his vicious habits; frequently passing the whole day in drinking and smoking amidst a company of base courtiers, most of whom were eagerly seeking his ruin, and perfidiously applauding his fantastical humours and his most dangerous innovations.

His behaviour to the empress was no less inconsistent than other parts of his conduct. Whilst he was paying homage to the superiority of her mind, he would allow to escape from him some intimations of the indignation which had taken possession of his breast on account of the wrongs he had suffered. In the most sacred and pompous ceremonies of the Russian church, such, e.g. as the benediction of the waters (see CONSECRATION), he caused her to appear adorned with all the marks of imperial dignity, while he contented himself with following her train in the rank of a simple colonel, as if he intended to shew to his people, that she was born to reign, and that it was his province to obey. At court he would often leave her to execute the whole of the representation; while he, dressed in the uniform of his regiment, respectfully came and presented to her his officers, whom he called his comrades. But this apparent honour conferred on the empress was of no long duration. As soon as he thought himself well settled on the throne, he no longer concealed his indifference, and he sometimes manifested it in the most humiliating manner. At the time of the celebration of the peace with the king of Prussia, Peter, who, during the exhibition of the fire-works, was seated by the side of Catharine, on seeing the countess Woronzof, his mistress, pass by, called to her, and made her sit down by his side; upon which Catharine immediately retired, without any endeavour to detain her being vouchsafed on the part of her husband. Other instances of mortification occurred, which Catharine felt to such a degree, that her tears interested the spectators, whilst the harshness of Peter excited their indignation. It was by such treatment, however, that the hopes of the empress revived. She opposed to his slights and rudeness great circumspection and singular arts of address; and thus gained the hearts, which the emperor was losing. Instructed from her infancy in the arts of dissimulation, she affected, in the sight of the multitude, sentiments very foreign to her mind. The pupil of the philosophers assumed the air of a bigot; she sedulously repaired every day to the churches of Petersburg, praying with all the semblance of a sincere and fervent

devotion, punctual in the most superstitious practices of the Greek religion, accosting the poor with benignity, and treating the popes with reverence; who did not fail afterwards to proclaim her praise from house to house. In the apartments of the palace the mode of life pursued by this married pair was not very different from that of their public conduct. While Peter III. was shut up with the countess Woronzof, Mr. Keith, some Prussian officers, and others of his favourites; while he was so far forgetful of his rank as to live familiarly with buffoons, and to make them at times sit at table with him; the empress kept her court with a mixture of dignity and affability which charmed all who approached her: and she particularly directed her attention to those persons, who, by their reputation, courage, or intrigues, might serve her cause. By such acts of imprudence as we have now recited, the czar displeased not only the greater number of the Russians, but almost all the agents from foreign courts. Having concluded a treaty with the king of Prussia, Peter III. caused the peace to be celebrated with the greatest magnificence; and in the midst of these festivities, he manifested a particular attention to the countess Woronzof, who was daily gaining an increase of ascendancy over him, and who found means to induce the czar, by flattery at one time, by scolding at another, and sometimes by a degree of daring petulance which led her even to beat him, to renew the promise he had made, while he was only grand duke, that he would marry her, and place her in the room of Catharine on the throne of Russia. Proud of this hope, she had the imprudence to boast of it; and this imprudence brought on her ruin. Peter III. no less indiscreet than the countess, did not disguise his intention to repudiate Catharine; and to declare the illegitimacy of her son, Paul Petrovitch. He determined, however, to cover this act of despotism with an appearance of justice; fondly imagining, that when he published to the world the proofs of the infidelities of Catharine, his conduct would gain the approbation of all his subjects and the rest of Europe. Hopeless of an heir, on account of a certain imbecility that was ascribed to him, though he lived openly with the countess Woronzof, held frequent assignations with a handsome stage-dancer of Petersburg, and had various adventures of gallantry; he conceived a singular project for supplying the place of Paul Petrovitch. He determined to adopt prince Ivan, who had been dethroned by Elizabeth, to declare him his successor, and to unite him in marriage with the young princess of Holstein-Beck, who was then at St. Petersburg, and whom he cherished as his daughter. But such were the indiscretions of the czar, that they revived from day to day the hopes of Catharine; and the designs he had formed against her, some part of which was well known, emboldened her to run all hazards in order to prevent them. Dismissed to Peterhof, and lodged in one of the apartments of the palace that was most retired, she passed her days in meditating the project for precipitating her husband from the throne, and her evenings in the company of a peculiar intimate, whom she had made the most intrepid of the conspirators. Gregory Orlov, for that was his name, possessed neither the advantages of birth nor those of education; but he had received from nature what are often found more useful, courage and beauty. He had a post in the artillery, while his two brothers were only common soldiers in the regiments of guards; he had also been selected by count Peter Schouvalof, grand-master of the artillery, as aide-de-camp; and for his mistress he had one of the most illustrious and the handsomest women of the court, the princess Kurakin, who preferred him to his general. The general, however, having surprised them together, threatened to exert his interest for procuring the banishment of Orlov to Siberia. The story of this adventure reached the retreat

in which Catharine was compelled to do penance; and her curiosity to see him being excited, was gratified by the contrivance of Catharine Ivanovna, the most ingenious of confidantes, and the least scrupulous of duennas. After repeated interviews, the empress unveiled to Orlof, of whose boldness and discretion she had previously assured herself, the ambitious designs which she had been projecting. Orlof complied with her wishes; entered into a conspiracy with her, and engaged his brothers, together with several officers, by whose instrumentality he gained to his party some companies of guards; but without imparting to them his real design. Catharine was only grand-duchess when her connection with Orlof commenced; and her correspondence with him, as well as with other officers, was carried on with no less art than success. Some of the courtiers also participated her favours; but not having sufficient confidence in their talents, she merely made them her friends, without disclosing to them her secret. Lieutenant-general Villebois was one of those whom she particularly distinguished. When she was seated on the throne, she attached to her interest the remainder of those conspirators, at the head of whom Bestuchef and the Schuvalofs had successively appeared, and of which the hetman Kurili Razumofsky, the prince Volkonsky, nephew of the exiled Bestuchef, and major-general of the guards, and count Panin, were the most powerful supports. She had also been able to form another conspiracy, contrived by the young princefs Dashkof, who, at the early age of 18 years, was singularly active and impetuous. All the accomplices of these several factions acted without the knowledge of each other; and Catharine, who directed and animated them all, seemed to have no share in the plot. Princefs Dashkof had in her train an adventurous Piedmontese, named Odart, whom penury and the hopes of making his fortune had brought to St. Petersburg; and by her interest with the empress, she obtained for him the title of private secretary; in consequence of which appointment, Odart became one of her confidants in her ambitious designs. The princefs Dashkof and Odart contrived to engage Razumofsky, count Panin, prince Volkonsky, and the archbishop of Novgorod in their party. Glebof, whom the czar had raised from the lowest forms of chicane to the important place of procureur-general to the senate, joined this band of conspirators. The aim of all those who severally conspired against Peter III. was to dethrone him; but they had different sentiments with regard to the proper mode of accomplishing their purpose. Panin, Razumofsky, and Orlof thought it best to begin by seizing his person at Peterhof, the imperial palace, situate on the shore of the Cronstadt gulf, at the conclusion of one of those orgies which could not fail to take place on his coming thither to celebrate the anniversary of St. Peter and St. Paul. One of the conspirators, lieutenant Passick, the most ferocious of his countrymen, insisted on assassinating him with a poignard in the midst of his court, and actually lay in wait for this purpose; but he was disappointed in his design. The conspirators, who differed as to the means of dethroning the czar, were still less agreed on the manner of supplying his place. Catharine aspired to the sole possession of the supreme authority; and this pretension was supported by the princefs Dashkof and Orlof. Panin, on the other hand, proposed, that she should govern only in the name of regent; and that the title of emperor should devolve on the young grand-duke Paul Petrovitch. And in this opinion the hetman Razumofsky concurred. Those who wanted to confer the supreme power on Catharine, vied with each other in their endeavours to induce count Panin to alter his mind; and if their efforts had not been aided by the count's passion for

the princefs Dashkof, they would have proved altogether ineffectual. The conspirators being agreed, proceeded to devise means for the execution of their plan. Whilst the friends of Catharine received constant information of the movements of the czar, he was ignorant of all their proceedings. Expecting, in indolent security, the festivities of Peterhof, to which we have already adverted, his majesty was gone to pass some days at his country palace of Oranienbaum, whither he was accompanied by some of the handsomest women of the court, and where he had purposed to cause the empress to be arrested. In the mean while some persons, who had perceived that a plot against the czar was in agitation, advertised him of it; but he disregarded the information, and could not be prevailed on to seize the traitors. However, when the conspirators were about to accomplish their design on the arrival of the czar at Peterhof, their plot was discovered, and Passick was arrested; so that it became necessary to hasten its execution; the time of action was the silence of the night, without allowing the czar an opportunity for forming an inclination to prevent them, nor the troops and the people time to arm for his defence. Catharine, under a pretence of leaving the apartments of the palace free for the festival that was to be celebrated, and in reality with the view of facilitating her own escape, was lodged in a remote summer-house, called Monplaisir, situate at the extremity of the garden, on the shore of the gulf of Finland. Here she had a small boat, which might occasionally be of service in the secret visits of her favourites, and for facilitating her own escape into Sweden, if the conspiracy should be discovered. At the hour of two in the morning, when the empress was in a profound sleep, she was suddenly roused by a soldier, unknown to her, who delivered a note from princefs Dashkof, and accompanied it with a declaration; "Your majesty has not a moment to lose; get ready to follow me:" upon which he immediately disappeared. Catharine, astonished and terrified, called Ivanovna; and having disguised themselves by their dresses, so that they could not be known by the sentinels about the palace, they hastened to a carriage that was waiting for them at the garden-gate. As soon as the empress had seated herself in it, Alexey Orlof, one of the conspirators, took the reins, and set off at full speed. An accident happened to the horses, which retarded their flight, and threw them into confusion. Their danger was imminent; and they resolved to make the best of their way on foot; but they had not proceeded far, before they met with a light country cart, which conveyed them with speed and safety to Petersburg. Catharine, worn out with fatigue and anxiety, but sufficiently self-possessed to assume a sedate and tranquil air, arrived in the city at 7 in the morning, on the 9th of July, N. S. 1762. She was received by a small band of soldiers with clamorous shouts of joy; and though their number was small, they swore to die in her defence. Their example was soon followed by other soldiers, who, with one consent, declared her sovereign. The oath of the troops was received on a crucifix, fetched from the altar by the chaplain of the regiment of Ishmailof; and the Simeonofsky and the Preobaginsky guards joined those of Ishmailof. In the interval of two hours the empress saw herself surrounded by 2000 warriors, and a great part of the inhabitants of Petersburg, who mechanically followed the motions of the soldiers, and were eager to applaud them. The hetman Razumofsky advised her to repair to the church of Kazan, whither she was attended with a vast concourse of spectators, who mingled their acclamations with the shouts of the soldiers, and where the archbishop of Novgorod, accompanied by a great number of priests, set the imperial crown on her head, proclaimed

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proclaimed her with a loud voice sovereign of all the Russias, by the name of Catharine the Second, and declared, at the same time, the young grand-duke, Paul Petrovitch, her successor. A *Te Deum* was then chanted, accompanied with the shouts or hurras, i. e. huzzas, of the multitude. The empress then repaired to the palace that had been occupied by Elizabeth; and for several hours crowds of people flocked thither, who fell on their knees before her, and took the oath of allegiance. Before the end of the day, Catharine had already 15,000 men of select troops; the city was in a formidable state of defence; strict order every where prevailed; and not one drop of blood was shed. Whilst the empress remained in the palace, she sent for her son Paul Petrovitch, and held him in the balcony of the palace to the view of the people, whose acclamations were redoubled at the sight of the child, thinking that in him they beheld the new emperor. The principal nobles, who had taken no share in this conspiracy, as soon as they heard of it in the morning, resorted to the palace, and united their homage and oaths of fidelity to those which the multitude had just been rendering to Catharine. A manifesto was distributed through the city, and a notification was delivered to the foreign ministers of the day when they were to be admitted to present their compliments of congratulation on the event that had taken place. The troops, incessantly supplied with beer and brandy, expressed their satisfaction by reiterated vociferations of *bourra!* and by tossing up their hats and caps; but one regiment of cavalry, of which Peter III. had been colonel while he was grand-duke, and which he had incorporated with the guards on his accession to the throne, took no participation in this tumultuous joy. The officers having refused obedience to Catharine, were put under arrest, and replaced by the officers of other regiments. Fearless of this regiment, the ruling party began to march the troops from the city, to proceed against the czar. Peter III. had yet no suspicion of the important event that had occurred. Such and so unaccountable was his security, that he set out, after having received some intimations of the conspiracy, from Oranienbaum in a calash, with his mistress, his favourites, and the women of his court, for Peterhof, to be present at the grand festivities already mentioned. In the way, Gudovitch, the general aide-de-camp, met one of the chamberlains of the empress, by whom he was informed of her escape, and of the perplexity that had, in consequence of it, filled the whole palace of Peterhof; and upon his communicating the intelligence to Peter, he turned pale, and appeared much agitated. On his arrival at Peterhof, his agitation and confusion increased, when he found that the empress had actually left the palace; he was afraid to ask any questions, and his attendants could not summon resolution to give him any information. At length he received the certain and unacceptable tidings of the revolution that had been accomplished; and the chancellor Woronzof offered his services to hasten to Peterburg, engaging to bring the empress back. The chancellor, on entering the palace, found Catharine surrounded by a multitude of people in the act of doing homage; and forgetting his duty, he took the oath with the rest. He was permitted, however, at his earnest request, to return to his house, under the guard of some trusty officers; and thus secured himself from the vindictive spirit of the partisans of Catharine, and from the suspicions of the czar. After the departure of the chancellor, Peter became a prey to the most distressing anxieties, and he every instant received some fresh intelligence of the progress of the revolution. He was indecisive and irresolute with regard to the measures that were proper to be pursued at this interesting crisis. Although his Holstein

guards were firmly attached to him, and the veteran marshal Munich offered to risk every thing for his service, he remained hesitating and undetermined; and after a fruitless attempt to gain possession of the fortress of Cronstadt, and adopting some other measures, equally unavailing, for conciliating the empress, he found it not only expedient, but absolutely necessary, to submit unconditionally to her will. The empress deputed count Panin to announce to him her purpose; and he was compelled to sign a most humiliating act of abdication, in which he declared his conviction of his inability to govern the empire, either as a sovereign, or in any other capacity, and his sense of the distress in which his continuance at the head of affairs would inevitably involve it. When his signature to this fatal act was obtained, count Panin left him; and Peter seemed to enjoy a greater composure of mind. In the evening, however, an officer with a strong escort came and conveyed him prisoner to Ropscha, a small imperial palace, at the distance of about 20 versts from Peterhof.

Thus was effected in one day and without shedding a single drop of blood, a revolution of immense importance. The unfortunate emperor enjoyed the power of which he made so impolitic an use, no longer than six months. Upon his removal from Peterhof, he was blind to the fate that awaited him. He sent a message to Catharine, requesting that he might retain in his service the negro, who had been attached to him, and who amused him with his singularities, together with a dog, of which he was fond, his violin, a bible, and a few romances; assuring her, that, disgusted at the wickedness of mankind, he would henceforward devote himself to a philosophical life. Not one of these requests was granted. After he had been at Ropscha six days without the knowledge of any persons besides the chiefs of the conspirators, and the soldiers by whom he was guarded, Alexius Orlof, accompanied by Teplof, came to him with the news of his speedy deliverance, and asked permission to dine with him. While the officer amused the czar with some trifling discourse, his chief filled the wine-glasses, which are usually brought in the northern countries before dinner, and poured a poisonous mixture into that which he intended for the prince. The czar, without distrust, swallowed the potion; on which he was seized with the most excruciating pains; and on his being offered a second glass, on pretence of its giving him relief, he refused it with reproaches on him that offered it. Being pressed to take another glass, when he called for milk, a French valet-de-chambre, who was greatly attached to him, ran in; and throwing himself into his arms, he said, in a faint tone of voice, "It was not enough then to prevent me from reigning in Sweden, and to deprive me of the crown of Russia! I must also be put to death." The valet-de-chambre interceded in his behalf; but the two miscreants forced him out of the room, and continued their ill treatment of him. In the midst of the tumult, the younger of the princes Baratsinsky, who commanded the guard, entered; Orlof, who, in a struggle, had thrown down the emperor, was pressing upon his breast with both his knees, and firmly gripping his throat with his hand. In this situation the two other assassins threw a napkin with a running knot round his neck, and put an end to his life by suffocation, July 17th, just one week after the revolution. These particulars are confirmed by the account of one who was in the confidence of prince Potemkin, who is erroneously said to have been present on the occasion. It was, however, announced to the nation, that Peter had died of an hæmorrhoidal colic. When Catharine received the news of Peter's death, she appeared at court, whither she was going, with a tranquil air; and afterwards

afterwards shut herself up with Orlof, Panin, Razumofsky, Glebof, and some other confidential persons, to deliberate whether the senate and people should be immediately acquainted with the death of the emperor, or whether it might not be more advisable to wait for that purpose till the ensuing day: the latter alternative was adopted. When the news of this event was communicated to the public at large, the empress rose from her seat with her eyes suffused with tears; she dismissed the courtiers and foreign ministers, shut herself up in her apartment, and for several days exhibited tokens of real and profound grief. The body of the unfortunate czar was brought to Petersburg, and exposed for three days in the church of the monastery of St. Alexander Nefsky, and buried before the rails of the altar. The Holstein soldiers were, on the day following that of the interment, embarked for their own country; prince George, whom Peter III. had constituted duke of Courland, was obliged to renounce that title; but he was compensated by the empress with the administration of Holstein, where he settled, and ever after served Catharine with fidelity and zeal. The chancellor Bestuchef, the most inveterate enemy of Peter, was recalled from exile, and restored to his rank of field-marshal, and to his place in the council, with an annual pension of 20,000 rubles. Several other exiles and prisoners were on this occasion set free; but neither Ivan nor any of his family. Biren, who had been recalled by Peter, was reinstated by Catharine in his dukedom of Courland, where he favoured, to the utmost of his power, the views which the empress had already formed on Poland. Catharine, with a magnanimity which did her honour, wisely manifested no resentment against the few who had preserved their attachment to Peter, and received to favour marshal Munich, who readily transferred his fidelity from the dead to the living. She even pardoned her rival, countess Woronzof, and allowed her to retain the fruits of her lover's munificence.

Although none of the sovereigns of Europe were ignorant of the steps by which Catharine had mounted the throne, they made no hesitation in acknowledging her title. Whilst she was endeavouring to secure peace with the kings of Europe, she neglected no measure that was likely to preserve it within her own empire. In the month of September she took a journey to Moscow, for the purpose of celebrating her coronation in that ancient capital of the empire. Her numerous cavalcade made a pompous entrance into the city; but she was received in a manner that shewed she was far from possessing the hearts of all her subjects. As soon as she was crowned in the presence of the soldiery and the people of the court, she hastened her departure, though she industriously concealed her chagrin, and re-took the road to Petersburg. The presents and promotions which were made on occasion of the coronation, fell mostly to the share of her adherents in the late revolution. The revolts and conspiracies that disquieted the commencement of her reign were suppressed without much difficulty; and the only severities that were exercised on the occasion were a few banishments to Siberia. To foreign courts Catharine displayed all the greatness of her character; and at home, combining policy with firmness, she found means to soothe the most dangerous of the priests, and to put a stop to the cabals of the monks. She recalled to court princefs Dashkof, whom she had ordered to Moscow; and she sent away the Piedmontese Odart, who had incurred the hatred of the whole court. The health of the young grand duke was established; and the flattering expectations that were justly raised by the good conduct of that prince drew off the public attention from the unfortunate Ivan; and the Russians accom-

modated themselves to a yoke, which they had in vain attempted to shake off. Ambition, however, did not extinguish in the breast of Catharine the love of pleasure. By the latter she gained the increasing attachment of her courtiers; nevertheless, she could surrender pleasure when the more arduous concerns of government demanded her attention. She assisted at all the deliberations of the council, read the dispatches from her ambassadors, either dictated or minuted with her own hand the answers that were sent to them, and afterwards attended to all the particulars of their execution. Jealous, says one of her biographers, of solid renown, she set before her the example of those illustrious monarchs who effaced their weakness by the grandeur of their exploits; and, with the infirmities of men, merited and obtained the grateful acknowledgments of all succeeding times, as the friends and benefactors of the human race. She followed the maxims which she frequently quoted: "We should be constant in our plans. It is better to do amiss than to alter our purpose. None but fools are irresolute."

Catharine ratified the peace, which her husband had negotiated, with Prussia, and also with Denmark. As soon as she was securely established on the throne, she meditated a variety of enterprises and plans of improvement, which would serve to divert the attention of her subjects from the measures by which the late revolution had been effected, and which, in the result, would redound to her own glory and the benefit of her country. She applied with unremitting assiduity and care to the administration of her large estates, the advancement of commerce, the augmentation of the marine, and especially to the means of recovering the finances, without being reduced to the necessity of observing a parsimonious economy. After engaging in business with her ministers, she would frequently converse, in private, with Bestuchef and Munich. With one she studied politics and the resources of the several courts of Europe, and the other communicated to her the plan he had been meditating, during his exile in Siberia, for driving the Turks from Constantinople; a plan, the object of which was singularly gratifying to the aspiring mind of Catharine, and which, about 30 years after, seemed to have been on the point of being effected. In many of her manifestoes and ukases, she adopted a style that admirably expressed a regard to justice and to the true interest of her subjects. When she banished to Siberia for life an officer of the government-chancery of Novgorod, on account of his having taken money for administering the oath of allegiance, she at the same time issued a severe decree against bribery and extortion. By an ukase, dated Moscow, O^S. 13, 1762, she confirmed the abolition of the secret-inquisition-chancery; rightly judging that she could obtain the love and attachment of the people by better means than by the encouragement of spies and informers; and, therefore, she was no sooner seated on the throne, but she put a complete end to the political inquisition. At the abolition of this inquisition, the objects of which were at first the capital crimes of high treason, attempts against religion, and treason against the state, but which afterwards extended its jurisdiction, Catharine settled the practice to be pursued in future, in the ordinary tribunal, under charges of state crimes, and so plainly and distinctly determined the particular cases of delinquency against the person of the sovereign, and against the welfare of the state, that there remained no room for malicious and sinister interpretations. The crimes denominated religious were entirely suppressed. Catharine farther ordained that the truth should be investigated entirely without torture; and, with Frederic of Prussia,

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Prussia, she likewise exhibited, in this respect, a model for the rest of Europe. Her criminal laws breathe throughout a mild and gentle spirit; and though she had not, like Elizabeth, made a vow to punish no one with death, yet, during her long reign, a sentence of death was extremely rare. Catharine, in order to invite foreigners to settle in her country, declared, by a manifesto, that colonists should find welcome and support in the Russian empire; and soon after her accession several foreigners began to migrate thither. In order to hold out farther inducements to such, she marked out the districts that were unoccupied, and specified, by particular notices, which were forest, arable land, meadow land, &c. and what allotments bordered upon rivers, and what the fisheries might yield. Besides, she encouraged persons to come and settle for general purposes in the Russian empire, in whatever town they would, such as merchants, artificers, and the like persons. In order to increase the population, or more properly to eradicate a physical and moral cause of depopulation, the empress laid the foundation of the foundling and lying-in hospital at Moscow, and afterwards of another at St. Petersburg. She also founded the medicinal college of the empire in the latter city. In the year 1763, when Catharine was alarmed with various plots against her person and throne, she was busied in all the interesting and useful measures of government with as much calmness and assiduity as if her reign was to be everlasting. She founded colleges and hospitals in every part of her empire. She encouraged commerce and industry; and ordered new ships of war to be put upon the stocks. The beneficial consequence of the spirit she manifested, and of the regulations she adopted, have been since manifest in a variety of instances. Courland, on the Baltic, with its havens, was subjected by her to the Russian sceptre; and on the opposite side of Europe the Euxine laves her extensive conquests; Otchakow, the Cherson, the Crim, and the Cuban, bear witness to the force of her arms. The sails of her ships of commerce and of war are spread even in the Mediterranean. On the Greek islands the Russian banners are displayed. Her troops opened a road into Egypt, and there, in 1772, fought in support of Ali Bey, against the Turks. The free inhabitants of the extreme north-eastern point of Asia, the Tschuktsches, were at length obliged to submit; and a channel of no great width (the straits of Behring) there only divides the empire from America. A multitude of Russian islands in the northern part of the Southern ocean, the Kuriles and several additional acquisitions, connect it with other islands, and even with the continent of the fourth quarter of the world; and even upon that the Russians have got a firm footing. The increase of navigation by these acquisitions, and the very lucrative commerce of the furs here procured, the costly skins of the sea otter, and other animals, is of the utmost consequence. The differences that arose with China in 1778, were at length compromised; and if no caravans go from Moscow to Peking, yet the merchants of these two great empires prosecute their trade together, and perhaps better, in the frontier towns of Kiachta and Maimatshin. Orenburg, in Asiatic Russia, is excellently situated for commercial intercourse with the East Indies; the caravans require only three months for the whole journey; accordingly, at the half-way thither, at Balk, a town in Bactriana, or Khorasan, Russian and East-Indian caravans already meet together. From this detail we perceive, in part, the benefits resulting to Russia from the commercial spirit of the empress, and from the commercial regulations she established. Towards the end of the year 1763, Catharine gave a proper

form to the supreme college of the empire, the directing senate, which had been instituted by Peter I. She divided it into six departments, of which the four former should have their seat in St. Petersburg, and the two latter in Moscow.

With a view to the introduction and diffusion of science and literature among her subjects, she established several useful institutions; she corresponded with persons eminent in various departments of knowledge, and encouraged their settlement in her own country; and she availed herself in many ways of the hints and plans which they communicated for the improvement of the empire.

In 1764, when the throne of Poland had become vacant by the death of Augustus III. in the October of the preceding year, Catharine displayed her political talents and influence in the advancement of her early favourite count Poniatowsky to this dignity. At this time she made a tour through Esthonia, Livonia, and Courland; but, during her absence on this expedition, an insurrection broke out in the prison of the dethroned Ivan, which threatened the stability of her own throne. Ivan, who was born in 1740, was the great grandson of czar Ivan Alexeyevitch or Alexiewitz, the elder half brother of Peter the Great; and upon the death of the empress Anne, in 1741, he had been proclaimed emperor. But when Elizabeth was placed on the throne, the infant, together with the regent Anne, his mother, and his whole family, was confined in the fortrefs of Schlusselfburg; from this place he was transported, together with his family, to the fortrefs of Riga; from Riga they were conveyed to Dunamunda, and afterwards to Oranienburg, a town built by Mentchikof, in the cold province of Voronetch. There he was separated from his family, and being arrested at Smolensk, in his way to Germany, under the conduct of a monk who released him from prison, he was for some time confined in a monastery in the Valdaï, near the road that leads from St. Petersburg to Moscow; and, in 1756, by order of the empress Elizabeth, who wished to see him, was remanded to Schlusselfburg, where he had been placed immediately on his dethronement. Here he was so closely confined, that he never was allowed access to the open air, or to the light of day; a lamp was kept constantly burning in his cell; and, as no clock was to be seen or heard, he knew no difference between night and day. His interior guards, a captain and a lieutenant, were shut up in the same cell, but were not permitted to hold any intercourse with him. It is no wonder, therefore, if his ignorance should have bordered on stupidity. Elizabeth indeed had caused him once to be brought in a covered cart to Petersburg, and there saw and conversed with him. Peter III. also, when he proposed to restore him to the throne, visited him incognito. Catharine too, soon after the commencement of her reign, had a conversation with him, in order, as it is said in her manifesto of the 28th of August, 1764, to form a judgment of his understanding and talents; in both which respects she found him extremely deficient. At the period to which we now refer, he was arrived at the age of 24 years; and, whatever might have been his incapacity, he was a fit instrument for exciting dangerous commotions; and from the depth of his dungeon, he afforded hopes to those who held the present usurpation in abhorrence. Accordingly, whilst the regiment of Smolensk was in garrison, in the town of Schlusselfburg, a sub-lieutenant, of the family of Mirovitch, formed the bold plan of setting him at liberty, and raising him to the empire. But the two officers, who slept with him in his cell, had a discretionary order signed by the empress, enjoining them to put the unhappy prince to death, whenever any insurrection should be made

made in his favour, provided that it could not otherwise be quelled. Mirovitch, having gained the concurrence of a few associates, pointed a piece of artillery at the door of the dungeon, where the prince was confined, and prepared to batter the place; but at that instant the door opened, and he entered, unmolested with his whole suite. In the meanwhile the officers who guarded Ivan, after previous consultation, determined to assassinate the unfortunate captive, who, though naked, defended himself for a considerable time. Although his hand had been pierced through, and his body was covered with wounds, he seized the sword from one of the monsters, and broke it; but while he was struggling to get the piece out of his hand, the other stabbed him from behind, and threw him down. He who had his sword broken, now plunged his bayonet into his body, and several times repeating his blow, the unhappy prince expired: they then opened the door, and presented to Mirovitch the bleeding body of the murdered prince, and also the order by which they were authorized to put him to death, if any attempt should be made to convey him away. Mirovitch, struck with horror, started back some paces; and after expressing his grief for the event that had occurred, surrendered himself to the governor, who confined him and his accomplices. Mirovitch was afterwards condemned to death, and publicly executed in pursuance of his sentence. The inferior actors, on this occasion, being about 58 in number, did not suffer death, but were subjected to other punishments, perhaps not less severe. The officers, who assassinated the prince, were amply rewarded for their fidelity, in consideration of their good intentions with respect to the tranquillity of the state. Some have asserted that Mirovitch had been secretly instigated to this attempt for the rescue of the prince by the court, and thus to justify the execution of the orders that had been previously given to the guard; but the punishment of Mirovitch, and the confession which he is said to have made, that the scheme was wholly his own contrivance, seem to acquit the empress of this horrid crime. On the other hand, it has been alleged that his behaviour during his trial, and the composure with which he walked to the scaffold, on which his sentence was to be executed, manifested a kind of assurance, that he should obtain a pardon, which, report says, had been actually promised. But if he entertained this hope, he was cruelly deceived; the time of his execution was accelerated, and the unhappy wretch, if he had before been the instrument, was now the victim of a barbarous policy. Those who considered him in the former point of view were astonished that the empress should suffer him to be put to death. But how could she have screened him from punishment without manifestly drawing upon herself the charge of having prompted his crime? And if she were really concerned in it, can it be thought that she would hesitate a moment in getting rid of a witness who would have exposed her to everlasting vexation? Soon after this shocking event, Catharine, whose throne was now established, returned to Petersburg from her journey through the conquered provinces; and, on her entry into the city, she was surrounded by an immense concourse of people, who endeavoured to find out by her countenance what was passing in her heart; but always mistress of herself, the face of that princess was ever covered with smiles. Her step was as firm, and her front as serene as those of persons who feel no inward reproaches usually are. The beneficial effects of the empress's regulations and establishments, for the internal administration of government, were every day becoming more apparent in all parts of Russia: she exerted herself to the utmost in giving new spirit to the commerce of her coun-

try, in augmenting her navy, and above all, in softening the manners of the people, who were not yet far advanced in civilization; but the progress of her institutions was at first slow, and it was much retarded by want of zeal on the part of the great personages of the empire, and by the spirit of division that continued to reign in Petersburg. What most afflicted the empress was the misunderstanding that prevailed between her favourite Orlov, and her chief minister Panin. In order to silence murmurs of a political nature, and to divert the disaffected, she displayed her taste for splendour and magnificence, by a species of entertainment called a "caroufal," consisting of tilts and tournaments, sumptuous entertainments, repeated with considerable variations for several days, and vying in pomp and pageantry with any of the feasts of ancient chivalry. But Catharine knew also to employ more worthy means for establishing her authority. She still busied herself in making reforms, and in the establishment of useful institutions. She corrected the tribunals, founded schools, built hospitals, and planted colonies. She endeavoured to infuse into her people a love for the laws, and to soften their manners by instruction. Jealous of a power that knew no bounds, greedy of every species of glory, she was determined to be at once both conqueror and legislatrix. Amidst conspiracies formed for overturning her throne, occupied with preparations for war, which seemed sufficient to arrest her whole attention, and yet finding time for attachments of gallantry, she was unmindful of nothing that could attract the reverence of mankind, and captivate their admiration. The perplexed and uncertain jurisprudence of Russia engaged her particular attention; and she resolved to apply a remedy to the various disorders that occurred in this department of the state. Although the success of her patriotic attempt has not yet been complete, yet, in consequence of it, the laws of the Russian empire have been much simplified, and the administration of justice is become much milder and more impartial. Having formed the senate and the colleges into separate departments, and having augmented the emoluments of the judges, in order to deprive them of all pretext or excuse for either negligence or prevarication; she set herself to work on a new code of laws. With this view she summoned deputies to Moscow from all parts of her vast empire, that she might obtain their ideas on the laws that were fittest for their peculiar exigencies; and she herself repaired to that ancient capital. When they were assembled, she wished to leave them in possession of uncontrolled liberty, and therefore, though she attended in the hall where they met, and could see and hear all that passed, she herself was not perceived. The instructions, which she had previously composed, with the assistance of Mathonius and Rozetsky, and which had been chiefly taken from the writings of Montesquieu and some others of the French philosophers, were translated into the Russian language from the original French, and the business of the assembly was begun by the perusal of them. The original copy, almost entirely in the hand-writing of Catharine, has since been deposited, enclosed in a magnificent case of silver gilt, in an apartment of the Imperial Academy of Sciences at St. Petersburg. Copies of these instructions were afterwards dispatched to the sovereigns, whose approbation Catharine most coveted. They complimented her on her laborious enterprise, and made no hesitation in pronouncing that it would be an eternal monument to her glory. It unquestionably redounds much to the praise of the empress, that these instructions are founded on the principles of an enlightened humanity; and that, though autocratrix, and possessing unlimited power, she recognizes no legitimate authority but that which is founded on justice; and that every particular in her

laws has a tendency to enervate despotism, and to render a just authority respectable. Her purpose was to form a solid, and not an arbitrary legislation. Her whole plan was directed to prevent all those who governed under her from exercising a capricious and cruel authority, by subjecting them to invariable laws, which no authority should be able to infringe. The empress, proceeding in other respects on the same enlarged and enlightened plan, continued to cultivate and encourage the arts and sciences; to make her empire an asylum to the learned and ingenious; and to reform the manners and instruct the minds of the people, through the extent of its most distant provinces. The transit of Venus, which happened in 1769, afforded an opportunity of exhibiting as well the munificence of Catharine as the attention she paid to astronomy. It may seem surprising, however, that while Catharine was striving to build her fame upon a solid basis, she made it a matter of much importance to obtain from all the powers of Europe the title of imperial majesty, which some of them had refused her. About the middle of the year 1767, the empress conceived the useful project of sending several learned men to travel into the interior of her immense territories, for the purpose of determining the geographical position of the principal places, of marking their temperature, and of examining into the nature of their soil, their productions, their wealth, as well as the manners and characters of the several people by whom they are inhabited. The selection of the learned travellers destined for this expedition, the helps that were granted them, and the excellent instructions that were given them, will be a lasting honour to the Academy of Sciences, by which they were appointed. About this time, viz. in 1768, the court of Catharine became the asylum of the sciences, to which she invited learned men from every part of Europe. She encouraged artists and scholars of all denominations; she granted new privileges to the Academy of Sciences, and exhorted the members to add the names of several celebrated foreigners to those which already conferred a lustre on their society. Nor was she less attentive to the Academy of Arts, by increasing the number of its pupils, and adding such regulations as tended more than ever to the attainment of the end for which it was endowed. See ACADEMY. For the further encouragement of the fine arts in her dominions, the empress assigned an annual sum of 5000 rubles for the translation of foreign works into the Russian language. The improvement of the state of physic was another important object of her concern; and in order to give the highest possible sanction to the salutary practice of inoculating for the small pox, she herself submitted to the operation under the care of an English practitioner, and she persuaded the grand duke to follow her example. In 1768, Dr. T. Dimdale, of Hertford, was invited to Russia for the purpose of introducing inoculation: upon the recovery of the grand duke, Catharine rewarded his services by creating him a baron of the Russian empire, and appointing him counsellor of state and physician to her imperial majesty, with a pension of 500*l.* a year, to be paid him in England; besides 10,000*l.* sterling, which he immediately received; and she also presented him with a miniature picture of herself, and another of the grand duke as a memorial of his services. Her majesty likewise expressed her approbation of the conduct of his son, by conferring on him the same title, and ordering him to be presented with a superb gold snuff-box, richly set with diamonds. On December the 3d, 1768, a thanksgiving service was performed in the chapel of the palace on account of her majesty's recovery and that of the grand duke from the small-pox: and the senate decreed, that this event should be solemnised by an anniversary festival, which has been regularly observed ever since.

With regard to her foreign relations, whilst she was giving law to Poland, amusing Austria, conciliating the friendship of Prussia, and treating with England, she was also tampering with the other courts of Europe, and labouring efficaciously towards very soon making herself dreaded by them.

Her schemes of foreign aggrandisement, which compose so great a part of her history, commenced with her violent and arbitrary interference in the affairs of Poland, which in 1768 caused the Ottoman Porte to declare war against her; but he was very unequal to the contest, which in its progress brought on a series of disasters to the Turks. They lost several battles on the Pruth, Dniester, and Danube, with the towns of Bender and Ackerman, the capital of Bessarabia. The news of these signal successes augmented the pride and strengthened the security of Catharine. The disaffected, who surrounded her throne, dared no longer to conspire against a princess, who was triumphing at such a distance over her most formidable enemies. The provinces of Walachia, Moldavia, and Bessarabia, submitting to the Russian arms, sent deputies to Petersburg to do homage to the empress; who received them with magnificence, and loaded them with benefits. Whilst the Turks were thus harassed by land, and the fleets of the empress were triumphing on the Euxine, she resolved to attack them even in the isles of Greece. With this view, in September 1769, two squadrons of Russian men of war sailed from Archangel and Revel, which were soon followed by others from the Baltic, and steered their hitherto unattempted course for the Mediterranean. The fleet now consisting of 20 sail of the line, 6 frigates, several transports, a number of bomb-ketches, galleys, and vessels with troops for land-service, left the Baltic, crossed the North sea, passed the straits of Gibraltar; and after having been dispersed by a tempest, collected again, and displayed in the Archipelago its victorious flag. This fleet was commanded by admiral Spiridof, but that admiral himself was under the orders of Alexèy Orlof, whose share in the Russian revolution had advanced him all at once from the low condition of a simple soldier to the rank of general, and whose audacity served him instead of experience and talents. This naval expedition of Russia forms a remarkable æra in the history of marine tactics. Before the arrival of this fleet, some secret agents had been disposing the Greeks to rise up in arms. They were led to expect the Russians as their deliverers; and at the instant when their squadron had gained the height of Cape Matapan (formerly the promontory of Tenaros), the whole Archipelago thought itself free. The Mainots, descendants of the ancient Lacedæmonians, were the first that took up arms; their example was soon followed by their neighbours; and the Turks were massacred in several of the islands. But the latter cruelly revenged themselves for the insurrection of the Greeks. Some thousands of these miserable people were exterminated by the sabre of the Janizaries.

The squadron of Spiridof was soon joined by that of Elphinston, a native of England, vice-admiral in the Russian service, and far more capable of commanding than the officer under whose orders he served. To this double squadron was opposed that of the captain pacha Hassan, surnamed *Gazi*, or the victorious, by the sultan on account of the courage he displayed in the engagement with Spiridof. This Turkish admiral first forced the Russians to retire from Lemnos; but the two fleets afterwards met in the channel that separates the isle of Scio from Naxos; and a very furious engagement ensued. The Turks, though possessing a superior navy, were compelled to shelter themselves in the narrow bay of Tschesmè, near Lemnos, where some of them ran aground, and the others were so pressed for room, that it

was impossible for them to act. The Russians, perceiving their disadvantageous situation, sent among them some fire-ships, under the conduct of the admirals Elphinston and Greig, and commanded by lieutenant Dugdale, all British officers, and destroyed their whole fleet. After the total destruction of the Turkish Squadron, the Russians anchored at Paros; whence they might easily command all the Grecian seas, and where not a single vessel was suffered to appear without lowering its top sails. This great success, however, was not improved as might have been expected by Alexius Orlov, the empress's hero and supreme commander in the Mediterranean; for though a new squadron was fitted out to reinforce that which was already in the Archipelago, the Dardanelles, which were the keys of Constantinople, remained secure; for, as the winter season came on, the Russians were obliged to quit their station in these seas, and the trade through the straits was of course again opened. Crim Tartary, however, was entirely conquered by the Russians, whose fleets rode triumphant on the Black Sea; and the grand vizir was attacked in his camp, and routed with great slaughter. A terrible plague at Moscow, and other domestic disasters, counterbalanced in the estimate of true policy these foreign advantages. In 1772, the most iniquitous measure, the division of a large part of Poland between the three bordering powers, Russia, Prussia, and Austria, which had been long projected, and for which preparations were made by the advances of their several armies into the country, avowedly took place in the face of Europe, which was shamefully passive to so great a violation of all public faith and equity. While Catharine was acquiring by negotiations a part of the provinces of Poland, her armies continued to ravage the frontiers of Turkey; and the war was not terminated till the year 1774, when the grand vizir, being invested on all sides by the Russian armies, was reduced to the necessity of signing a peace; of which the principal conditions were, the independence of the Crimea, the free navigation of the Russians on the Euxine and through the Dardanelles, with the stipulation that they should never have more than one armed vessel in the seas of Constantinople, and a cession to them of that tract of land that lies on the Euxine between the Bog and the Danube. Russia, retaining Azof, Toganrok, Kertsch, and Kinburn, restored the rest of her conquests. Russia also obtained a large sum of money to defray the expences of the war, and the title of "peshah," or empress, was no longer refused to the Russian monarch. Nothing could exceed the joy and festivity which prevailed at Petersburg upon the confirmation of this happy peace. The empress ordered eight days to be devoted to public feasts and rejoicing; liberal rewards to be distributed as usual; the prison doors to be opened for the release of all, who were not charged with high treason; and the return of all exiles from Siberia, who had been banished since the year 1746. But, notwithstanding the external prosperity of the Russian empire, many circumstances combined to produce internal distress. The finances of the country were in a disordered state; succours from England were procured by granting immense advantages to its commerce; the pestilence had made dreadful ravages at Moscow and in the adjacent countries, and had extended its fatal influence to the army and navy; the provinces of Kazan, Astrachan, and Orenburg, were a prey to revolt, which menaced even Moscow; and a remarkable emigration was changing countries that were flourishing with commerce into waste and deserted tracts. All these circumstances rendered an accommodation with the Turks peculiarly acceptable. But besides these grievances which must induce the empress to rejoice in the establishment of peace, an open rebellion, and its attendant,

a civil war, distracted the Russian empire. This calamity originated in Asia, and extended to Moscow; the author of it was Pugatshief, a Cossack, born at Simoveisk, a village on the borders of the Don. He had served as a common soldier in the army in 1756; he made the campaign of 1769 against the Turks, and fought under general Panin at the siege of Bender; and on the surrender of that town he applied for his dismissal, which was refused; upon which he fled to Poland and obtained concealment and an asylum among some hermits of the Greek confession. These hermits, perceiving or feigning some resemblance to Peter III., encouraged him to assume his name and character. The imposture was carried on for some time in Little Russia, and a number of followers attached themselves to this deceiver, who had combined professions of sanctity and self-denial with his delusion. Among the inhabitants of the banks of the Yaik, since called Ural, he formed a strong party of Cossacks, whom he engaged to accompany him into the mountains of Caucasus, with the assurance that they would there find powerful succours. Being arrested for inciting the people to sedition and committed to prison, he was frequently visited by the popes, who furnished him with money, and thus enabled him to corrupt his guards, and to make his escape. Having by various arts of imposture collected a formidable party, he publicly declared that he was the emperor Peter III., delivered by a miracle from the hands of his assassins. This revolt was a favourable diversion to the Turks, and in 1773 wrought powerfully in their behalf. Pugatshief, besides assuming the name and character of Peter III., had sufficient discernment to perceive, that it would much favour his design to blend religious pretences or prejudices with the political motives that might operate towards bringing on a revolution. Other circumstances concurred to countenance his imposture, and to increase the number of his adherents. The rebellion instigated by this impostor obtained a general spread; and at length Catharine was much alarmed, and seriously set about checking its progress. She published manifestos and ukases, and Pugatshief did the same, affixing to those he issued the name of Peter III. By one of these he enfranchised all the boors; and he caused rubies to be struck with his effigy, and this inscription: "Peter III. emperor, and autocrat of all the Russias;" and on the reverse, "Redivivus et ultor." This revolt, the particulars of which we cannot detail at length, after causing great devastations, and the loss of many lives, was finally terminated by the capture of Pugatshief at the close of the year 1774, and his subsequent decapitation. It has been justly alleged, as a proof of the mildness of Catharine's administration, that this atrocious rebel was executed without torture. Five of his principal accomplices were likewise beheaded; three others were hanged; and 18 more underwent the knout, and were banished to Siberia. Catharine, during the tumultuous state of the empire, employed herself in promoting its internal welfare, by encouraging the sciences and the arts of peace; and soon after the punishment of Pugatshief, she had a fresh opportunity of displaying her clemency, by granting a pardon to men, who were justly deserving of capital punishment: they were the treasurers of the empire, who had embezzled the public money. She had overcome what was naturally irascible and violent in her temper, and had learnt patience and lenity from the lessons of philosophy. Notwithstanding the heavy burdens incurred by her foreign and domestic wars, she took off most of the taxes that were laid for their support; and, as if the strength and riches of government in her country increased with its expence, she also abolished a number of the ancient taxes, which were considered either as discouraging to agri-

culture, or oppressive to particular provinces or orders of the people. She also lent large sums of money, free of interest, and for a specified term of years, to those provinces which were ruined by the late rebellion. She likewise established a number of other regulations, that tended to the security, advantage, and happiness of her subjects; abolishing pernicious distinctions, destroying numerous monopolies, restraining the cruelty of punishment, removing oppressive or impolitic restrictions or prohibitions, and restoring mankind to a more equitable degree of equality, in the different ranks which they occupy in society. Imprisoned debtors were, under certain circumstances, released from confinement; and all the heirs of the debtors to the crown were discharged from their bonds and obligations. The insurgents every where returned to their duty; nor were the victims to justice numerous. As a general famine prevailed in the desolated countries, government was at great expence and trouble in supplying them with corn and meal from the magazines at Moscow and other places; and various methods were devised for preventing the progress of famine. The comprehensive mind of the empress, which had been occupied in the extension and establishment of its external force, in laying the foundations of a philosophical system of legislation, in the improvement of education, in the diffusion of illumination and taste, and in the reformation of numberless abuses, directed its views to the important object of forming a constitution for Russia. See PETERSBURG and RUSSIA.

In the year 1775, when peace was established abroad, and every thing was quiet at home, Catharine employed herself in cultivating the arts of peace, in the improvement of the country, and in opening the minds of her subjects; and in the prosecution of these objects she found Potemkin so useful, that he soon acquired an ascendant that was almost absolute. To him all persons looked as the dispenser of all bounty, and the source of all honours. Every day he acquired some new dignity or some accession of revenue; he attained the most important post in the Russian empire; and he possessed an authority scarcely compatible with that of a superior. Catharine was not unapprised of his ambition and love of power; and, therefore, she wished to retain Gregory Orlof, her former favourite, though he requested permission to retire from the court, as a check on the petulance and audacity of his rival. After having long opposed Panin to Orlof, she now thought of opposing Orlof to Potemkin.

The independence of Crim Tartary soon produced an open rupture between the Turkish and Russian parties; and in 1778 it produced a declaration of war. From the measures that were pursued it sufficiently appeared, that the ambition of the empress would not be satisfied till she had gained entire possession of that peninsula. Her intrigues in the neighbouring courts of Denmark and Sweden tended to render these powers little more than dependencies on her crown; however in 1780 her influence over them was employed in establishing the famous "*armed NEUTRALITY*," the purpose of which was to protect the commercial rights of neutral states, then continually violated by the belligerent powers, and particularly by England, which availed itself of its superiority at sea, in preventing France and Spain from receiving naval stores from the Baltic. In this year Catharine had an interview at Mohilow with the emperor of Germany, Joseph II., and they travelled together in familiar intercourse into Russia; the prince of Prussia (afterwards Frederic William II.) also visited her court; and it was customary for the neighbouring princes to make visits of policy or curiosity to Petersburg, where they were always treated with

a magnificence not paralleled in any other part of Europe. In 1782, Catharine, with a view of affording an asylum to the persecuted order of Jesuits, and probably imagining that all the Jesuits of Europe and America would bring into White Russia their treasures and their industry, erected a Roman-catholic archbishopric at Mohilow, for the spiritual government of her subjects of that persuasion, and also gave him a Jesuit coadjutor. But whatever might be her expectations, the spoils of Paraguay never found their way to Mohilow. This establishment, however, evinced a mind, like that of the king of Prussia, superior to religious prejudices; and, considered merely with a view to the exercise of religion, it was laudable. This year was marked by an event which indicated Catharine's respect for the memory of Peter the Great, whom she affected to imitate: it was the erection at Petersburg of his famous equestrian statue, which was executed by Stephen Falconet of Paris. This artist conceived the design of having for the pedestal of his statue a huge and rugged rock, in order to indicate to posterity, whence the heroic legislator had set out and what obstacles he surmounted. This rock, the height of which from the horizontal line was 21 feet by 42 in length, and 34 in breadth, was conveyed, with great labour, from a bay on the gulf of Finland to Petersburg, through the distance of 111 versts, or about 41,250 English feet. On the side next the senate it has this Latin inscription, which is in a style of sublime and proud simplicity; "*Petro primo, Catharina secunda;*" "*Catharine the second to Peter the first.*"

In the following year, 1783, Catharine augmented the splendour of her court, by instituting the new order of St. Wolodimir, or Vladimir. This year gratified the ambition of Catharine with regard to the Crimea. Having acquired, without a war, the sovereignty of the Crimea, of the isle of Taman, and a great part of the Kuban, she called the former of these countries Taurida, and the other Caucasus. Thus Catharine gained a point of much importance towards the main object of her own ambition, as well as that of her prime minister Potemkin, i. e. the destruction of the Turkish empire in Europe; in the view of which she had named the grand-duke's second son Constantine, and had put him into the hands of Greek nurses, that he might be thoroughly acquainted with the language of his future subjects. Instigated by Potemkin, the empress formed a design, in 1787, of being splendidly crowned in her new dominions "*queen of Taurida;*" but the expence being objected to by some of her courtiers, she contented herself with making a grand progress through them. At her new city of Cherson, she had a second interview with the emperor Joseph. She then traversed the Crimea, and returned to Moscow, having left traces in her progress of her munificence and condescension. This ostentatious tour was probably one cause of the new rupture with the Turkish court, which imprisoned the Russian minister in the Seven Towers, and commenced the war. In this bloody contest the emperor of Germany engaged as ally to Russia, and the king of Sweden as ally to the Porte. The latter prevented the empress from sending a fleet into the Mediterranean; and even endangered Petersburg itself by a sudden incursion into Finland. The danger, however, was averted by the empress's own vigorous exertions, by the desertion of some of Gustavus's troops, who would not fight against the Russians, and by an attack of Sweden, on the part of the prince of Denmark, who proceeded as far as Cottenburgh. The Turkish army, though superior to that of the emperor, could not resist the efforts of the Russian generals. Potemkin at the head of a numerous army, and a large train of artillery, laid siege to Otchakof, and it was at length taken by storm, with the loss of 25,000 Turks and

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and 12,000 Russians. Catharine regarded the capture of this strong town an event of such importance, that she liberally rewarded Potemkin, and conferred honorary distinctions on prince Repnin and general Suvarof, and the other commanders concerned in reducing it. During the progress of this war, the Turks lost many important places, and their naval force on the Euxine was almost annihilated. In the conflicts between the Russian and Swedish fleets in the Baltic, the former were generally victorious; but they terminated in 1790 in a separate peace. The war with the Turks was prolonged; the strong fortress of Ismail was stormed by Suvarof and taken with the loss of 15,000 Russians; and the armies of Catharine obtained, though with the expense of many lives, several very decisive victories. The empress, however, perceived that even her conquests were ruinous, and that peace was desirable; but she had too much pride to sue for it, and therefore she chose to continue fighting. At length she determined to close the war, and engaged count Bernstorff, the Danish minister, to negotiate the preliminaries of peace with the cabinets of Berlin, of London, and of the Hague. By his mediation, an accommodation was settled between these three powers and Russia; and they agreed to propose to the Ottoman Porte the terms offered by the empress, declaring, that if the Turks would not accept of these conditions, they would abandon their cause, and leave them to prosecute the war alone against Russia. A congress was assembled at Shistova; and the negotiators having removed to Galatch, the preliminaries of peace were signed, on the 9th of January 1792, by prince Repnin and the grand vizir. The definitive treaty, concluded at Yassy, soon after followed. In the war, thus happily terminated, it has been calculated, that Austria lost 130,000 soldiers, and expended 300 millions of florins. Russia lost 200,000 men, 5 ships of the line, 7 frigates, and 80 smaller vessels, and expended 200 millions of rubles. The Turks lost 330,000 men, 6 ships of the line, 4 frigates, with several other vessels, and expended 250 millions of piastres. Sweden had expended 70 millions of rix-dollars, and lost 12 ships of the line, 3 frigates, and 40 smaller vessels of war. After signing the treaty, Bezborodko declared, that the empress gave up her claim to the 12 millions of piastres which the Porte had stipulated to pay her as an indemnity for the expenses of the war; and the Ottoman plenipotentiaries justly testified their admiration of an act of generosity so truly imperial. By this treaty of peace, the Dniester was declared to be for the future the limit of the two empires. The English prime-minister manifested a strong desire to compel Russia to restore Otchakof to the Turks, but not being supported by the nation, this point was conceded, and Russia retained that important place and its territory. Before the conclusion of this treaty, Catharine lost her prime-minister, prince Potemkin, who died the 15th of October 1791, at the age of 52, in the vicinity of Yassy, and was buried at Cherfon. In consequence of this loss, the empress employed herself with singular assiduity in the administration of the empire; devoting to public business 15 hours together, and dividing among her ministers the direction of the affairs which had belonged to Potemkin. When the revolution in France began to agitate the crowned heads of Europe, the empress, and the king of Sweden, seem to have been the first who formed a resolution of opposing it by force of arms. But when Catharine perceived that the hazard and difficulty of this enterprise were encountered by the nearer powers of Prussia and Austria, she directed her attention to Poland, and exerted herself in checking and subduing the new spirit of liberty which was rising in that country. For this purpose she marched an

army thither, overcame all resistance, annulled the new constitution, and finally broke the spirit of the Poles by the dreadful massacre made on the inhabitants of the suburbs of Warsaw under the obdurate Suvarof. A new division of the country between the three former pillagers ensued, which at length totally blotted out Poland from the map of Europe. See POLAND.

Catharine, having conquered, either by her arms or by her intrigues, almost one half of Poland, the Crimea, the Kuban, and a part of the frontiers of Turkey, had no occasion for recurring to armaments and battles in order to usurp another rich and well-peopled country. Her intrigues were sufficient to gain possession of Courland and Semigallia. Whilst she was thus extending her territories, she was not remiss in manifesting her abhorrence of the new principles propagated in France, by ostentatious attention to the forms of religion, and by a cordial reception of noble emigrants from that country, and by sending a squadron of men of war to co-operate with the British fleet. Inured to conquests, she turned her arms against Persia; and under pretence of defending Lolf Ali-khan, an offspring of the race of the Sophis, she wanted to be revenged on Aga-Mahmed, and to gain possession of the provinces which border on the Caspian. With this view, her general Zubof, at the head of a numerous army, penetrated into the province of Daghestan, and, after a short siege, made himself master of Derbent. Her success in this quarter inspired her with the hopes of obtaining a greater triumph. Having concluded a treaty with Great Britain and Austria, called the triple alliance, and signed in February 1795, she thus secured the assistance of these two powers against Turkey, and flattered herself with the full accomplishment of her darling project, which was that of driving the Ottomans out of Europe, and of reigning in Constantinople. In this case the immense empire of Catharine would have had for its frontiers the Thracian Bosphorus to the south, the gulf of Bothnia to the north, the Vistula to the west, and the sea of Japan to the east. But death disappointed her hopes, and put a stop to that career of her ambition which nothing else could restrain. In the course of her life, she had seldom experienced any illness, which was probably owing to her even and cheerful temper. On the morning of the 6th of November 1796, she was in good spirits, and having taken her coffee as usual, she retired to her closet; but not returning so soon as her attendants expected, they began to be alarmed; and on entering the outer room where she was, they found her stretched on the parquet, with her feet against the door, and speechless. Her majesty's chief physician, Dr. Rogerson, being sent for, he pronounced her attack to be a fit of apoplexy; and having ordered her to be twice bled, she obtained temporary relief; but she was unable to utter a single word, and at 10 o'clock in the evening of the following day she expired. She was succeeded by the grand duke, her son, who was immediately proclaimed emperor, by the name of Paul I. Her remains were deposited in the tomb of the unfortunate Peter III. in the church of the monastery of St. Alexander Nefsky. On the coffin of that prince the emperor caused to be placed the imperial crown, which was fetched from Moscow for this purpose; the coffin was then laid in state by the side of that of the empress, with a true-love knot reaching from one to the other, on which was inscribed in Russian characters: "Divided in life—United in death." Alexius Orlof and prince Baratinsky, the two assassins of Peter III. were ordered to stand, one on each side of his coffin, as chief mourners. The former betrayed no signs of emotion; but the latter seemed to be overwhelmed with grief, and could scarcely be preserved from falling into

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a swoon. When this act of punishment was concluded, Orlof received permission to travel, and Baratinsky was ordered never more to appear at court.

Catharine II. had been handsome in her youth; and at the age of 70 years she preserved some remains of beauty, connected with a peculiar gracefulness and majesty. Her stature was of the middle size, somewhat corpulent, but well proportioned; and as she carried her head very high and raised her neck, she appeared very tall; she had an open front, an aquiline nose, an agreeable mouth, and her chin, though long, was not misshapen. Her hair was auburn, her eye-brows black (brown, says Rulhiere), and rather thick; and her blue eyes (animated hazle eyes, says Rulhiere, discovering shades of blue), indicated a gentleness which was often affected, but more frequently a mixture of pride. Haughtiness, says Rulhiere, was the true character of her physiognomy. The grace and kindness, which were likewise visible in it, seemed, to the penetrating observer, only the effect of an extreme desire of pleasing; and these, seducing expressions manifested too perceptibly even the design of seducing. A painter, desirous of expressing this character by an allegory, proposed to represent her under the figure of a charming nymph, who, with one hand extended, presents wreaths of flowers, and in the other, which she holds behind her, conceals a lighted torch. The empress was usually dressed in the Russian manner. She wore a green gown (green being the favourite colour with the Russians), somewhat short, forming in front a kind of vest, and with close sleeves reaching to the wrist. Her hair, slightly powdered, flowed upon her shoulders, topped with a small cap covered with diamonds. In the latter years of her life she used much rouge; for she was still desirous of preventing the impressions of time from being visible in her countenance; and she always practised the strictest temperance, making a light breakfast and a moderate dinner, and never eating any supper. In her private life, the good humour and confidence with which she inspired all about her, seemed to keep her in perpetual youth, playfulness, and gaiety. Her engaging conversation and familiar manners placed all those who had constant access to her, or assisted at her toilette, perfectly at their ease; but the moment when she had put on her gloves to make her appearance in the neighbouring apartments, she assumed a sedate demeanour, and a very different countenance. From being an agreeable and facetious woman, she appeared all at once the reserved and majestic empress. A person, who then saw her, would spontaneously pronounce, "This is indeed the Semiramis of the north." Her mode of saluting was dignified and graceful; by a slight inclination of the body, not without grace, but with a smile at command, that came and vanished with the bow.

As to the character of Catharine, it may be sufficiently estimated by the history of her actions. Her reign, for herself and her court, had been brilliant and happy; but the last years of it were particularly disastrous for the people and the empire. She governed too much by her favourites; and these, with their dependents and subordinate officers, became petty despots. The two most celebrated of these favourites were count Gregory Orlof and prince Potemkin; the former was a coarse vulgar man, of surprising muscular strength and brutal manners; the other shone with some splendour, and his memory still enjoys in Russia that sort of fame which is attached to conquests and military exploits. Let the reader judge from the following statements, what honours and emoluments these favourites and others of a similar description possessed, and how they must have abused the confidence of the empress, and pillaged the country in order to acquire

them. The dignities and titles conferred by Catharine on prince Potemkin may be seen in the annexed summary; "Knight of the principal orders of Prussia, of Sweden, of Poland, and of all the orders of Russia; field-marshal, commander in chief of all the Russian armies; chief general of the cavalry; high admiral of the fleets of the Black Sea, of the sea of Azof, and of the Caspian; senator, and president of the college of war; governor-general of Ekatarinoflav and of Taurida; adjutant-general, and actual chamberlain of the empress; inspector general of the armies; colonel of the Preobagenskoy guards; chef-du-corps of the horse-guards; colonel of the regiment of cuirassiers of that name, of the dragoons of Petersburg, and the grenadiers of Ekatarinoflav; chief of all the workshops of arms and founderies of cannon; grand hetman of the Cossacks," &c. &c. &c.

The subjoined statement exhibits the sums of money which the favourites of Catharine received from her during her reign, or rather which they wrested in various ways from the poor peasantry, her subjects:

	Rubles.
The five brothers <i>Orlof</i> received in lands, palaces, jewels, plate, and money	17,000,000
<i>Vissensky</i> , two months in favour	300,000
<i>Vassilchikoff</i> , 22 months in favour	1,110,000
Prince <i>Potenkin</i> , a fortune estimated at	50,000,000
<i>Zavodoffsky</i> , 18 months a favourite	1,380,000
<i>Zoritch</i> , one year	1,420,000
<i>Korzakof</i> , 16 months	920,000
<i>Lanskoi</i> , about four years	3,260,000
<i>Yermolof</i> , 16 months	550,000
<i>Momonof</i> , 26 months	880,000
<i>Plato Zoubof</i> , in place at the death of the empress	2,700,000
<i>Valerian Zoubof</i> , his brother	800,000
Farther, an annual sum of 250,000 rubles for the expences of the favourite, which for a term of 34 years makes	8,500,000

Sum total 88,820,000

To each estate were attached thousands of boors and their families. It is generally computed that of these were given:

To the family of <i>Orlof</i>	45,000
To <i>Vassilchikof</i>	7,000
To <i>Zavodoffsky</i>	9,800
To <i>Korzakof</i>	4,000
To <i>Yermolof</i>	3,000

Total of boors 68,800

This statement does not include those given to *Potemkin*, to *Lanskoi*, nor to *Zoubof*, three favourites best beloved by Catharine, and to whom, of course, she gave the most.

During this reign, almost all the people in office and authority were fortunate adventurers. If we except the *Soltikoffs*, we shall find at this period no family of distinction in favour.

With respect to the government of Catharine, it was as mild and moderate, within the immediate circle of her influence, as it was arbitrary and terrible at a distance. Whoever, directly or indirectly, enjoyed the protection of the favourite, exercised, wherever he was situated, the most undisguised tyranny. He insulted his superiors, trampled on his inferiors, and violated justice, order, and the "ukases," with impunity. The empress having usurped a throne, which she was desirous of retaining, was under the necessity of treating her accomplices with kindness. Being a foreigner in the empire over which she reigned, she endeavoured

to identify herself with the natives by adopting and even flattering its tastes and its prejudices. She often knew how to reward, but never could resolve to punish, and it was solely by suffering her power to be abused, that she succeeded in preserving it.

The spirit of toleration that animated the whole of Catharine's administration exhibits a very remarkable and almost singular phenomenon in a despotic government. Notwithstanding all opposition, the empress adhered to the resolution she had formed at the commencement of her reign; and, from that moment to the day of her death, not one instance occurred, of a human being suffering, in any respect whatever, on account of his religious opinions. Towards heretics she always evinced great lenity of disposition. "Poor wretches," she once said, smiling, "since we know that they are to suffer so much and so long in the world to come, it is but reasonable that we should endeavour, by all means, to make their situation here as comfortable to them as we can." Not only the conquered provinces were protected in the free exercise of their religion, but Lutherans, Calvinists, Moravian brethren, Papists, Mahometans, Heathens, and people of all countries and persuasions, might aspire to any post under government, and hold any civil or military employment or dignity, if they were but worthy, or deemed worthy of it. The intolerant of more polished nations might go to the provinces of Esthonia, Livonia, Finland, and Russia, to take lessons of moderation and Christian forbearance. But at Petersburg the general and peculiar feature in the public character is toleration; and this virtue has there acquired so general and extensive a sway that it is not easy to find a spot of earth upon the globe, where, in this respect, a man may more quietly pass his days than at St. Petersburg.

The empress, not satisfied (as we have already observed) with having appointed a catholic archbishop, and established a seminary of Jesuits at Mohilow, and with having supported toleration in the Crimea, gave to her people almost every year some solemn instance of the protection she granted to the liberty of worship. On the day of the benediction of the waters, her confessor, by her orders, invited to his house the ecclesiastics of all communions, and gave them a grand entertainment, which Catharine called "the dinner of toleration." It has been calculated, that the offices of religion are performed in Petersburg in 14 different languages.

Catharine had two passions which never left her but with her last breath; the love of the other sex, which degenerated into licentiousness; and the love of glory, which sunk into vanity. By the former of these passions she was never so far governed as to become a Messalina; but she often disgraced both her rank and sex, and continued to be by habit what she had been from constitution. By the second, she was led to undertake many laudable projects, which were seldom completed: and to engage in unjust wars, from which she derived that kind of fame which is the usual result of success.

The generosity of Catharine, the splendour of her reign, the magnificence of her court, her institutions, her monuments, and her wars, were precisely to Russia what the age of Louis XIV. was to Europe; but considered individually, Catharine was greater than that prince. The French formed the glory of Louis; Catharine formed that of the Russians. She had not, like him, the advantage of reigning over a polished people; nor was she surrounded from infancy by great and accomplished characters. She had some subtle ambassadors, not unskilled in the diplomatic art, and some fortunate generals; but Romanzof, Panin, and Potemkin excepted, she could not boast a single man of genius; for the wit, cunning, and dexterity of some of her ministers, the ferocious

valour of Suvarof, the docile capacity of the favourite of a Zabot, the readiness of a Belborodko, and the assiduity of a Nicholas Solतिकof, scarcely deserve to be admitted as excellencies. It was not that Russia did not produce men of merit; but Catharine feared such men, and they kept at a distance from her. We may conclude, therefore, that all her measures were her own, and particularly all the good she did. It should be recollected that in her private character, notwithstanding all the misfortunes and abuses that cast a shade over her brilliant reign, she appeared to be thoroughly humane and generous, as all who approached her experienced: all who were admitted to her intimacy were delighted with the good humoured sallies of her wit: all who lived with her were happy. Her manners were gay and licentious, but she still preserved an exterior decorum, and even her favourites always treated her with respect. Her love never excited disgust, nor her familiarity contempt. She might be deceived, won, seduced; but she would never suffer herself to be governed. Her active and regular life, her moderation, firmness, fortitude, and even her temperance, are moral qualities which it would be highly unjust to ascribe to hypocrisy. How great might she not have been, if her heart had been as well governed as her mind! She reigned over the Russians less despotically than over herself; she was never hurried away by anger; never a prey to dejection, and never indulged in transports of immoderate joy. Caprice, ill-humour, and petulance, as they formed no part of her character, were never perceived in her conduct. "I will not decide," says the writer who has thus sketched the outlines of her character, "whether she was truly great, but she was certainly beloved." Her crimes, it is said, were the crimes of her station, not of her heart: the terrible butcheries of Ismail and of Praga appeared, to her court, to be humanity itself. If she had known misfortune she might probably have possessed the purest virtues; but she was spoiled by the unvaried prosperity of her arms. Vanity, that fatal rock to women, was so to Catharine; and her reign will ever bear the distinguishing characteristic of her sex. But, in whatever light she is considered, she will ever be placed in the first rank among those who by their genius, their talents, and especially, by their success, have attracted the admiration of mankind. Her sex, giving a bolder relief to the great qualities displayed by her on the throne, will place her above all comparison in history; and we must recur to the fabulous ages of an Isis and a Semiramis, to find a woman who has executed, or rather undertaken such daring projects. Whilst none surpassed her in noble and useful institutions, in the patronage of science and of the arts, and in the promotion of the arts by which a nation is civilized and exalted; and whilst by the travels of Palas, Gmelin, and other philosophers and naturalists, she obtained an extensive acquaintance with the various parts and productions of her vast empire; she seems to have been too much seduced by splendid novelties, and by her assiduity and zeal in the purchase of expensive rarities throughout Europe, she merely sacrificed to her vanity, and sunk the wise and beneficent sovereign into the collector of toys and trinkets. Miffed by an extravagant confidence in her own abilities, and jealous of every kind of fame, she was desirous of acquiring the reputation of an author, and of thus sharing in the honour which Frederic of Prussia had obtained by his writings. She accordingly wrote her celebrated "Instructions for a Code of Laws;" several moral tales and allegories, for the education of her grand-children; and a number of dramatic pieces and proverbs, which were acted and admired at the Hermitage. Her grand and futile undertaking of collecting

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ing a number of words from 300 different languages, and forming them into a dictionary, was never executed. Of all her writings, her letters to Voltaire are certainly the best. They are more interesting than those of the old philosophical courtier himself, who repeats in his letters the same ideas and compliments in a hundred different forms, and excites her continually to drive the Turks out of Europe, instead of advising her to render her own subjects free and happy. Catharine was neither fond of poetry nor of music; and she often confessed it. She could not even endure the noise of the orchestra between the acts of a play, and therefore commonly silenced it. At her Tauridan palace she constantly dined with the two pictures of the sacking of Otchakof and Ismail before her eyes, in which Casanova has represented, with hideous accuracy, the blood flowing in streams, the limbs torn from the bodies, and still palpitating, the demoniac fury of the slaughterers, and the convulsive agonies of the slaughtered. It was upon these scenes of horror that her attention and imagination were fixed, while Gasparini and Mandini were displaying their vocal powers, or Sarti was conducting a concert in her presence.

Previous to the death of Catharine the monuments of her reign resembled already so many wrecks and dilapidations: colleges, colonies, education, establishments, manufactories, hospitals, canals, towns, fortresses, every thing had been begun, and every thing given up before it was finished. As soon as a project entered her head, all preceding ones gave place, and her thoughts were fixed on that alone, till some new idea was started and drew off her attention. She abandoned her code, to drive the Turks out of Europe. After the glorious peace of Kaïnardgi, she seemed for a time to attend to the interior administration of her affairs; but the whole was presently forgotten, that she might be queen of Tauris. Her next project was the re-establishment of the throne of Constantine; to which succeeded that of humbling and punishing the king of Sweden. Afterwards the invasion of Poland became her ruling passion; and then a second Pugatshef might have arrived at the gates of Petersburg without forcing her to relinquish her hold. She died, again meditating the destruction of Sweden, the ruin of Prussia, and mortified at the successes of France and republicanism. Thus was she incessantly led away by some new passion still stronger in its influence than the preceding, so as to neglect her government, both in its whole and in its parts. This mania of Catharine, of planning every thing and completing nothing, drew from Joseph II. a very shrewd and satirical remark. During his travels in Taurida, he was invited by the empress to place the second stone of the town of Ekaterinof, of which she had herself, with great parade, laid the first. On his return, he said, "I have finished in a single day a very important business with the empress of Russia; she has laid the first stone of a city, and I have laid the last."

We shall close this sketch of the character of Catharine with observing, that with all her various and contradictory qualities, she seems to have obtained the love as well as the reverence of her subjects in general; who forgot her private crimes and the evils of her bloody wars, in her greatness and apparent regard to the public good. Coxe's Travels, vol. i. and iii. Tooke's Life of Catharine II. in 3 vols. Rulhiere, Hist. ou Anecdotes sur la Revolution de Russie, &c. Paris, 1797. Segur, Vie de Catharine II. Imperatrice de Russie, &c. 2 vols. 8vo. Paris, of which an enlarged translation in English was printed in three vols. 8vo. 1798. Secret Memoirs of the Court of Petersburg, &c. translated from the French.

CATHARINE of Sienna, St. was born in the city, whence

her name was derived, in 1347; and having vowed virginity at eight years of age, assumed the Dominican habit. Pre-tending to extraordinary revelations, and distinguished by her piety and charity, she obtained considerable influence; so that she succeeded in effecting a reconciliation between the Florentines and pope Gregory XI., by whom they had been excommunicated, and in persuading this pontiff to restore the papal seat to Rome, after it had subsisted 70 years at Avignon. During the schism that afterwards took place, Catharine adhered to Urban VI. She died in 1380, and in 1461, was canonized by pope Pius II. Of her works there are extant a volume of "Italian Letters," written to popes, princes, cardinals, &c. first printed at Venice in 1506, and translated into French in 1644; "Six Treatises on the Providence of God;" "A Discourse on the Annunciation of the Blessed Virgin," and a treatise entitled "The Divine Doctrine delivered by the Eternal Father speaking to the Spirit;" with some other devotional pieces. Du Pin. Eccl. Hist. vol. v. p. 73. See *Fraternity of St. CATHARINE*.

CATHARINE of Bologna, St. a nun of the order of St. Clare, was born at Bologna in 1413, and became, in consequence of her reputation for sanctity, superior of the monastery of the order to which she belonged, in her native city, and which was completed before her death, in 1463. Besides other writings in Latin and Italian, her own "Revelations" were left, sealed, to her confessor. She was canonized by Clement VII. Du Pin. Eccl. Hist. vol. v. p. 84.

CATHARINE, *Fraternity of St.*, at Sienna, a sort of religious society instituted in that city, in honour of St. Catharine, a saint famous for her revelations, and for her marriage with Jesus Christ, whose wedding-ring is still preserved as a valuable relic. This fraternity yearly endows a certain number of destitute virgins, and has the privilege of redeeming annually two criminals condemned for murder, and the same number of debtors, by paying their debts.

CATHARINE, *Knights of St.*, of Mount Sinai, an ancient military order, erected for the assistance and protection of pilgrims going to pay their devotions to the body of St. Catharine, a virgin of Alexandria, distinguished for her learning, and said to have suffered martyrdom under Maximin.

The body of the martyr having been discovered on mount Sinai, caused a great concourse of pilgrims; and travelling being very dangerous, by reason of the Arabs, an order of knighthood was erected in 1063, on the model of that of the Holy Sepulchre, and under the patronage of St. Catharine: the knights of which obliged themselves by oath to guard the body of the saint, keep the roads secure, observe the rule of St. Basil, and obey their grand master. Their habit was white, and on it were represented the instruments of martyrdom whereby the saint had suffered; viz. a half wheel armed with spikes, and traversed with a sword stained with blood.

CATHARINE, *order of St.*, in *Modern History*, belongs to ladies of the first quality in the Russian court. It was instituted in 1714, by Catharine wife of Peter the Great, in memory of his signal escape from the Turks in 1711, or as others say, by Peter, in honour of his wife Catharine, on account of the assistance which she gave him in the camp on the Pruth.

The ensign of this order is a medal of gold, enriched with diamonds, having on one side the image of St. Catharine, and on the other a cross pattée, enamelled. This is worn pendant to a broad white ribbon resting on the right shoulder, and brought under the left arm. On the left breast

breast of the upper vestment is an imbroidered star with a cross in the centre, and this motto round it; *Pour l'amours et la fidelité envers la Patrie*; which was intended to commemorate the display of those virtues in the behaviour of Catharine on the banks of the Pruth. This order is bestowed only on ladies; it is extremely honourable; and worn only by a few of the first distinction, among whom are several of eminent rank in Germany. In 1790 their number was 25.

CATHARINE, *St. Island of*, in *Geography*, an island in the captainship or province of St. Vincent, on the coast of Brazil, extending from $27^{\circ} 19' 10''$, to $27^{\circ} 49'$ S. latitude, and in W. longitude $47^{\circ} 37'$. Its breadth from E. to W. is not more than two leagues in the narrowest part. It is separated from the continent only by a channel of 200 toises in width. On the point at the mouth of this strait is built the city of "Nossa Senhora del Desterro," the capital of this commandery, where the governor resides. It contains, at most, 3000 inhabitants, and about 400 houses; and its appearance is very pleasing. According to Frezier's account, this island served, in 1712, as an asylum for a number of vagabonds, who escaped thither from different parts of Brazil, and who were but nominally subject to Portugal, as they acknowledged no lawful authority. The country is so fertile that they were able to subsist without any supplies from the neighbouring colonies; and as they were destitute of money, they could neither offer a temptation to the avarice of the governor-general of Brazil, nor inspire him with the hope of subduing them. The vessels which touched there gave them nothing in exchange for provisions but clothes and shirts, of which they were almost destitute. It was not till about the year 1740, that the court of Lisbon established a regular government in this island, and the adjacent parts on the continent. The government extends from north to south 60 leagues, from the river St. Francisco to Rio-grande. Its population amounts to 20,000, and is visibly increasing. Its present state is very different from that in which Frezier and lord Anson found it; as it has been considerably increased by the introduction of a great number of families, at the expence of the Portuguese government, during the years 1752, 1753, and 1754. This increase of population gave a new face to the establishment; and as these new colonists were diligent, laborious; and skilled in agriculture, the progress of the population must have been augmented, in proportion to these qualities of the inhabitants, and the great fertility of the soil, which produces, almost spontaneously, all sorts of fruits, vegetables, and grain. Its air is wholesome, and the inhabitants are healthy. Sassafras, guaiacum, oranges, lemons, citrons, cotton, and other trees, grow here in great perfection; and the potatoes of St. Catharine's are esteemed the best in the world. The island is covered with trees, that are always green; but so intermixed with briars and thorns, that the forests are impassable, without cutting away with the hatchet; and these are said to be infested with serpents whose bite is mortal. The houses, both on the island and continent, are all on the edge of the sea; and the woods which surround them yield a most delightful fragrance, from the number of orange-trees, and other aromatic plants and shrubs, with which they abound. Notwithstanding these advantages, the country is very poor, and wholly destitute of manufactures; inasmuch that the peasants are almost naked, or covered with rags. Their soil would be very suitable for the cultivation of sugar; but not being rich enough to purchase slaves, it is said that they cannot employ it for that purpose. The whale-fishery is very productive; but the crown has conferred an exclusive right to it on

a company at Lisbon. This company has, upon the coast, three considerable establishments, where they take about 400 whales every year, the produce of which, both in oil and spermaceti, is sent to Lisbon by way of Rio-Janeiro. The approach of ships to this island is very easy; as at 18 leagues in the offing there are 66 fathoms of water, over a bottom of soft mud, gradually shoaling till within four cables' length of the shore, where there are still four fathoms of water. The ordinary channel is between the island of Alvaredo and the north point of St. Catharine; but there is another between the islands of Gal and Alvaredo, which, however, has not yet been sufficiently explored. The best anchorage is half a league from Fortre's island, in six fathoms, and oozy bottom; the citadel bearing S. 3° W., the fort on the larger point S. 6° E. There are several watering places both on the island and the continent; and that creek may be chosen where the wind renders the landing most easy. The navigation of boats is very difficult in this harbour, which is two leagues wide as far as the bight where the town stands; and there is a violent surf always breaking on the lee-shore. The tides are very irregular; and the flood comes in between the two channels lying north and south. Up to this bight it rises but three feet. In this harbour provisions of every kind may be easily and cheaply procured, as they are very plentiful. A large ox costs eight piastrs, a hog of 150lb. weight costs four, and turkies are sold for a piastr the pair. Fish may be obtained in abundance by merely throwing the net. Oranges are sold at the rate of 500 for less than half a piastr, and vegetables of every kind are reasonable. The inhabitants are very hospitable, and their manners are gentle and obliging; but they are very superstitious, and jealous of their wives, who never appear in public. The government is in this island, as it is in all the Portuguese colonies, purely military. It has three forts, which form nearly an equilateral triangle, the base of which is to the northward, and the vertex towards the south. That to the east stands on the N.E. point of St. Catharine, about $\frac{1}{2}$ of a league from the Perroquet island; that to the west, which is the most considerable, is on an islet near the continent of America, and the third is upon the largest of the two islands called "Les Ratones." The road, which is open only to the N.E. winds, is sheltered to the east by the island of St. Catharine, and on the west by the continent; on the south by the land both of the island and the continent, which approach so near, that they leave between them only a strait of less than 300 toises wide. Its entrance cannot by any means be shut against ships of war of any rate or construction. It is so extensive that although the forts are mounted with guns of a great calibre, ships may anchor there very commodiously and securely, out of the reach of these guns. The principal fort, which is in fact only a large enclosed battery, is situated on a little island, of moderate elevation above the level of the sea, at about 300 toises from the terra firma, and opposite a rideau much higher than itself, is incapable of making a regular defence; yet this fort is the post of honour, where the general officer, who commands the whole settlement, would fix his quarters in case of an attack; but in time of peace he resides at "Nossa Senhora del Desterro," a town that is absolutely open, and only defended by a small battery, *à barbette*, on the island of St. Catharine, and on the easternmost point of the little strait above-mentioned, behind which the town is built. The garrison of the principal fort was, in 1785, composed of 50 men, badly clothed and ill paid, under the command of a captain. Peroué's Voyage, vol. i. and ii.

CATHARINENBURGH, or ECHATERINENBURG,
N a province

a province of Asiatic Russia, formerly included in the government of Tobolsk, and since constituting one of the two provinces of the government of Perm. This is also the name of one of the seven districts of the province, seated on the river Isset, not far from its origin. Near Catharinensburgh are gold mines; the ore is very martial, commonly of a cubic form in a quartz matrix; and the gold is extracted by washing. The annual produce of pure gold never exceeded 200 pounds, and was commonly much less; in 1772 it was only 100 pounds. The gold is obtained at the rate of 40 guineas per pound; when coined, it produces 68l. 5s. so that the profit is not very considerable. At Catharinensburgh the crown has established a mint for coining the copper, produced from the imperial and private founderies, into that species of money which is current throughout Russia, and is transported by water to Moscow, Petersburg, and other parts. The value of copper money, annually coined, is 400,000l. The crown receives a pood of this metal upon an average at 1l. 2s. 6d. and issues it, when struck, at 3l. 4s.; so that government gains upon the copper coinage 257,625l. The town is seated upon the river Isset, which runs through it, and is regularly built in the German manner. It was begun by Peter I. in 1723, and finished in 1726 by his consort the czarina Catharine, from whom it derived its name. This town may be reckoned the centre of all the Siberian mine-works belonging to the crown; and on this account it is the residence of the director of the Siberian mines, who issues out his instructions to the sub-directors, and passes their accounts.

CATHARINENSLAF, **CATHARINOSLAV**, or **ECATERRINENSLAF**, a government of Russia, which contains the greatest part of that territory which was wrested by the late empress Catharine II. from the Turks, and comprises New Russia, the former government of Azof, and Crim Tartary. It is divided into two provinces, viz. Catharinenslaf, including New Russia and Azof, and comprehending 14 districts, and Taurida or Crim Tartary. It is also the name of one of the districts of the province, seated on the Dnieper.

CATHARINENSLAF, **CATHARINOSLAV**, or the "glory of Catharine," the capital of the province built by the late empress, and seated near the spot where the small river Kiltzin falls into the Samara. It is colonized by many Greeks and Armenians from Crim Tartary, and by others who served in the preceding war against the Turks; 78 miles N.E. of Cherson. N. lat. 47° 23'. E. long. 35° 15'.

CATHARMA, from καθάρω, *I expiate*, in *Antiquity*, some miserable or flagitious wretch, sacrificed to the gods, as an expiation for the plague, or other calamity. Such was the prophet Jonas, cast into the sea; and such, as some have supposed, does St. Paul with himself to be. See **ACCURSED**.

CATHARMA, καθάρμα, from καθάρω, *to purge*, in *Medicine*, imports the excrements purged from any part of the body; as the stomach, intestines, or bladder.

CATHARMOS, in *Medicine*, of the same derivation, implies purgation by medicines, or the cure of a disorder by superstitious ceremonies or sacrifices. The cure of the king's evil, by the royal touch, if such a thing had been effected, might be said to be performed by a *catharmos*.

CATHARPINS, in the *Rigging of a Ship*. See **CATHARPINGS**.

CATHARTIC EXTRACT. See **EXTRACTUM catharticum**.

CATHARTIC salt, *sal catharticum amarum*, a denomination given to what we improperly call Epsom salt.

CATHARTIC medicines, are those substances which quicken and increase the evacuation from the intestines by stool.

Medicines of this class have been employed by physicians

since the first dawn of physic; and have been administered with various views and intentions, according to the prevalent theories of the time, or the favourite doctrines of individuals. Those who were tinctured with the tenets of judicial astrology, prescribed purgatives at certain times and seasons; conceiving that they would prove more beneficial or hurtful, according to the junction or opposition of the planets, or the age of the moon. Those again, who were partial to the doctrines of the humoral pathology, employed cathartics with the intention of expelling peccant matter which had been separated from the mass of fluids by an appropriate fermentation. The same pathologists taught that different cathartics possessed distinct powers, and moved different fluids by a specific action. Hence they have denominated some of these substances *cholagogues*, others *phlegmagogues*, *hydragogues*, and *melanagogues*, as they were supposed to expel more particularly bile, phlegm, water, &c.; and they have displayed much apparent sagacity, in selecting the cathartic adapted to the expulsion of the fluid prevalent at the time. But these doctrines are now exploded, and the specific operation is not confirmed by subsequent experience.

Modern physicians have two objects in view in the administration of cathartic medicines; the one is to empty the bowels simply, or to bring off their contents, which are out of the course of the circulation, and therefore, already, in a manner, extraneous to the body; the other is to excite an increased secretion of fluids into the cavity of the intestines, or, in other words, to induce purging. The medicines thus employed have generally been assorted into two classes; those which produce the former effect, being denominated *laxative*, and those conducing to the latter, *purgative*.

The operation of a purgative medicine on the intestinal canal may be considered as three-fold. In the first place, it stimulates the muscular fibres of the intestines, quickens their action, and therefore augments the natural peristaltic motion of the bowels, by which means their present contents are more quickly propelled and discharged. Secondly, it stimulates the exhalent vessels, which terminate in the inner coat of the intestines, and excites them to pour out a more copious discharge of fluids; and also the mouths of the excretory ducts of the mucous glands, by which the natural mucus of the intestines is much increased; and hence the evacuations by stool are not only quicker, but the fecal matter is thinner and more abundant. And, thirdly, the stools are rendered still more copious, by an additional portion of the fluids furnished by the neighbouring viscera, the liver, pancreas, &c. to which the stimulus of a purgative, especially of the more active ones, extends. These effects are probably communicated to the whole range of the intestinal canal, from the upper orifice of the stomach to the lower extremity of the rectum, or anus.

From this view of the immediate effects of cathartic medicines upon the intestines, their utility in some diseases, and their injurious tendency in others, as well as the necessity of varying their degree of activity under different circumstances, will be readily understood.

If we consider the great length of the alimentary canal, and the number of vessels and mucous follicles, as well as the larger ducts from the liver and pancreas, which open upon its inner surface, it will be obvious that purgatives, even of a moderate stimulating power, by opening at once all these outlets, may occasion a great general evacuation and diminution of the fluids of the body. Hence, in acute inflammatory diseases, where over-distension of the vessels is to be avoided, and the preternatural increase of the active powers of the system is to be restrained, the evacuation of the intestines by purging is (next to blood-letting) the most powerful expedient,

dient, and generally makes an important part of what is called the cooling or antiphlogistic plan of treatment. When purgatives are given with this intention, however, the principle must be pursued with some limitation, and those of the most acrid and drastic nature must be avoided; because the diminution of general stimulus produced by the depletion of the vessels, and the expulsion of the fæces, would be counterbalanced by the extraordinary irritation of an acrid purge.

Another circumstance apparently results from the evacuation by purging, which renders it of considerable importance in particular diseases; namely, a change in the distribution of the blood to the different parts of the system. It seems to follow, of necessity, that if an evacuation be made from one set of vessels, the afflux of fluids to these will be increased in order to supply it, and, consequently, the afflux to other parts of the system will be diminished. Upon this principle, Dr. Cullen explains the utility of purgatives in disorders of the head, which arise from over-fullness or over-activity of the vessels of the brain; such as apoplexy, and other comatose affections, mania, phrensy, head-ach, &c. The afflux of fluids in the vessels of the abdomen, which supply the intestines, being increased by purging, the afflux will be proportionally diminished in the vessels which carry blood to the head, and both the quantity and impetus of the blood in the head will thus be lessened. (Cullen, *Mater. Med.* vol. ii.)

In the same way he partly explains the good effects of cathartics in the small pox, and other cutaneous diseases, from the balance of the distribution of the fluids between the internal parts and the external surface. But it is probable that they are more useful by removing the local irritation of the fæces, and occasioning a considerable depletion, and a consequent diminution of fever in the system at large. For in diseases of the skin, unconnected with fever, their good effects are very inconsiderable.

Whenever the contents of the intestines are morbidly retained, whether in consequence of a slowness of the peristaltic motion, from a torpor of the moving fibres; or from a laxity of the intestines, which permits the fæces to accumulate; or from a deficiency of bile; or from habitual neglect of regular evacuation; (see *CONSTIPATION*;) the use of cathartics of one kind or the other is indicated, in order to prevent the accession of more serious complaints, which will ultimately result from the costiveness. The nature of the cause, or the concomitant circumstances will point out the particular sort of medicine, which may be most appropriately employed. If the costiveness, for instance, be accompanied with a flaccid habit, or with symptoms of nervous mobility, or much flatulence, and irregular distention of the bowels, some of the warmer aromatic laxatives should be administered. If the secretion of bile appear to be deficient, mercurial and aloetic medicines, the latter of which tend to supply the deficiency, and the former to restore the bilious secretion, should be preferred.

In those cases, however, in which the morbid retention of fæces is not habitual, but accidental, and accompanied with some more acute symptom;—as with violent pain, constituting the colic;—with pain, tenesmus, and slimy or bloody stools, as in dysentery;—or with pain and acute fever, as in inflammation of the bowels;—cathartics, though absolutely necessary, must be varied in their nature and mode of administration, after a cautious view of the circumstances. In colic, for example, they will be of little advantage in many cases, and more especially in the colic produced by lead, until the painful spasmodic constriction of the bowels has been relaxed by the previous use of opiates. In dysentery, they must be combined or alternated with opiates, otherwise the irritation

which they occasion, in that tender state of the intestines, will counterbalance the effects of the evacuation, and keep up the symptoms of the disease. And in enteritis, or inflammation of the coats of the alimentary canal, the same irritation will tend to increase the inflammatory condition, and the consequent constriction, and therefore impede, rather than expedite, the evacuation of the fecal matter, if they be employed before blood-letting and other remedies have reduced the inflammatory state. See *COLIC*, *DYSENTERY*, &c.

In a work lately published by an excellent practical physician, Dr. James Hamilton of Edinburgh, a degree of importance is assigned to cathartic medicines, in the treatment of several diseases, which they have not hitherto been considered as entitled to. Independently of the generally admitted opinion, that a loaded and congested state of the intestinal canal is a common cause of general bad health, he maintains that this state usually accompanies and aggravates the other symptoms of fever; and that it is also the immediate cause, or a leading and permanent symptom, of certain disorders peculiar to children and young people; these are *chorea*, or St. Vitus's dance; *marasmus*; *chlorosis*, or green sickness; *Hamatemesis*, or vomiting of blood; and even in *Hysteria*, and some chronic nervous diseases. In these diseases he never uses medicines in a purging dose; his intention being simply to expel the present contents of the intestines, and not to increase the secretion of the fluids into them. He considers glysters as inefficient expedients for moving and conveying off, through the whole extent of the intestines, the feculent matter, rendered offensive and irritating, especially in fevers, by constipation, and by the changed nature of the secreted fluids, which seems to take place in the febrile state. In Typhus fever, he says, "it is now some years since I have left off almost entirely the practice of ordering emetics and glysters. I trust to a purgative, to ensure a regular alvine evacuation: for this purpose, however, a daily purgative is not always required. Thus I think I conduct the treatment of typhus fever to a favourable issue, with more certainty, and with the greater ease and comfort of the patient." We have had an opportunity, in a few instances, of verifying in a very satisfactory manner this important practice.

Chorea, or St. Vitus's dance, has been almost invariably treated with tonic medicines, especially with bark and metallic preparations, and with various stimulants and antispasmodics. It is unnecessary to say with how little effect in general. In every instance Dr. Hamilton has found that a large quantity of black and offensive feculent matter was collected in the bowels, and his plan of cure has consisted in a regular exhibition of laxatives, until the stools (which in all the diseases before mentioned should be regularly examined by the practitioner) assumed their natural appearance. With this intention the practitioner must persevere firmly in his measures, especially in the confirmed state of *chorea*; for if he relaxes he will be unsuccessful. By this treatment, which consisted in giving three grains of calomel, with six, eight, or ten, of jalap, daily, "*Chorea* is speedily cured, generally in ten days or a fortnight."

By means of the same, or similar medicines, exhibited in the same way, he has speedily succeeded in removing the symptoms of *chlorosis*, and *hamatemesis*, and of some other hypochondriacal and nervous complaints: and he attributes the relief, which patients under these disorders derive from drinking mineral waters, to their purgative qualities, rather than to any other property which they may in a slight degree possess. (See *Observations on the Utility and Administration of Purgative Medicines*.)

When morbid or extraneous bodies are introduced into or generated

generated in the intestines, as in the case of worms, &c. cathartics are obviously indicated. But it should be observed, that the indiscriminate use of active purgatives in these cases, especially in young and delicate children, is often productive of more harm to the constitution, than the worms which they are intended to expel. They should be administered sparingly, and at some intervals; sufficient time being interposed for the operation of medicines, which may be deleterious to the animals, and of those, which, by invigorating the intestines, may prevent that morbid production of mucus, which is probably a nidus favourable to their generation.

Cathartics, either in a laxative or purgative degree, are useful in several other complaints, partly by exciting the intestines to evacuation, and partly in consequence of the extension of their stimulus to the neighbouring viscera of the abdomen: as in jaundice, indigestion, suppression of the menses, &c.

Another important operation of cathartic medicines remains to be noticed; namely, the stimulus they exert on the absorbent vessels, by which these vessels are excited to an unusual action, and thus to take up fluids which are morbidly effused. The fact is undoubted, whatever may be the principles on which it is explained. Dr. Cullen observes, on this subject, that, "as in every cavity of the body there is an exhalation and inhalation, or absorption, constantly going on, it is presumed that there is some balance constantly preserved between the secretory and absorbent powers; so that if the former are increased, the latter will be also; and, therefore, that when the secretions are, upon occasion, much increased, the action of the absorbents may be particularly excited. This explains why purging often excites the action of the absorbents, to take up more copiously the fluids that were otherwise stagnant in the adipose membrane, or other cavities of the body, and thereby often proves a cure of dropsy." (Mater. Med. vol. ii. p. 502). This explanation is perhaps, little more than an explicit statement of the fact. It is certain, however, that *ascites*, or dropsy of the abdomen, has been often affected by means of acrid, drastic purgatives, such as gamboge, scammony, &c. when diuretic remedies have failed. But it is obvious that these remedies can only be administered to those, who retain considerable strength of constitution, debilitated neither by inveterate intemperance, old age, nor a long disease.

Cathartic medicines may be introduced into the alimentary canal either by the month, or by the inferior aperture in the form of clyster. The preceding observations apply to the former mode of administering them. The latter must be adopted in those cases, in which the stomach is unable to retain, or would be injured by irritating medicines; as in *gastritis*, or inflammation of the stomach, and in febrile complaints attended with extreme debility, especially in the latter stages: since by this mode the contents of the lower parts of the intestines are simply evacuated, without any stimulus to the secreting vessels, and with little or no irritation of the system at large. See *CLYSTER*.

In delicate and irritable constitutions the ill effects of an active purgative may be considerably diminished, without impairing its evacuating power, by combining a portion of opium with it. The nausea and griping, which are excited by some species of cathartics, may be alleviated by the addition of some aromatic medicine; or by the minute division of the substance by means of trituration with some other; as of jalap with crystals of tartar, &c.; or by giving it in divided doses at short intervals. This last mode is

generally to be preferred with regard to very drastic cathartics; by which means the full effect is ensured, and any severe or dangerous degree of irritation is avoided.

CATHAY, in *Geography*, an ancient name of China; which see.

CATHEDRA, in a general sense, a chair.

The word is more particularly used for a professor's chair, and a preacher's pulpit.

CATHEDRA is also used for the bishop's see, or throne, in a church.

CATHEDRA, *ex*, a phrase used in speaking of the solemn dictates or decisions of prelates, chiefly the popes, delivered in their pontifical capacity.

The advocates for the papacy maintain, that the pope is infallible, *ex cathedra*, a term of modern theology entirely unknown to the ancients. Even those who used it do not agree in the explication of it.

CATHEDRAL, a church wherein is a bishop's see, or seat. See *CHURCH* and *BISHOP*.

The word comes from the Greek *καθεδρα*, *chair*, of *καθίζω*, *sedeo*, *I sit*.

The denomination cathedral seems to have taken its rise from the manner of sitting in the ancient churches, or assemblies of primitive Christians; in these the council, i. e. the elders and priests, was called *presbyterium*; at their head was the bishop, who held the place of chairman, *cathedralis*, or *cathedraticus*; and the presbyters, who sat on either side, were also called by the ancient fathers *assessores episcoporum*. The episcopal authority did not reside in the bishop alone, but in all the presbyters, of whom the bishop was president.

A cathedral, therefore, originally, was different from what it is now; the Christians, till the time of Constantine, having no liberty to build any temple; by their churches, they only meant their assemblies; and by cathedrals, nothing more than consistories:—whence appears the vanity of some authors, especially the Spaniards, who pretend their cathedrals to have been built in the times of the apostles.

CATHEDRAL Service. At the beginning of the reformation, the whole English choral service, including the preces, prayers, and responses, was set to musical notes, and first published in 1550, by John Marbeck, organist of Windsor. The premature reforming zeal of this musician, nearly made a martyr of him, in the time of Henry VIII. He had, indeed, the honour of being condemned to the stake, with three other persons, who were burnt for heresy, but was pardoned by the intercession of sir Humphrey Foster.

His notation of the English cathedral service was published under the following title:

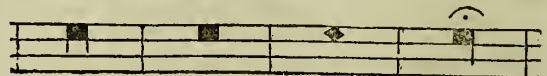
The Booke of Common-Praiser, noted.

1550.

Imprinted by Richard Grafton, Printer to the Kinges Majestie, *cum privilegio ad imprimendum solum*.

As this book is become very scarce, we shall present the reader with a considerable extract from it.

"In this booke is conteyned so muche of the order of common-prayer, as is to be song in churches: wherein are used only these iiiij sortes of notes.



The

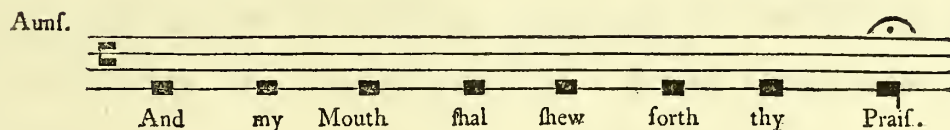
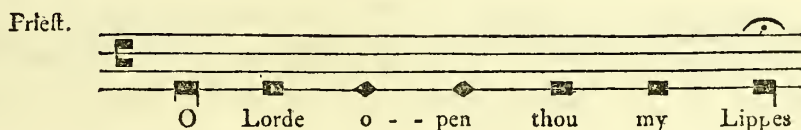
CATHEDRAL SERVICE.

The first note is a strene * note, and is a breve. The second is a square note, and is a femy-breve. The iii, a prycke and is a mynymme, and where there is a prycke by the square note, that prycke is half as much as the note that goeth before it. The iiii is a clofe, and is only used at the end of a verse."

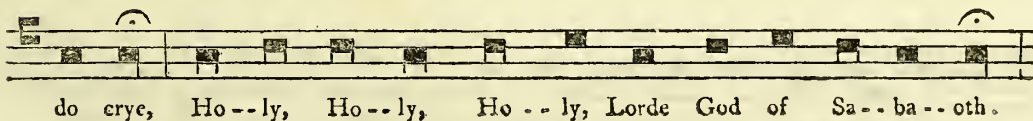
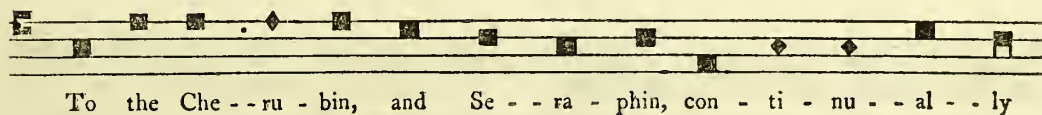
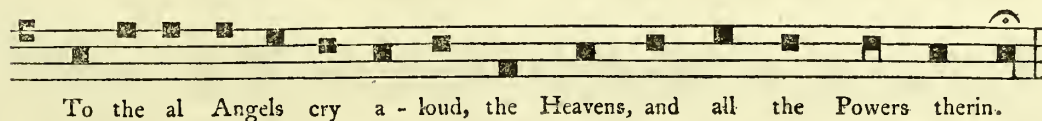
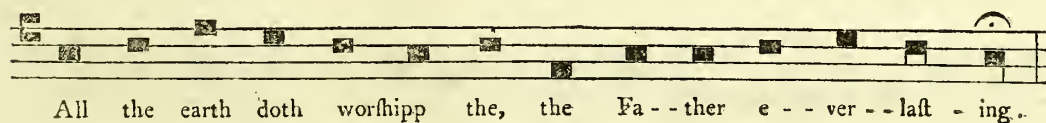
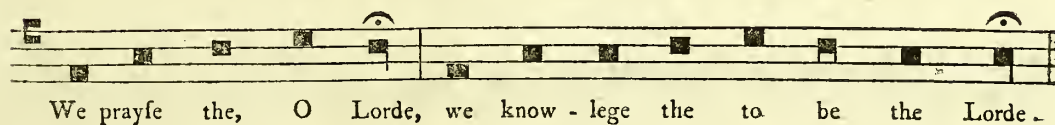
* Strained, or stretched out: perhaps from its being the longest note used in chanting. Junius makes strene and strain synonymous.

MATTINS.


The Quere with the Priest.




Te Deum Laudamus.




CATHEDRAL SERVICE.



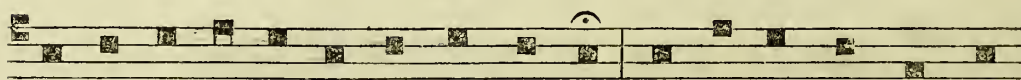
Heaven and Earth are full of the Ma - jef - tye of thy Glo - rye.



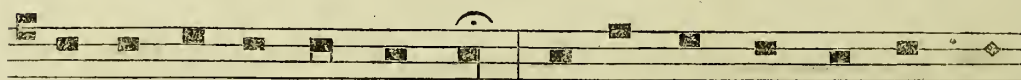
The glo - ri - ous Com - pa - ny of the A - post - les prayfe the.




The good - - ly fel - - low - - ship of the Prophettes, prayfe the.



The no - ble Ar - my of Martyrs prayfe the. The Ho - ly Church throughout




all the World doth knowlege the. The Fa - ther of an in - fin -




- - ite Ma - jef - - tye. Thy ho - - nor - - a - - ble, true, and on - - lye Soane.




Al - - fo the Ho - - ly Ghost the Comfort - - er. Thou arte the Kyng of




Glorye, O Christ. Thou arte the e - verlaft - - ing Sonne of the Fa - ther.



When thou tokeft up - - on the to de - - li - - ver Man thou dideft not




abhorre the Virgins Wombe. When thou haddeft o - vercome the sharpnes




of Death, thou dideft open the Kyngdome of Heaven to all be - lievers.


CATHEDRAL SERVICE.




Thou fitteſt on the right hand of God, in the Glo - ry of the Fa - ther.



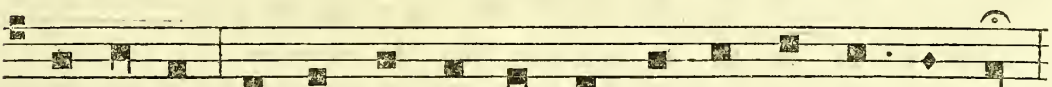
We be - lieve that thou ſhalt come to be our Judge. We ther - fore pray



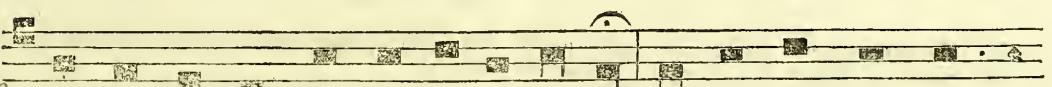
the, help thy ſervauntes whom thou haſt re - deem - ed with thy pre - ci -




- ous blood. Make them to be nombred wyth thy Saints in Glo - ry e - -




- verlaſt - ing. O Lorde, ſave thy people, and bleſſe thyne he - - ri - tage.




Governe them and liſt them up for e - - ver. Day by Day we mag - ni -




- - fie the And we worſhipp thy Name e - - ver World. wyth - out end;




Vouchſafe, O Lorde to kepe us this Day without Sinne. O Lorde have



Mer - cy up - - on us, have Mercy up - - on us. O Lorde. lett thy



Mer - cy lighten up - on us, as our truſt is in Thee. O Lord



in Thee have I truſted, lett me ne - - ver be con - founded.

CATHEDRAL SERVICE.

After the Second Lesson one of these that follow.

BENEDICTUS DOMINUS.



Blef - fed be the Lorde God of If - - ra - - el

for he hath Vifit - - ed and Redeem - ed his People, &c.

Blef - fed be the Lorde God of If - - ra - - el for he hath

Vi - fi - ted and Re - de - med his People, &c. to the end.

In this manner the whole Morning and Evening Service, as it is now Chanted, is fet; except the Litany. At the end is the name of JOHN MERBECKE.

At this time, the *plain-song* of the Romish church in the chants of the principal hymns and responses, remained nearly the same, as may be seen in comparing the *Te Deum laudamus*, and other parts of the cathedral service, in this publication, with the missals, graduals, and antiphonaria of those times. The chant to the *Te Deum*, as published by Meibomius, (*Antiquæ Mus. Anct. Sept. Amst. 1652. Vide præf. Lectori benevolo*.) from a copy nearly as ancient as the hymn itself, and another example of the same Canto Fermo, given by Glareanus, (*Dodecad. p. 110.*) in 1547, correspond exactly with that which was retained by Marbeck, at the time of the reformation: as the mode, the dominant, and medius, are all the same; nor is the least deviation discoverable, except where the different number of syllables in the translation required it, and which affect the melody no more, than those slight changes which happen in the manner or use of any two choirs in singing the same chants, or even in adjusting different stanzas of any song to the same tune.

Marbeck was admitted, in 1549, to the degree of bachelor in music, at Oxford, according to Anthony Wood, (*Fast. Oxon.*) who erroneously calls him James Marbeck: he is honourably mentioned by Bale, because he had been persecuted by the Catholics, and his name is omitted by Pitts, for the same reason.

It seems as if we may safely conclude, that the chief part of such portions of Scripture, or hymns of the church, as have been set by English musicians to Latin words, were produced before the reformation, or, at least, in queen Mary's time; that is, before the year 1558, when queen Elizabeth ascended the throne, by which time a school of counterpoint was formed in this country, that was equal, at least, to that of any other part of Europe. A reason, however, may be assigned for the choral music of every

Christian country approaching perfection by nearly equal strides.

Before the reformation, as there was but one religion, there was but one kind of music in Europe, which was plain chant, and the discant built upon that foundation; and as this music was likewise only applied to one language, the Latin, it accounts for the compositions of Italy, France, Spain, Germany, Flanders, and England, keeping pace with each other, in style and excellence. All the arts seem to have been the companions, if not the produce, of successful commerce; and they will, in general, be found to have pursued the same course, which an admirable modern historian has so well delineated: (*Hist. of Charles V. vol. i. sect. 1.*) that is, like commerce, they will be found, upon inquiry, to have appeared first in Italy; then in the Hanseatic towns; next in the Netherlands; and by transplantation, during the 16th century, when commerce became general, to have grown, flourished, matured, and diffused their influence, in every part of Europe.

If this were a place to illustrate such an idea, it would be easy to shew, that ecclesiastical music, in the middle ages, was all derived from the papal chapel, and court of Rome; that counterpoint was first cultivated for their use; that it travelled thence to the Hanseatic towns, and the Netherlands, where the affluence, which flowed from successful commerce, afforded encouragement and leisure for its cultivation; till about the middle of the 16th century, when, by the general intercourse which traffic and the new art of printing introduced, all the improvements in harmony, which had been made in Italy and the Low Countries, were communicated to every other part of Europe; which not only stimulated the natives to adopt and imitate them, but to improve and render them more perfect, by their own inventions and refinements.

CATHE-

CATHEDRATIC *doctor, doctor cathedra*, denotes a doctor possessed of a chair or fellowship in some of the universities of Spain.

They say a *cathedra* *doctor* of Salamanca, of Alcalá, &c.

CATHEDRATICUM, in *Ecclesiastical Writers*, denotes a sum of money, amounting to two shillings, anciently paid annually by the inferior clergy to their bishop, or as often as he visited his diocese, *ob honorem cathedrae*, i. e. as an argument of their subjection, and for the honour of the bishop's see or cathedra. This was otherwise denominated *synodaticum*, and by modern writers *PROCURATION*.

CATHEDRATICUM also denotes a sum which bishops newly ordained gave partly to bishops or patriarchs, by whom they were consecrated, and partly to the clerks and notaries who officiated on the occasion.

This was also called *επισκοπικον*, as being given on account of the throne, or chair, they had now obtained, and *synodaticum*, or **SYNODALS**.

Bishops consecrated by patriarchs or metropolitans, provided their church was not worth less than thirty pounds of gold, were to pay a hundred solidi by way of *cathedra* *taticum*.

CATHEM, in *Geography*, a town of Arabia, 80 miles S. of Bassora, and 170 N. of El Catif. N. lat. 29°. E. long. 47° 14'.

CATHENON. See **CATTENOM**.

CATHERETIC. See **CATHARETIC**.

CATHERINA, SANTA, in *Geography*, a small Grecian island, which seems to have been detached from the south point of the isle of Rhodes. It is a remnant of the land which joined it to another country, in like manner insulated, and which bears the name of the island of Scarpanto.

CATHERINE, in *Biography*. See **CATHARINE**.

CATHERINE, ST. in *Geography*, a pleasant island in the harbour of Sumbury, and state of Georgia, in North America.—Also, a small productive island on the south coast of St. Domingo, 20 leagues E. of the town of St. Domingo.

CATHERINE'S Town, a town of America, in the state of New York, and county of Ontario, situate 3 miles S. of the S. extremity of Seneca lake.

CATHERINE Bay lies at the E. end of the island of Jersey, southward of the point so called, and affords a good road in westerly winds.

CATHERINE, ST. Cape, lies on the W. coast of Africa, in S. lat. 2° 9', and E. long. 10° 38'.

CATHERINE'S Foreland lies in the straits of Maghellan, near the east end. N. lat. 52° 48'. W. long. 67° 50'.

CATHERINE'S Island, an island of N. America, on the coast of Florida. N. lat. 31° 36'. W. long. 81° 41'.—Also, an island off the coast of Honduras. See **PROVIDENCE island**.

CATHÉRINE Sound lies, with a small island of the same name, on the coast of Georgia, in N. America, in 31° 10' N. lat.

CATHERINE'S St. Tower, a sea-mark on the summit of St. Catherine's hill down, on the back of the Isle of Wight, about 750 feet higher than high-water mark. N. lat. 50° 34'. W. long. 1° 19'.

CATHERLOUGH. See **CARLOW**.

CATHETER, in *Surgery*, a curved tube employed for drawing off the urine, or injecting fluids into the bladder. The term *καθετήρ* is derived from *καθίημι*, *demitto*, *to thrust into*; and although it signifies a hollow instrument, or syphon, for the above purpose, in the writings of Celsus, Galen, and Paulus Ægineta, this word has a very different meaning in

the works of Hippocrates, who uses it to denote a piece of twisted cotton or lint introduced into ulcers. Vide *Defin. Medic. Gorrhæi*.

It appears from lib. vii. cap. 26. of Corn. Celsus's surgical work, that catheters were formed at first of polished copper or brass, though the Arabians made them of silver, lead, tin, or leather; and there can be no doubt that they were used by the ancients, not only for drawing off the urine, but for the purpose of removing obstructions in the urethra, as we now employ *bougies*: this is further evident from a passage in Galen, *De Locis Affectis*, lib. i. where he treats of *caruncles* in the urinary passage. See likewise Galeni *De Meth. Med. lib. v. cap. v.*

It is also perfectly certain (notwithstanding the late claims of Mr. Jesse Foot, in his tract upon the "*Vesicæ Lotura*,") that the older surgeons were accustomed, on various occasions, to inject the bladder through a catheter or cannula, precisely in the manner we administer an *enema*. Vide Pauli Æginetæ, lib. vi. cap. 59. "*De Catheterismo & Clystere Vesicæ*;" likewise, Albucasis, lib. ii. sect. 59. "*De Modo Vesicæ Liqueorem Syringa infundendi, & de Forma Instrumentorum ad hoc idoneorum*." Gorrhæus describes the operation of using the catheter as follows: "*Καθετηρισμός* est administrationis chirurgicæ ratio qua injicimus per *Catheterem* in *vesicam* id quod ad ejus curationem convenit; vel eximimus id quod impedit ne urina reddatur, sive concretus intus sanguis sit, sive aliud quippiam, recto siphone immisso, quem Græci *καθετήρ* vocant." For a particular account of the ancient modes of injecting the urinary bladder, we refer the inquisitive reader more especially to the 59th section of Albucasis, already quoted, and to Avicenna, lib. iii. Fen. 19. Tract. 2. cap. 9. This practice was continued by several surgeons of the middle age, but soon afterwards appears to have been generally neglected, until it was revived by Le Dran.

Although the original as well as the present use of the catheter must necessarily have required it to be made of a tubular form, it is strange that this instrument has been described by many respectable French surgeons as a solid instrument! Thus, for example, M. Sue (in his *Dict. de Chir.*) expressly says, "*Mal-à-propos confond-on le cathéter avec la sonde: Le cathéter n'a point de cavité intérieure, mais seulement une cannelure qui regne tout le long de sa partie convexe, au lieu que le sonde est creusée intérieurement. Le premier instrument sert à connoître les pierres qui sont dans la vessie, & à faire l'opération de la taille. Le second sert à évacuer l'urine contenue dans la vessie. Il est vraie que, dans plusieurs cas, celui-ci peut supplier à l'autre, mais non pas le premier au second.*" Again he tells us, "*Le cathétérisme n'est autre chose que l'introduction du cathéter dans la vessie, pour s'assurer de l'existence d'une pierre, ou faire l'opération de la taille & non pas pour évacuer l'urine; ce qui peut se faire qu'avec la sonde.*"

In the old French *Encyclopédie*, M. Louis says, that "some authors are accustomed to give the name of catheter more particularly to a grooved sound which serves to conduct the lithotome in the operation of cutting for the stone;" whereas, by all English surgeons, this instrument is called a *staff*. (See Article **LITHOTOMY**.) The *staff* is a solid steel instrument, without any groove: the *staff* is made of the same form and materials as the *sound*, but is grooved on its convex side; and the *catheter* is hollow throughout its whole extent, whatever materials it be made of. The *sound* and the *staff* are always curved to the shape of the urethra, and are inflexible; but the catheter may be made either of a rigid or a yielding substance; and in the

former case it must also be curved like the sound. The flexible catheters are now generally made of wove silk cylinders, covered with a coat of elastic gum: the best have been fabricated hitherto by M. Bernard of Paris, but they are at present well manufactured by Mr. Wallis of London. Their size and form vary, according to the sex or age of the patient. Bernstein, in his dictionary of surgery, gives the following account of this instrument, as it is fabricated in Germany.—“One of the most useful inventions which have been made with respect to these instruments, is to construct them of elastic gum, and the merit of this invention is to be ascribed, without doubt, to Mr. Theden. (*Neue Bemerkungen u. Erfahrungen, &c.* Th. ii. Berlin, 1782. pag. 143.) They were afterwards improved by a silver-smith at Paris, of the name of Bernard, who directed not to apply the dissolved elastic gum to a wire-cylinder, as Mr. Theden had done, but to one made of knitted silk; and these catheters certainly deserve to be recommended in preference to all others. But with respect to their price, the elastic catheters that are prepared by prof. Pickel, (*Richter's Chirurg. Bibliothek. B. vi. p. 512.*) of Wirzburg, deserve particular recommendation. These consist of silk cylinders plaited or worked upon a probe, and afterwards covered with the following varnish. Three parts of white lead, minium, or sugar of lead with boiled linseed oil, which is the common varnish used by cabinet makers, mixed with one part of melted amber, and the same quantity of oil of turpentine. With this varnish he spreads the silk cylinders, and repeats this three times as soon as the former coating has dried in the open air; after which he puts the catheters into a baker's oven 24 hours, when bread has been baked in it the last time, and when it retains the temperature of 60°—70° Reaum. Here he lets them remain 10 or 12 hours. When he has taken the catheter out of the oven, he rubs the inequalities off a little with pumice stone, sews up the end, cuts into it the oblong lateral aperture, and then spreads it 12 or 15 times more with the varnish formerly mentioned. Every time, however, the catheter must be well dried in the open air before the varnish is spread upon it again, and after every third coating which it has received, it must be put again into the bake-oven, so that in all it must have received from 15 to 18 coatings with varnish, and have been laid five or six times in the oven. The end is smoothed off with oil. Each of these catheters costs a dollar.”

The flexible catheters possess great advantages over those made of metal. For, in the first place, they can be introduced much more easily than the metal ones, even by an unpractised hand. 2. They may be suffered to remain in the urethra and bladder as long as is necessary, without occasioning much inconvenience. 3. There is no danger of injuring the tender surface of the urethra with them, or of pieces breaking off and remaining behind. 4. They may be used equally conveniently both for children and adults.

Another very important use may be made of elastic catheters in all cases in which the introduction of nourishment by the mouth is impeded or obstructed, as in wounds of the pharynx, in tetanus, hydrophobia, &c. In such cases an elastic catheter is introduced through the nose into the œsophagus, where it may be suffered to remain without occasioning any material inconvenience to the patient; and nourishment and drink may thus be introduced through it into the patient's stomach. In applying the instrument, it easily happens that the end of the tube gets into the larynx instead of the pharynx. This error is generally discovered merely by the circumstance that the flame of a candle, when held before the external aperture of the tube, is thrown into violent motion.—Dr. Hales describes a catheter of a new

structure, contrived for the more advantageous injection of lithontriptics into the bladder. Its cavity is divided lengthways by a thin partition into two separate channels, which end in two divaricating branches. By one of these branches the menstruum is to be injected into the bladder, in the common, or rather in the hydrostatic way, while it returns mixed with urine by the other. Hales, *Hæmorrh. p. 212.*

There is likewise a description in the *Philosophical Transactions*, vol. xliii. p. 400, of an ingenious catheter invented by M. Le Cat, at Rouen; and other surgeons have recommended an instrument made of silver-wire, flattened, and turned spirally, so as to be hollow and flexible. These contrivances are certainly very specious, but they are too complex to be useful in ordinary practice.

Concerning the introduction of the catheter into the urinary bladder, see the following article.

CATHETERISM, is the act of passing a catheter into the urinary bladder, with a view to draw off the urine, or to facilitate the introduction of fluids into the bladder by means of a syringe.

The introduction of a flexible catheter, of elastic gum, such as is in common use among surgeons, can scarcely give any trouble; unless there be a considerable obstruction in the urethra, which may prove the occasion of insuperable difficulties. The observations which follow are intended chiefly to apply to the silver male catheter, which is generally used in cases requiring an evacuation of urine, or the injection of some fluid into the bladder. This little operation, simple as it may appear to an inexperienced by-stander, is, in fact, sometimes one of the most perplexing to men of real ability, and therefore deserves the young surgeon's particular attention.

“I do not know,” says Mr. John Bell, in his *Principles of Surgery*, vol. ii. p. 209, “that even the operation of lithotomy itself is more difficult than that of introducing the catheter; more important it cannot be, than an operation which gives relief in accidents and difficulties so extremely common and so very afflicting.” The first cause of embarrassment in performing this operation arises often from the incumbent position of the patient, which renders it necessary (at least surgeons have generally thought it necessary) to pass the catheter with its concave part towards the abdomen. This position, however, except in male subjects requiring lithotomy, is seldom the most eligible; as we have found a standing posture by far the most convenient for the operator's accommodation, provided the patient is not exceedingly fat and corpulent.

Suppose the surgeon sits on a low chair, or kneels on his right knee, while the patient stands before him, leaning against something immovable. The operator then holds the penis with the middle finger of his left hand, and the glans with the fore finger and thumb of the same hand; chiefly in order to expose the orifice of the urethra. The handle of the catheter, previously oiled, he holds with his fore finger, thumb, and middle finger of the other hand, and directs it in such a manner that its straight posterior part is placed near the belly of the patient, and parallel with the axis of his body; and he thus introduces its point into the orifice of the urethra. The surgeon then draws the penis gently towards him and extends it, pushing the catheter forwards at the same time with the utmost caution, till its point has arrived at the bend of the os pubis; and in order now to introduce the catheter completely into the curvature of the urethra, the operator must suddenly depress the hand, with which he holds the upper part of the catheter, towards the thighs, and thus raise up the point of the instrument; so that it passes behind the pubis, into the bladder itself.

In the other method, the operator gives the catheter such a direction, with the hand next to the patient's thighs, as to turn the elevated convex part of the instrument upwards, and to place the straight part under the belly before the thighs; the point of the catheter is then cautiously introduced into the orifice of the urethra and the bladder, whilst the penis is somewhat extended with the other hand. When the point of the catheter has arrived at the place where the urethra passes under the os pubis, the operator must turn both the catheter and the penis, so as to make both describe a femicircle: this he does by turning them towards the groin at the opposite side; and from hence towards the belly; in which motion the point of the catheter must represent the centre, as it were, round which the other parts revolve. At last the hand with which the catheter is directed, must be lowered a little, and the rest of the operation completed in the same manner as before. These two methods of introducing the catheter, differ only in this, that in the first the introduction is performed at once; but in the second (which is conceitedly termed "*sonder par le tour du maître*") it is done by two different manœuvres, and consequently the operation is unnecessarily lengthened.

CATHETOLIPES, in *Natural History*, the name of a genus of fossils of the class of the *selenita*, but differing from the common kinds in the disposition of the constituent plates.

The word is derived from *καθετος*, *perpendicular*, and *λεπτις*, a *scale* or *plate*, and expresses a set of these bodies whose plates are ranged perpendicularly. All the known *selenita*, except those of this genus, are composed of a number of parallel plates, or thin flakes, ranged evenly horizontally on one another.

CATHETO-PLATEUS, in *Ichthyology*, a term with its opposite, which is *plagio-plateus*, very much used by Artedi, in his description of fishes, but not adopted by Linnaeus, or more recent ichthyologists; they may be explained in English by the two familiar words, compressed and depressed. The heads of fishes are the parts principally characterized by these terms.

CATHETUS, in *Architecture*, is a perpendicular line, supposed to pass through the middle of a cylindrical body, as a column.

Cathetus is sometimes applied to a line in the Ionic capital, passing perpendicularly through the eye or centre of the volute. This is otherwise called the axis of the *volute*, which see.

CATHETUS, in *Botany*, Loureiro; Flor. Cochinch. Class and order, *diœcia monandria*.

Gen. Ch. Male. *Cal.* Leaves six, almost round, concave; three outer ones smaller. *Cor.* none. *Nect.* six two-lobed glands. *Stam.* Filament one, short; anthers three, oval. Female. *Calyx* six-cleft; segments roundish, concave. *Cor.* none. *Pist.* germ superior; style thick; stigma trifid. *Peric.* capsule compressed, roundish, six-lobed, three-celled. *Seeds* angular, two in each cell.

A shrub. *Leaves* fascicled, small, oval, entire, flat, smooth. *Flowers* axillary, solitary, very small. A native of Cochinchina.

CATHETUS, in *Geometry*, a perpendicular, or a line, or radius, falling perpendicularly on another line, or surface.

Thus, the *catheti* of a right-angled triangle, are the two sides that include the right angle.

CATHETUS of incidence, in *Catoptrics*, is a right line drawn from a radiant point, perpendicular to the reflecting line, or the plane of the speculum, or mirror.

CATHETUS of reflexion, or of the eye, a right line drawn

from the eye, or from any point of a reflected ray, perpendicular to the plane of reflexion, or of the speculum. See **REFLEXION**.

CATHMANDU, or **CATMANDU**, in *Geography*, the capital of an independent kingdom in the kingdom of Nepal or Nepaul, in Hindoostan, situate to the northward of the plain of Nepal, 105 geographical miles N. of Maissy, that is, in N. lat. 28° 6'. This city contains about 18,000 houses; and the kingdom extends, from south to north, to the distance of 12 or 13 days' journey, as far as the borders of Tibet, and it is almost as extensive from east to west. The king of Cathmandu has always about 50,000 soldiers in his service. To the eastward of Cathmandu, at the distance of two or three miles, is a place called "Tolu," by which flows a small river, the water of which is esteemed holy, according to the superstitious ideas of the inhabitants; and thither they carry persons of high rank, when they are thought to be at the point of death. At this place is a temple, which is not inferior to the best and richest in any of the capital cities. They have also a tradition, that at Tolu, as well as two or three other places in Nepal, valuable treasures are concealed under ground; but no one is permitted to make use of them, except the king, and that only in cases of necessity. These treasures, it is said, have been thus accumulated: when any temple had become very rich from the offerings of the people, it was destroyed, and deep vaults dug under ground, one above another, in which the gold, silver, gilt copper, jewels, and every thing of value were deposited. At Cathmandu, on one side of the royal garden, there is a large fountain, in which is one of their idols, called "Narayan." This idol is of blue stone, crowned, and sleeping on a mattress of the same kind of stone; and both the idol and the mattress appear, as if they floated upon the water. This stone machine is very large, about 18 or 20 feet long, and proportionably broad, but well wrought and in good repair.

In a wall of the royal palace, there is a stone of a single piece, about 15 feet long, and four or five feet thick, on the top of which are four square holes at equal distances from each other. On the inside of the wall they pour water into the holes, and on the court-side, each hole having a closed canal, every person may draw water to drink. At the foot of the stone is a large ladder, by which people ascend to drink; but the curiosity of the stone consists in its being quite covered with characters of different languages cut upon it. Some lines contain the characters of the language of the country; others, the characters of Tibet; others, Persian; others, Greek; besides several others of different nations: and in the middle there is a line of Roman characters; but none of the inhabitants know how they came there, nor do they know whether or not any European had ever been in Nepal before the missionaries, who arrived there in the beginning of the last century. They are manifestly two French names of seasons, with an English word between them. To the northward of the city of Cathmandu is a hill called "Simbi," upon which are some tombs of the Lamas of Tibet, and other people of high rank of the same nation. The monuments are constructed in various forms; two or three of them are pyramidal, very high and well ornamented. Round them are remarkable stones covered with characters, which probably are the inscriptions of some of the inhabitants of Tibet, whose bones were interred there. The natives of Nepal regard the hill as sacred; and conceive that it is protected by their idols; and, therefore, they never station troops there for its defence, although it is a post of great importance, and only at a short mile's distance from the city. Adjoining to the tomb they

have found, in digging, considerable pieces of gold, with a quantity of which metal the corpses of the grandees of Tibet are always interred. Asiatic Researches, vol. ii. p. 307, &c. See NEPAL.

CATHOLIC, from *καθολος*, and *ὅλος*, *whole*, denotes a thing that is universal, or general. Some have said, that Theodosius the Great first introduced the term catholic into the church; appointing by an edict, that the title should be applied, by way of pre-eminence, to those churches which adhered to the council of Nice, in exclusion of the Arians, &c.—Catholicism, however, soon changed hands; for under the emperor Constantius, Arianism became so predominant, that the Arians were called the catholics. But the term was used much more anciently, as by Polycarp and Ignatius. “Ubi fuerit Jesus Christus, (says the latter) ibi est ecclesia catholica.” The Romish church now assumes the distinguishing appellation of the catholic church. See CHURCH.

The term *catholic*, or *Roman catholic*, is now sanctioned by law (see the title to the act of 31 Geo. III., c. 32.) as well as by common usage, to denote the religion formerly called *Poper*, and the professors of it usually denominated *Papists*. See PAPISTS and POPERY.

CATHOLIC Epistles, in *Biblical History*, a denomination given to seven epistles of the New Testament, signifying universal or general, because they are not written to the believers of some one city, or country, or to particular persons, as St. Paul's epistles are, but to Christians in general, or to Christians of several countries. This is the case of five, or the greater part of them, with which the two others are joined. When the first epistle of Peter, and the first of St. John, were called catholic by the most early Christian writers, the two smaller of St. John were unknown, or not generally received. The antiquity of this denomination is easily ascertained. They were so called in the time of Eusebius (H. E. l. ii. c. 23. l. vi. c. 14), and, probably, before. Of this fact we have good proof. For St. John's first epistle is several times called a catholic epistle by Origen in his remaining Greek works, as well as in others. It is likewise so called several times by Dionysius, bishop of Alexandria. Athanasius, Epiphanius, and later Greek writers received seven epistles, which they called catholic. They are so called likewise by Jerom. The epistles bearing this appellation are, one of James, two of Peter, three of John, and one of Jude; but they are recited in a different order by ancient authors. Of these epistles two only, viz. the first of St. Peter, and the first of St. John, were universally received in the time of Eusebius; though the rest were then well known. All the seven were received by Athanasius, Epiphanius, Jerom, Augustine, and many other writers. However, the Syrian churches received only three of these epistles; nor does it appear, that more were received by Chrysostom or Theodoret. These epistles were also called canonical by Cassiodorus, about the middle of the sixth century, and by the writers of the prologue to these epistles, ascribed (erroneously) to Jerom. The propriety of this latter appellation is not satisfactorily ascertained. Du Pin says, that some Latins have called these epistles canonical, either confounding the name with catholic, or also to denote, that they also are a part of the canon of the books of the New Testament. See EPISTLE.

CATHOLIC furnace, is a little furnace, so contrived, as to be fit for all kinds of operations, which do not require an intense fire.

CATHOLIC king, is a title which has long been hereditary to the king of Spain. Mariana pretends, that Reccarede first received this title after he had destroyed Arianism in his kingdom, and that it is found in the council of Toledo for

the year 589. Vasceà ascribes the origin of it to Alphonfus in 738. Some allege that it has been used only since the time of Ferdinand and Isabella. Colombiere says it was given them on occasion of the expulsion of the Moors. The Bollandists pretend, it had been borne by their predecessors, the Visigoth kings of Spain; and that Alexander VI. only renewed it to Ferdinand and Isabella. Others say, that Philip de Valois first bore the title; which was given him after his death, by the ecclesiastics, on account of his favouring their interests.

In some epistles of the ancient popes, the title catholic is given to the kings of France, and of Jerusalem, as well as to several patriarchs and primates.

CATHOLICA, in *Geography*, a town of Italy, in the province of Romagna. It derived its name from being the place whither the orthodox bishops retired in the year 359, after being outvoted by the Arian party, in the council of Rimini; 9 miles S.S.E. of Rimini.

CATHOLICA, La, a town of Sicily, in the Val di Mazara, situate in a spacious plain open to the sea, and shut up on the north side by a broken theatre of mountains. It is the chief town of the district. It was founded in 1612 out of several small hamlets by Francis Istar, lord of the soil, but is now possessed by the family of Bonanni, who take the title of princes of La Catholica. The number of its inhabitants exceeds 7000. The prince of La Catholica derives from Siculiana an annual income of 14,000 crowns.

CATHOLICIANI, in *Middle Age Writers*, the officials or ministers of the catholici, or receivers of the taxes of a diocese, sometimes also denominated CÆSARIANS.

CATHOLICON, in *Pharmacy*, a kind of soft purgative electary; so called, as being supposed universal; or a purger of all humours.

Different authors give different recipes for it: that called *Catholicon Nicolai* was long in use; it consists of sixteen ingredients, the chief whereof are tamarinds, cassia, fena, and rhubarb. It was called the double catholicon, when there was a double portion of fena and rhubarb.

The **CATHOLICON for chylsters**, only differs from this, in that it had no rhubarb, and that honey was used in it instead of sugar.

CATHOLICUS, the title of a dignitary, or magistrate, under the Roman emperors, who had part of the administration, and particularly the care and receipt of the revenues and taxes in Roman dioceses.

The catholicus was the same with what was denominated by the Latins *procurator*, and *rationalis Cæsaris*. Such was the catholicus of the diocese of Africa, mentioned by Eusebius, and other ancient writers.

CATHOLICUS, among *Ecclesiastica Writers*, an appellation given to the primates or metropolitan prelates of several churches in Asia, subject to the see of Antioch; but whose jurisdiction and dioceses are of such extent that they have assumed the title of *catholici*, q. d. *universal bishops*. See PRIMATE.

CATHON, in *Ancient Geography*, an island of Greece, S. of the Peloponnesus, in the gulf of Laccdæmon.

CATICARDAMNA, a town of India, on this side of the Ganges, according to Ptolemy.

CATIEH, in *Geography*, a town of Egypt, near the coast of the Mediterranean, 70 miles N.N.E. of Suez, and 130 miles N.E. of Cairo. N. lat. 30° 54'. E. long. 33° 30'.

CATIF, or **KATIF**, EL, a town of Arabia, in the province of Lachsa, seated on the coast of the Persian gulf, at the distance of about 5 German miles from the isle of Bahrein. The inhabitants earn their subsistence by the pearl-fishery. When any are too poor to fish at their own risk

risk and expence, they hire their labour to stranger-adventurers, who resort hither in the hotter months of the year, which are the season for fishing. The air of this country, however, is believed to be very salutary in summer. The ruins of an old Portuguese fortress are still to be seen near this place. It is 142 miles S. of Bassora, and 420 S. of Is-pahan. N. lat. 26° 20'. E. long. 48° 4'. Niebuhr's Travels, vol. ii.

CATI-FONS, in *Ancient Geography*, a fountain from which proceeded the stream called "Aqua Petronia," which was a river of Italy that discharged itself into the Tiber.

CATILINE, LUCIUS SERGIUS, in *Biography*, was descended from the illustrious patrician family of Sergii at Rome, but rendered infamous by a series of debaucheries, incests, murders, and the most atrocious crimes. He began his licentious career at an early age, by debauching a female of distinction, and afterwards marrying the daughter he had by her. He was also accused of holding a criminal intercourse with a vestal, the sister of Terentia, Cicero's wife, and of murdering his own brother, whose name he prevailed upon Sylla to insert in the list of proscribed persons for the purpose of justifying his crime. During the sanguinary administration of Sylla, he was the chief instrument of his cruelties, and headed a band of assassins, who dragged out of the houses and temples persons, whose names were included in the list of proscription, and cruelly murdered them in the presence of his employer. He was also active in searching out and assassinating many knights and senators, before they knew they were proscribed. As a recompence of these savage services, and in consideration of his birth and brutal courage, he was advanced, by the favour of the dictator, to the principal dignities of the state. Accordingly, he had been quaestor, legate in Macedonia under C. Curio, and prætor in Africa; but in all these employments, he had disgraced himself by his debaucheries and enormous oppressions. As he had dissipated his patrimony, and was overloaded with debts notwithstanding his uncontrolled exactions, he had no prospect of retrieving his affairs but by the subversion of the state; and he, therefore, seized all opportunities that occurred for exciting and promoting civil confusion. Upon his return from Africa, B.C. 65, he formed a conspiracy with other discontented and turbulent persons for murdering the consuls, Aurelius Cotta and Manlius Torquatus, together with the greatest part of the senators, and violently seizing the government. This plot, though the execution of it was twice repeated, proved unsuccessful, in consequence of a mistake in the signal on the part of Catiline; and he was therefore under a necessity of deferring the accomplishment of his purpose to a future period. Having strengthened his party by the accession of a great number of senators and knights, of debauched young persons in the city, and of old soldiers and officers of Sylla's army, who had reduced themselves to indigence by the profuse expenditure of all the gains of their oppressions, he concerted a more extensive plan for the total subversion of the commonwealth. With a view to the more easy and certain execution of it, he offered himself a candidate for the consulship, and had Cicero for his competitor. In the mean while, the conspiracy of Catiline had been discovered to Cicero by Fulvia, a woman of distinction, who had dishonoured her family by a criminal correspondence with Quintus Curtius, one of the party concerned; and this discovery, though not fully authenticated, had excited suspicions against Catiline, which defeated his election, and favoured that of Cicero, his avowed adversary, A.U.C. 691, B.C. 63. Catiline, enraged by the success of his rival, determined to offer himself a second time for the consulate, and prepared for an open rebellion, in case of his failure.

With this view he borrowed large sums of money, and engaged Manlius, one of Sylla's old officers, who then resided at Fæsulæ, to make levies of soldiers throughout Etruria. Lucullus, however, whom Pompey had succeeded in the East, being informed of these hostile preparations, made a report of them to the senate, and assisted the consul with all his interest in the prosecution of the traitor. Cicero also kept up a correspondence with Fulvia, and had even gained over some of the conspirators, who, pursuant to his directions, pretended to be the most ardent promoters of the plot. By means of this information, he discovered the designs of Catiline, the various sentiments of his accomplices, their number and quality, and the general, as well as the private, views of each of the conspirators. By them he was informed, that on a day appointed the conspirators were to set fire to several parts of the city; and that, during the confusion and uproar, which so general a conflagration would occasion, some were to murder the chief men of the senate in their houses, others to assemble the mutinous populace, seize the Capitol, and fortify themselves there, till Manlius should arrive from Etruria with his veterans. Two Roman knights were appointed to murder Cicero in his own house; but the consul, previously informed of every thing that had passed in their assembly, summoned the senate, and boldly apprized the conscript fathers, in Catiline's presence, of the danger to which they were all exposed. The senate, having been made acquainted with the whole plot, issued a public decree, according to an ancient form, which had been observed in times of national danger, "that the consuls should take care that the republic suffered no detriment." Cicero, thus invested with ample power, adopted every necessary measure for keeping in awe the principal cities in Italy, and for guarding Rome, the capital; and the senate, by his advice, promised not only a pardon, but ample rewards, to any of the conspirators, who should make farther discoveries of this detestable attempt. Although the consul might, on his own knowledge, have condemned Catiline and his accomplices to death without appeal, this would have been a perilous measure; and he thought it more advisable to induce Catiline to leave Rome, and take refuge in Manlius's camp near Fæsulæ. With this view he assembled the senate, and pronounced, in the presence of Catiline, that most severe and spirited invective, still extant under the title of the first oration against Catiline, in which he lays open all his murderous designs, assures him that they are fully known and guarded against, and exhorts him to leave that city which can no longer endure his presence. Catiline, retaining full possession of himself, with an air of great plausibility intreated the senate not to credit the accusations of a declared enemy, who had not in Rome so much as a house of his own, and who was attempting to raise his own character by the defeat of a conspiracy forged by himself, and thus to acquire the title of defender of his country. When he proceeded to invectives against the consul, he was interrupted by the clamours of the whole assembly, and the senate-house echoed with the names of incendiary, parricide, and enemy to his country. Stung with these reproaches, and foaming with rage, Catiline exclaimed, "Since you have provoked me to the utmost, I will not perish alone, but will enjoy the satisfaction of involving those who have sworn my ruin in the same destruction with myself." Having thus spoken, he left the senate-house, and accompanied by about 300 friends, hastened to the camp of Manlius in the vicinity of Fæsulæ. Here he assumed the command of the troops, together with all the ensigns of a supreme magistrate, being preceded by lictors, carrying their axes and fasces. The senate, as soon as information was received of this act of open rebellion, declared Catiline and Manlius enemies of their country;

country; and gave orders, that Antonius, the associate of Cicero in the consulship, should take the field with a proconsular army, and that Cicero should continue in Rome to watch the motions of the conspirators. Some of the party, who still remained in the city, made an attempt to attach to their cause the ambassadors of the Allobroges, who were then at Rome, and thus to obtain assistance from Transalpine Gaul; but these ambassadors, by the intervention of Sanga, the protector of their nation, communicated the whole affair to Cicero; and he instructed them to proceed in the negotiation, and to obtain the draft of a written treaty, subscribed with the names of the conspirators. Cicero, being informed by the ambassadors when they were to leave Rome, sent privately two prætors, with a sufficient number of troops, to seize them, together with the conspirators, and bring them all to Rome. The prætors faithfully executed their commission; and the ambassadors, together with Vultureius, who had undertaken to conduct them to Catiline, in order to obtain his ratification of the treaty, were stopped in the way, and brought back to Rome, with all the papers which either the Allobroges or Vultureius had in their custody. Cicero, having thus got into his possession undeniable proofs of the conspiracy, dispatched proper officers to arrest Lentulus, Gabinius, Cethegus, and Statilius, and to commit them to safe custody. He then assembled the senate, in the temple of Concord, laid before the assembly the proofs of the plot, and having obtained a decree for the execution of the criminals at a subsequent meeting, ordered them to be capitally punished.

During these transactions at Rome, Catiline resolved to lead his army into Transalpine Gaul, where he expected very general support; but he was prevented from accomplishing his purpose by Q. Metellus Cæsar, who, leaving Picenum, which he had guarded the last year, posted himself with three legions at the foot of the Alps, while Antonius followed Catiline in the rear, who, hemmed in by two bodies of troops, made a retrograde march, and falling in with the proconsul near Pistoria, now Pistoia in Tuscany, offered him battle. Antonius, who had formerly been of Catiline's faction, appeared unwilling to engage; but his troops, insisting on being led to action, he pretended indisposition, and devolved the command on his lieutenant Petreius, a veteran of tried and distinguished valour. The engagement was severe and obstinate; but at length, when Manlius and another commanding officer were killed, it terminated, after a long and dubious contest, in favour of Petreius, who was left master of the field. Catiline, having lost Manlius and his associates, during the engagement, found himself unable to rally the fugitives; and, therefore, determining not to survive the ruin of his party, threw himself into the midst of the victorious enemy, where he was found among the dead bodies of those whom he had slain, still breathing, and retaining in his countenance the traces of that ferocious valour which distinguished his character. Thus the Catiline conspiracy, which was detected by Cicero in October, was terminated in December, B. C. 63. The character of Catiline has been sufficiently delineated in the orations of Cicero; and his portrait is thus drawn by the strong pencil of Sallust: "His powers of mind and body were extraordinary, but his disposition bad and depraved. From his youth he took delight in civil contests, murders, rapines, and intestine wars, and inured himself to the practice of them. His constitution was, beyond credibility, patient of hunger, cold, and watchfulness. In temper he was daring, deceitful, capable of every kind of simulation and dissimulation, greedy of the property of others, lavish of his own, ardent in his desires, plausible,

rather than deep, in discourse. His boundless soul always aimed at things immoderate, excessive, and out of probability." In after times he appears to have served as an example of desperate and savage treason; and Virgil has irrevocably fixed his doom, in making him the figure by whose punishment the regions of Tartarus are discriminated on the shield of Æneas.

" ——— et te, Catilina, minaci
Pendentem scopulo, Furiarumque ora tremementem."
Æn. viii. 668.
" There Catiline, o'er-hung a mountain's brow,
And shudd'ring view'd the Furies glare below."

Sallust Bell. Catilin. Plutarchi Sylla, et Cicero. Ciceronis Orat. Anc. Un. Hist. vol. xi. Middleton's Life of Cicero, vol. i.

CATILLUS, in *Ancient Geography*, a mountain of Italy near the Tiber.

CATIMARUS, in *Botany*, Rumph. Amb. See KLEINOVIA.

CATIMBIUM, Juss. See GLOBBA.

CATINA, in *Ancient Geography*, a town of Peloponnesus, in Arcadia. Pliny.

CATINGA, in *Botany*, Jussieu, p. 321. Aublet Guian. tab. 203. fig. 1 and 2. Trees, the fructification of which is imperfectly known. Nat. Ord. *Myrti*. *Calyx* four-cleft. *Cor.* unknown. *Stam.* filaments numerous. *Pist.* unknown. *Peric.* drupe as large as an orange or citron, crowned with the very small calyx, fibrous within, rind thick, covered with vesicles, which contain an aromatic essential oil; nut brittle, kernel reddish, veined. *Leaves* most commonly opposite, oval, oblong, entire, besprinkled with transparent points. *Fruit* axillary. These trees grow on the banks of rivers in Guiana. There are two species; one of which bears a round, the other an elongated fruit.

CATKIN, the English name of a species of inflorescence, called by Linnæus amentum, and improperly considered by him as a species of calyx. It consists of numerous chaffy scales, containing either the stamens or pistils separately, or very rarely both together, and ranged along a slender stalk, which is the common receptacle. By the older botanists it was styled julus, nucamentum, and catulus. The latter term, corresponding with the English catkin and the French chaton, is derived from its fancied resemblance to a cat's tail. The amentaceous plants constitute the sixteenth natural order of Linnæus in his *Philosophia Botanica*, and the fiftieth in his posthumous lectures published by Giseke. In the latter work the order consists of the following genera; salix, populus, platanus, floanea? fagus, juglans, quercus, corylus, carpinus, betula, myrica, pistachia, cynomorium. Jussieu and Ventenat have also a natural order of the same name which is thus divided by Jussieu: 1. With hermaphrodite flowers; fothergilla, ulmus, celtis. 2. With dioecious flowers; salix, populus, myrica. 3. With monoecious flowers; betula, carpinus, fagus, quercus, corylus, liquidambar, platanus. The three species of the first division have not their flowers in true catkins; and Ventenat observes that, although they have some affinity with the amentaceæ, they may more properly be placed in a distinct order. Tournefort, Boerhaave, and Royen, have also a class or order distinguished by its amentaceous flowers; a character which the former extends to the coniferæ of Jussieu; but these, according to Ventenat, although in many respects allied to the true amentaceæ, have several peculiar important characters which necessarily keep them distinct. Besides their difference in habit, the coniferæ have a cylindrical embryo, surrounded by a fleshy perisperm;

perm; whereas the true amentaceæ have a flat embryo without a perisperm.

CATLENBURG, in *Geography*, a town and bailiwick of Germany, in the circle of Lower Saxony, and principality of Grubenhagen; 16 miles S.S.E. of Einbeck.

CATLIN, among *Surgeons*, is a dismembring knife, for cutting off any corrupted part of a body. See *Surgical Plates on Amputation*.

CAT-MINT, in *Botany*. See *NEPETA cataria*.

CATO, MARCUS PORCIUS, distinguished by the appellation of "the Censor," in *Biography*, was born at Tusculum in the year of Rome, 519, B. C. 235; and was brought up at a small farm near the country of the Sabines, possessed by his father, which he cultivated with his own hands. At the age of 17 years, he made his first campaign under Fabius Maximus, when Hannibal was ravaging Italy; and five years afterwards he accompanied the same general in his expedition against Tarentum. At the commencement of his military career, he attracted notice by his singular sobriety, valour, attention to discipline, and all the virtues of the ancient Roman soldiery. On his return from the army, he joined his domestics in the culture of his small estate, devoting himself at his leisure hours to the study of eloquence at home and to the practice of it in the adjacent cities, where he pleaded on behalf of those who applied to him. His talents and virtues engaged the notice of Valerius Flaccus, who had lands contiguous to the small farm of Cato; and who belonged to one of the most noble, affluent, and powerful families of Rome. With the advice and under the promised patronage of this rich neighbour, he determined to try his fortune at Rome, where the successful eloquence of his pleadings and the interest of his friend laid the foundation of his future preferment. In his 30th year he served as military tribune in Sicily; and he was afterwards quaestor under Scipio in the African war; but disgusted with the splendid liberality and popular manners of this great man, he came to Rome and joined with Fabius in accusing Scipio before the senate. But though Scipio was honourably acquitted and continued in his command, Cato gained estimation with the public for his rigid economy. Besides, his masculine strain of rhetoric, which occasioned his being denominated the Roman Demosthenes, gave him great influence in the assemblies of the people. Having passed through the office of edile, he was appointed prætor in the province of Sardinia; and in this station he displayed, in a very eminent degree, his temperance, integrity, and rigid justice. His predecessors in this office had ruined the country, by extortions for supplying the means of profusion; whereas Cato distinguished himself by the simplicity of his habit, table, and equipage, and never touched a single farthing of the public money. At this time Sardinia abounded with usurers, who, under a pretence of assisting private persons with the loan of sums of money for particular occasions, utterly ruined them; but Cato expelled from the island all persons of this description. In the year of Rome 558, B. C. 196, he was elected consul, in connection with his friend Valerius Flaccus, and the Hither Spain was assigned to him as his province. But before his departure he vigorously opposed the repeal of the Appian law, which restrained the propensity of the female sex to indulge in show and ornament; but Valerius the tribune, having carried this point against him, which he defended with his single voice, he proceeded to his province, where he undertook the discipline of his troops consisting of new levies, and set them an example of encountering every kind of hardship. His habit was always plain; his provisions were the same with those of the common soldiers; and he took part with them in the

labour of forming the entrenchments of his camp. Having thus prepared his troops for contending with the natives, who, in their previous wars with the Romans and Carthaginians, had learned the military art, and who were naturally brave and courageous, he dismissed his fleet, that his soldiers might solely confide in their own valour. In this war he gained several victories, and by demolishing the fortifications of the towns which he captured, he completely subjected the province to the Roman dominion. To each of the soldiers, besides the spoils, he gave a pound of silver out of the rich booty which he acquired; and when some of the officers expressed their surprise at his liberality, he told them, "It is better that many of the Romans should return home with silver, than a few only with gold." However, he appropriated to his own use no part of the booty; but continued to live in as frugal a manner as the meanest soldier. At the close of the campaign, he sailed back to Rome with his troops, and next year was honoured with a triumph. Notwithstanding this merited dignity, he still continued freely to serve his country in the forum and the field; and when the public service did not call for his active concurrence, he enjoyed the pleasures of retirement, and devoted his hours of leisure to study. In the campaign of M. Acilius Glabrio against Antiochus the Great in Greece, Cato served as a military tribune; and by his advice and assistance enabled the consul to force the Syrian's strong entrenchments in the pass of Thermopylæ, as the Persians had formerly done, and to oblige him to abandon Greece, and retire to Ephesus. About ten years after his consulate, viz. in the year of Rome 569, B. C. 185, he offered himself as a candidate for the office of Censor; but the known severity of his character alarmed the nobles, and they set up seven competitors against him; however, the people persisted in the choice of Cato, and they nominated as his associate his consular colleague, Valerius Flaccus. Many of the senators, who had been guilty of scandalous enormities, were rejected; others were degraded on more frivolous grounds; and Cato seems to have indulged a personal pique against the Cornelian family, by taking from Scipio Asiaticus the horse which the public kept for him as a knight. The rigid censor executed his office with great severity; he laid a heavy tax on rich furniture, jewels, and all superfluities; and by such popular acts, he made himself so acceptable to the people, that they erected a statue to him in the Temple of Health. After the expiration of his censorship, he merely attended his duty as a private senator, and his advice was received with deference and respect. The necessity of destroying Carthage was a point which he always strenuously inculcated; and in his estimation this necessity seems to have been justified by the single circumstance, that Carthage was the inveterate foe and rival of Rome. Cato, considering the original rude character of the Romans as the standard of perfection, strenuously opposed every kind of innovation, and for a long time resisted the introduction of Grecian letters and philosophy into Rome. To this purpose he exerted himself in hastening the dismissal of Carneades the academic, and Diogenes the stoic, who had been sent on a public embassy from Athens. He seems, however, in his old age, to have changed his opinion; as he became a convert to the cause of learning, and assiduously studied the Greek language. He became a writer himself, and composed a variety of works, of which the principal was a History of the Roman affairs, and of the origin of all the cities of Italy, from that circumstance entitled "Origines." A few fragments of the seven books which he lived to finish, are still extant. He also published a large number of his orations, letters, a treatise on the military art, and another on rural affairs:

affairs: the latter of which still remains, and is usually printed with the "Scriptores de Re Rustica."

Cato married for his first wife a woman of family, who was profuse in her expenses and perverse in her temper, and who therefore afforded sufficient exercise to his philosophy. By her he had a son, whose education he himself conducted, but he would not allow him to be taught the learning of the Greeks, alleging, that the only study of a Roman ought to be, how to conquer, and how to govern conquered nations. In his advanced years he was a widower, and not choosing to marry again, he took a young female slave to his bed, at which his son being displeased, he married the daughter of Saloniæ, who had been his secretary; and by her he had a son named Saloniæ, who was the grandfather of Cato of Utica. The censor lived to an advanced age, and died in his 86th year, as some say, and according to others in his 91st, in the year of Rome 605, B. C. 149, at the commencement of the third Punic war, which his advice very much contributed to promote.

Cato was a great soldier, an eloquent orator, a learned historian, and well skilled in rural affairs; but these accomplishments were counterbalanced by great defects, and very unamiable qualities. As a master, he was stern and unfeeling; so that he considered his slaves as a sort of labouring animals, whom he wished to get rid of when exhaunted by age and servitude. His economy degenerated into avarice; and though he was uncorrupt in the management of public money, he descended to very mean and unwarrantable practices to amass a private fortune. For money lent he took exorbitant profits; and received even from his own male slaves a certain pecuniary consideration for the liberty of frequenting the females. He used to say to his son, that no man deserved any esteem till he had doubled his fortune. In public he was ever extolling continence; but he indulged his pastimes in private with a beautiful female slave; and it is also said that he was equally faulty in the excessive use of wine.

"Narratur et prisce Catonis,
Sæpe meo caluisse virtus."

HOR.

His public censures of private men seem sometimes to have originated from envy and personal pique; and thus we may account for his having been 44 times impeached, which probably would not have been the case if he had not provoked private resentment by the unjustifiable severity of his temper. However, on all these occasions he was acquitted by the people, in whose estimation his virtues preponderated his defects and vices; so that whilst he lived he was held in extraordinary veneration, and his name has descended with honour to succeeding generations. Cicero exhibits him in an amiable point of view, by making him the principal speaker in his beautiful dialogue on old age, which some have considered as a kind of fancy-portrait, founded, however, on the real traits of the man, though softened and embellished. Plutarch has made him the subject of one of his lives, and Cornelius Nepos, at the request of Atticus, wrote a particular account of him, of which a brief sketch only is extant. Plutarch, t. ii. Cicero. Livy. Corn. Nep. Anc. Un. Hist. vol. xi. Rollin's Rom. Hist. vol. iv. and v.

CATO, MARCUS PORCIUS, CATO *Minor* of Plutarch, surnamed of *Utica*, from the place of his death, was great grandson to Cato the Censor, the subject of the preceding article, and born about 94 years B. C. As he lost his parents at a very early age, he was brought up in the house of Drusus, his maternal uncle, and a man of high rank and character. Whilst he was a child, he manifested that steadiness of temper and solidity of understanding, which were

the distinguishing features of his character; and though his apprehension was slow, his memory was tenacious. His passions, though seldom displayed by outward signs, were durable in their influence; and his inflexibility approached even to stubbornness. However, when his reason was convinced, he readily complied; and this was found by the instructors of his youth to be the only method for securing his obedience. Of his firm and unyielding temper, when he was an infant, Plutarch mentions a singular instance. The Italian allies of Rome having demanded admission to the right of citizenship, Pompeius Silo, one of their deputies for urging this claim, was a guest at the house of Drusus, and in a jocose manner asked young Cato to recommend his suit to his uncle. The child was silent; but expressed by his looks and an air of dislike in his countenance, that he would not comply with the wishes of Pompeius. Pompeius renewed his solicitations, but was unable to prevail. At length he took up the infant Cato in his arms, and carrying him to the window, threatened to let him fall out of it if he persisted in his refusal. But fear was equally unavailing with intreaty. Pompeius, on letting him down in the room, exclaimed, "What an happiness it is for Italy, that thou art but a child! For if thou wert at age, we should not have a single vote." At the age of 14, Cato was introduced by his tutor, Sarpædon, to the house of Sylla, the dictator, which, on account of the proscriptions and cruelties of this tyrant, was a scene of torture and of blood. When the youth observed the heads of several noble victims that had been murdered carried out, and the bye-standers secretly fighting on account of the horrid spectacle, he asked his tutor, why nobody killed such a tyrant. "It is," replied he, "because he is still more feared than hated." Cato exclaimed, "Give me a sword, that I may kill him, and deliver my country from slavery." He uttered these words with a tone of voice and an aspect that made his tutor tremble; and from this time he was very watchful of his pupil, lest he should attempt some rash and daring action.

Notwithstanding the firmness and intrepidity of Cato's temper, he was not insusceptible of tender emotions, nor destitute of kind affections. His love to his brother Cæpio was manifested on a variety of occasions, whilst he lived; and when he died, grief seemed to triumph over all his philosophy. He shed many tears whilst he embraced the dead body; for some time he indulged dejection and melancholy, and expended great sums in his funeral, and in erecting a monument of costly marble in the forum of Enus, a town of Thrace, where he died, nor did he quit his ashes till he brought them into Italy. But though he was led by fraternal affection to incur this expence, and though in his maturer years he received a considerable sum of money from his share of the paternal estate, the habits of his life were simple and frugal, and he cultivated the manners of a philosopher rather than those of a young patrician. The course of his studies was adapted to his peculiar temper; and the principles of the Stoic philosophy, which he assiduously cultivated, under Antipater of Tyre, habitually influenced his judgment, disposition, and conduct. With a view of being better qualified for defending the cause and claims of justice, and enforcing wise and salutary counsels, he studied eloquence; but his eloquence was altogether destitute of artificial ornaments; it was simple and grave, and occasionally intermixed with dry humour and sarcasm. Cato not only cultivated his mind; but he inured himself to bodily exercise, and to every kind of fatigue and hardship, in order to acquire that corporeal strength and that firm tone of nerves which were suited to his mental disposition, and which would qualify him for the various active services to which he de-

voted his life. He was also distinguished by his self-denial and temperance; and he avoided every kind of luxury in dress and in diet, which began very much to prevail among his countrymen. He has been charged, however, with occasional excess in the use of wine; and his advocates have found it difficult altogether to exonerate him from the charge of drunkenness. The charge was strongly urged by Cæsar, who may be considered as an enemy; but as he was regarded by all Rome as a model of private as well as public virtue, and peculiarly distinguished for his temperance, we may infer that his conduct in this respect must have been maliciously exaggerated. Cicero, in his defence of him against Memmius, who accused him of passing whole nights in drinking, could only allege, that he could not reproach him with passing whole days at dice; and Seneca, his extravagant panegyrist, very absurdly says, "that it is more easy to make drunkenness a virtue than Cato vicious." In his dress he also affected singularity, and seemed to glory in counteracting the taste and fashion of the age in which he lived. We may also add, that he blended with that greatness of soul and constancy, which have been justly admired, a degree of haughtiness and contempt for others, attributable perhaps to the principles of his philosophy, which in a degree degraded his general character and rendered it less amiable. After all the allowances which truth and candour are constrained to admit in forming a general estimate of his character, Cato has been justly considered as one of the most virtuous Pagans that ever lived. Cato acquired from inheritance an ample fortune; which he employed very differently from his ancestor, the Censor, in loans and gifts among his friends, without recurring to usury for its increase. Disappointed in his first views of a matrimonial nature, by the prior claims of Metellus Scipio, he formed a connection of this kind with Atilia, the daughter of Soranus, whom he repudiated for her infidelity, after having had two children by her. The first military service of Cato was in the "servile war," under the consul Gellius, against Spartacus; on which occasion his conduct was so much approved by his general, that he offered him some military rewards, which he declined, alleging, that he had done nothing that deserved such honours. Soon after he obtained a tribune's commission, with which he was sent to the army in Macedonia under Rubrius. This general gave him the command of a legion, which became, in consequence of his sedulous attention to the morals as well as the discipline of his men, the most orderly as well as the most martial in the service. It was at this time that his brother Cæpio died. When the term of his tribunitian service expired, he made the tour of Asia, without burdening the allies of Rome, which was too frequently done by the journies of Romans of distinction. At Ephesus he was introduced to Pompey, who received him with very distinguished tokens of respect; but though he paid him particular attention whilst he was present, he does not seem to have regretted his departure, as he did not wish to have his conduct inspected by so rigid an observer. After having visited the whole of Asia and Syria, Cato returned to Rome, accompanied by the celebrated Stoic philosopher, Athenodorus, who resided in his house. Having acquired those maxims of wisdom and habits of virtue which qualified him for the service of his country, he now wished to employ them for the benefit of the public. His philosophy, so far from aiming at that imaginary perfection, which consists in abstraction from all the common duties of life, was such as the poet Lucan represents;—

"—— patriæque impendere vitam,
Nec sibi, sed toti genitum se credere mundo."

Phars. ii. 382.

"To hold his being at his country's call,
And deem his life was lent a common good for all."

Accordingly he first aspired to the office of quæstor, having previously studied with diligence the rights and duties of this office. Having succeeded in obtaining it, he began with reforming a variety of abuses, which had been introduced by his predecessors; and, heedless of private enmities, he brought all defaulters to account with the public, and established such checks and orders that might effectually serve to prevent future fraud and peculation. One of the boldest and most popular acts which he performed was that of calling to strict account the infamous assassins employed by Sylla and extravagantly recompensed out of the funds of the treasury for the apprehension and murder of proscribed persons. These men he caused to refund their ill-acquired gains, reproaching them at the same time for their crimes, and indicting them for their atrocious murders before the criminal judges. Such were the integrity and assiduity, with which he discharged all the duties of his office, and such was the high estimation in which his conduct was held, that his name became in a manner proverbial for uprightness. To this purpose we may adduce the compliment paid to him by a popular orator, who, once objecting to the decision of a cause by the testimony of a single witness, said, "One man's evidence is insufficient, were it even Cato's." His fidelity in performing the duty of a senator was no less exemplary than the discharge of his functions as quæstor. He was the first in the senate, and the last that left it; and as he frequently passed a considerable interval of time, before the house was assembled, he brought a book, and read till it began to deliberate: nor did he ever quit the city during the session of the senate. Although he attached himself at this time to none of those who led the prevalent parties in the state, but rather opposed and suspected all, he inclined to that of the aristocracy, from an opinion that the existence of the republic was chiefly endangered by men of great popular influence. No man was ever less governed by that ambition, which actuated the leaders of all parties, than Cato. Nevertheless, he thought it his duty to step forward, whenever he apprehended that his country needed his services. With these views he altered his purpose of retiring from the public scene, when Metellus Nepos, whom he knew to be a man of dangerous character, was offering himself for the office of tribune; and became a candidate, as his competitor. They were both chosen; and Cato, as tribune elect, served his country very essentially at the time of the conspiracy of Catiline. Concurring with Cicero in his measures for the safety of the state, he supported them by his influence, honoured him with the appellation of "Father of his country," and by his eloquence counteracted the speech of Cæsar, who wished to shew lenity to the conspirators, and procured their capital condemnation. He afterwards opposed a motion of Metellus for recalling Pompey from Asia, that he might have the command against Catiline; but his opposition was followed by a tumult, excited by Metellus and aided by Cæsar, which very much endangered his life. After Pompey's return to Rome Cato exerted himself in defeating his unconstitutional projects; and when the first triumvirate was formed, he alone perceived the danger that might result from such an union of power. When Cæsar proposed his agrarian law, Cato raised an outcry against it, alleging that it was not proper to disturb the public tranquillity, and that he did not so much apprehend the division of the lands, as the wages that would be required of the people by those who sought to inveigle them by this present. Cæsar, who was then consul, was so much

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provoked by the invincible opposition of Cato that he committed him to prison; but he was soon after released. Cicero used many arguments to mollify the inflexibility of Cato's temper; and fearing that banishment might be the consequence of his continued opposition, addressed him with these words, "If Cato has no need of Rome, Rome has need of Cato." At length Cato yielded; the agrarian law was passed; and the triumvirs became irresistible. Their principal agent was Clodius; and as Cato resisted his measures, he determined to remove him from Rome. With this view, he expressed confidence in his integrity, and having obtained a decree for depriving Ptolemy, the king of Cyprus, of his dominions, on the ground of personal animosity and revenge, he assigned to Cato this odious employment, and obtained a law, investing him with the authority of prætor, for the execution of his iniquitous purpose. Whilst Canidius, a friend of Cato, was sent to acquaint Ptolemy with the determination of the Roman people, and to propose to him terms of surrender, he waited at Rhodes to learn the result of the negotiation. In the mean while Ptolemy, fully apprised that resistance would be vain, preferred death by poison to acquiescence in this arbitrary decree. As soon as Cato heard of the event, he sent Brutus, his nephew, to secure the royal treasures; and having re-established the exiles of Byzantium, which was another object of his commission, he repaired to Cyprus, where he disposed of all the treasures he found amounting to near 7000 talents or about 1,050,000 pounds sterling; reserving to himself only a statue of Zeno, the founder of the Stoic sect. This wealth was safely transported to Rome, and lodged in the treasury; and it seems to have been a just retaliation of the iniquity of the measure by which it was procured on the part of the Roman people, that it was soon after seized by Cæsar and employed in the destruction of their liberty. After Cato's return to Rome a contest took place between Cicero and Cato, respecting the legitimacy of the tribuneship of Clodius, and the consequent validity of every thing that had been done by Cato in the island of Cyprus; but the interruption of friendship and coolness that were thus occasioned between these two distinguished persons soon terminated.

We have already mentioned Cato's first marriage of Atilia and his subsequent divorce. When this event took place, he married Marcia, the daughter of his friend Philippus, with whom he seems to have lived in connubial harmony and by whom he had several children. However, at the time when she was actually pregnant, he resigned her to Hortensius at his request, and having obtained her father's consent, gave her away in marriage to his friend. This transaction, though altogether inconsistent with modern ideas and manners, was conducted with gravity and decorum, and seems to have occasioned no scandal. After the death of Hortensius, who bequeathed his large fortune to his widow, Cato took her again. In this case, as a new marriage ceremony was performed on both occasions, it cannot be justly said that Cato *lent* his wife. Moreover, he only availed himself of the unlimited right of divorce allowed by the Roman law, in first surrendering his wife to Hortensius and then marrying her again as his widow. It has been said, however, that, notwithstanding the established usage among the Romans, a person of Cato's dignity and character should not have sanctioned it by his example.

Cato, who still persisted in his opposition to the triumvirs, took an active part in the canvass of Domitius, his sister's husband, for the consulship against Pompey and Crassus; but whilst they were soliciting votes in the Campus Martius, they fell into an ambuscade prepared by the

rivals of Domitius, and Cato was wounded by the assassins. This intrepid Roman, who was not to be deterred by any violence from serving what he apprehended to be the cause of liberty, exposed himself to new danger by his strenuous opposition to the Trebonian law, which proposed to assign to the consuls the government of Syria and of Spain for five years, with as many troops as they should judge proper, and with the power of making war and peace according to their own pleasure. After all the efforts of a constancy equally obstinate and fruitless, Cato was seized by the sergeants of Trebonius and conveyed to prison; but the tribune fearing the consequence of this unpopular measure, caused him soon to be released. The next, and the highest civil dignity, to which he was advanced, was that of prætor, and in the execution of this office he engaged the senate to issue a decree against bribery; but Rome was reduced to such a state of corruption, that the decree offended both the candidates for offices who purchased votes, and the people who sold them.

After the death of Crassus, the agents of Cæsar were industrious in their exertions on his behalf; and Cato, perceiving that the power of Pompey might serve to counteract their efforts, diverted his ambitious friends from the plan they were pursuing of making him dictator, and proposed the less obnoxious measure of creating him sole consul. Pompey was not insensible of his obligations; and Cato, who professed to have served him with a view to the interest of the public, took the liberty of giving him free advice, and of checking him when he thought his conduct was improper. In the following year Cato became a candidate for the consulship, but not condescending to make a popular canvass, he was rejected. The disappointment, though much regretted by Cicero, was slightly felt by Cato himself; and from this time he resolved never more to aspire to this dignity. On this occasion he observed, that an honest man, and good citizen, should not decline the administration of public affairs, when he was thought fit to be employed; but that he ought not to be immoderately anxious and ardent in seeking it. In the year 50, B. C. the predictions of Cato were fulfilled by the commencement of the civil war. On the division of the provinces by the senate, he was appointed as proprætor to the government of Sicily, and in the discharge of his office he acted with his usual vigilance and diligence in fitting out ships and raising forces; but when Curio arrived there with three of Cæsar's legions, he abandoned the island and removed to Pompey's camp at Dyrrachium, where he was left to guard the treasure and military stores, when Pompey had set out in pursuit of Cæsar; and thus he was preserved from being present at the battle of Pharsalia. During their previous intercourse, it was his advice to procrastinate the war, and thus to leave room for a negotiation; for so patriotic were his feelings, that he indulged no satisfaction from anticipating the continuance of the contest, whatever might be the side to which victory inclined; and after the victory at Dyrrachium he could not participate the joy and triumph manifested by others on the occasion. From the commencement of this contest, apprehending the loss of many brave citizens which it must unavoidably occasion, he neither shaved his beard, nor cut his hair, nor wore any other garb besides that which testified the anguish of his mind. His humanity was very signally displayed in prevailing upon Pompey and the council of war to pass an order, that no city subject to Rome should be sacked, nor any Roman put to death, except in the field of battle. After the disastrous battle of Pharsalia, Cato failed with his troops to Corcyra, where he offered the command to Cicero, as superior officer; but Cicero, con-

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scious of his unsuitness for the arduous and important undertaking, declined accepting it; upon which Cnecus, the son of Pompey, was so provoked, that he drew his sword and would instantly have killed Cicero, if his hand had not been staid by Cato, who conveyed the orator from the camp privately by night. From Coreyra, Cato proceeded to Africa, in order to join Pompey; but immediately on his arrival he received the news of his assassination. Adhering still to the cause of liberty, whilst he conceived any hope remaining, he proceeded with his troops to Cyrene; whence he pursued his march across the deserts, encountering many toils and dangers, with a view of joining Scipio, the father-in-law of Pompey, who had landed before him in Africa, and taken refuge with Juba, king of Mauritania. In this fatiguing and hazardous march, he exhibited every quality that was adapted to inspire his soldiers with esteem and attachment, leading them for seven days on foot, and subjecting himself to hardships equal to those to which the meanest of them were exposed. At length a junction of the whole force was effected at Utica; and when a contest arose concerning the supreme command, Cato, in opposition to the wishes of the whole army, yielded to the pro-consular dignity and auspicious name of Scipio, and persuaded all to acquiesce in his superiority. But he had afterwards reason to repent of his self-denial. As the inhabitants of Utica were justly suspected of entertaining a secret inclination for Cæsar's party, Juba, whose temper was violent and cruel, wished to destroy the city and exterminate its inhabitants, many of whom were Romans. Cato humanely interposed, and, though Scipio concurred with Juba in opinion, he inveighed with so much vehemence and indignation against so unparalleled an act of cruelty, that he put a stop to the execution of this barbarous project. At the desire of Scipio, and in compliance with the request of the inhabitants, Cato undertook to defend the city; and with this view he formed ample magazines of corn, repaired its walls, erected towers, and prepared a fort of camp without, enclosed with a ditch and palisade, in which, after having taken away their arms, he lodged all the youth of Utica. As for the rest of the inhabitants, he kept them within the walls, strictly watching their motions, but at the same time protecting them from the insults of his soldiers. From this place, thus stored and guarded, he furnished Scipio with arms, money, and provisions; and thus rendered it the grand magazine for the supply of the army. Whilst Cato was thus employed, Scipio and Labienus were opposed to Cæsar in the field. It was the decided opinion of Cato, that the war should be protracted; and to this purpose he repeatedly counselled Scipio not to engage in a general action with a commander of Cæsar's abilities; but Scipio rejected his advice with disdain; and the consequence of disregarding it was that almost the whole republican army was destroyed at Thapsus. This fatal battle was fought at the distance of about three days' journey from Utica; and this garrisoned city was the only place in Africa that had not submitted to the conqueror. Cato, having quelled the tumult of its inhabitants, and dispelled their alarms, assembled the council of 300, which he had formed into a kind of senate, and exhorted them to unite, with their persons, property, and counsel, against the common enemy. With a firmness and prudence for which he was eminently distinguished in the moment of impending danger, he exerted his utmost efforts in calming their apprehensions, composing their differences, and animating their constancy. But his endeavours produced only a temporary effect, and served only to delay the threatened evil. Upon the arrival of Scipio's cavalry, which had retreated from the field of

battle towards Utica, his hopes revived; but when he received from them a message, expressing their attachment to him, and their distrust of the Uticans, he was again alarmed: more especially when they stipulated their assistance in the defence of the city, on the savage condition of previously killing or expelling the suspected inhabitants. Cato thought this proposal no less unreasonable than cruel, and declined accepting it. Cæsar was now approaching, and the senators resolved to send deputies to him for the purpose of imploring his clemency; avowing at the same time that the first and principal object of their solicitations should be Cato, for whom if they failed in obtaining protection, they would not accept any pardon for themselves, but would fight in his defence to the last moment of their lives. Cato acknowledged himself obliged to them for their kind intentions, approved of their design of submitting to Cæsar, and advised them to lose no time. But he forbade them to make any mention of him in their solicitations. "It is for the vanquished," said he, "to have recourse to supplications, and for those who have done injustice to sue for pardon. As for me, I have been invincible during the whole course of my life, and even now am as victorious as I wish to be, and triumph over Cæsar by the superiority of justice and equity. It is he that is conquered; it is he that is overpowered; being this day attacked and convicted by undeniable evidence (notwithstanding he has always denied it), of plotting against his country." The cavalry, who had impatiently waited the result of Cato's deliberation, were now leaving the city, and before they departed enriching themselves with plunder, which Cato made every possible effort to restrain; and as most of the senators preferred escaping by sea to putting themselves under the protection of Juba, Cato, perceiving that their danger was increased by the departure of the cavalry and the approach of Cæsar, took the last measures for hastening and securing their retreat. His own resolution was fixed; and that was neither to ask his life of Cæsar, whom he regarded as an usurper, nor to dishonour himself by flight, and thus protract a fruitless contest. Having determined to put an end to his own existence, he prepared for the last scene by acts of kindness to his friends, and grave discourses with philosophers. In the last evening of his life, he first bathed and then supped in the midst of a large assembly of his friends, and the magistrates of the city, whom he had invited to this last interview. They sat late at table, and the conversation was lively, gay, and instructive, turning on certain points of moral philosophy. Supper being ended and the company dismissed, he walked for some time, according to his usual practice, and then retired to his chamber, where he read Plato's dialogue, entitled "Phædo," on the immortality of the soul. Having made a considerable progress in it, he looked for his sword, and found that it was withdrawn; his son having taken it away, while they were at supper. Upon this he called his slave to question him concerning his sword; but receiving no answer he resumed his reading. He again asked for his sword; but perceiving, when he had done reading, that it was not brought, he called all his slaves one after another, and raising his voice, insisted on their bringing it. "What," said he, with a great degree of indignation, "do my son and family conspire to deliver me to my enemy, unarmed and defenceless?" His son then appeared, accompanied by other friends, who besought him with tears, and in the most suppliant manner, to alter his purpose. Cato's indignation was more roused, and he vehemently remonstrated against their conduct. "Brave and generous son," said he, "why do you not put your father in chains? why do you not tie my hands behind me, till Cæsar come, and find me incapable

of defence? Had I a mind to destroy myself, I could equally effect it without a sword; since by holding my breath for some moments, or only once dashing my head against the wall, I could dispatch myself, were I so disposed." Afterwards recovering his calmness, he vindicated to the two philosophers, Demetrius and Apollonides, who attended him, the reasonableness of his purpose, and the folly of attempting to deprive a man, already determined, of the means of death. A young slave at length brought him his sword, which he drew and examined with attention; and finding it sharp and fit for execution, he said, "Now I am my own master." He then laid it down, took up his book, and read it from the beginning to the end. Plutarch assures us, that he afterwards slept, and so soundly, that those who waited without, and listened at the door, heard him snore. Some, however, have questioned this fact, and ascribed to him an affectation of tranquillity, by which he hoped to augment the false glory which he expected to derive from a voluntary death. However this be, about midnight he dispatched one of his freedmen to the sea-side, in order to bring him information whether or not his friends had set sail; and being told that the wind was very high and the sea rough, he expressed great concern. He sent again to the port to know, if any remained, and if they wanted any assistance, and during the absence of the messenger, renewed his sleep. Being at length assured that all was quiet in the port, he desired to be left alone, and then stabbed himself with his sword. The noise occasioned by his fall summoned his son and his friends into the chamber, where they found him still alive, but weltering in his blood, and part of his bowels hanging from the aperture in his body. Attempts were made, during a fainting fit, to preserve his life by replacing his bowels and sewing up his wound; but as soon as he came to himself, he violently tore it open again, and instantly expired. This event happened in the year B. C. 46, when Cato had attained the age of 48 years. As soon as the news of his death was spread through the city, the Uticans loudly lamented it, and caused the air to resound again with encomiums on his character, as their benefactor and their saviour. Notwithstanding Cæsar's approach, they solemnized his obsequies with great pomp, and erected a monument to him near the sea-shore, where, in Plutarch's days, was a statue of Cato, holding a sword in his hand. When Cæsar received information of his death, he is said to have exclaimed, "O Cato! I envy thee the glory of thy death; for thou hast envied me that of saving thy life."

It would lead us into a wide field of discussion to state the arguments that have been used by some to extenuate and even to justify, and by others to criminate and condemn this last act of Cato. In judging concerning his conduct, we should advert to the principles of his philosophy. Professing to believe with the sect whose tenets he embraced, that it might or might not, in particular circumstances, be expedient for a man to preserve or lay down his life, it remained with him to determine whether his own situation was such as to warrant the voluntary termination of his existence. But it has been alleged, in reference to this latter view of his case, that he acted inconsistently with that virtue, on which he chiefly valued himself during the whole course of his life; and this was an invincible constancy, superior to all events. The situation of his country, though discouraging, was not absolutely desperate. The remains of Pompey's party began to revive in Spain, and became afterwards very formidable. Cato, therefore, it is said, in conformity to his character, ought yet to have tried that resource, or waited for some unforeseen and unexpected change favourable to his views; and consequently by the act of suicide, while any

hopes yet subsisted, or whilst there remained a possibility of some favourable revolution, he was deviating from his own principles, and abandoning too soon the cause of liberty. Some, indeed, have ascribed his death to that pride and inflexibility of temper, which the Stoical philosophy was adapted to produce and cherish. Accordingly it has been said, that he disdained such an humiliation as that would have been of owing his life to Cæsar, and that he might not be obliged to his enemy for it, he preferred depriving himself of it by an act of despair. If we appreciate his conduct by the principles of an enlightened theism, and more especially by those which we derive from our holy religion, we cannot hesitate in condemning it. See SUICIDE.

It was, however, for many ages, and has been by some in modern times, extolled as an act of heroism; and it gained among his countrymen general admiration. Horace, though writing under Augustus, places the "noble death" of Cato (*Catonis nobile lethum*, *Carm. lib. 1. od. 12*) among the greatest and most honourable events of the Roman history. Plutarch's *Cato Minor* *apud oper. t. 1. p. 759*, &c. Sallust. *Rollin's Rom. Hist. vol. vii. viii. and ix.*

CATO, VALERIUS, a Latin poet and grammarian, was a native of Gallia Narbonensis, and driven by a civil war which occurred in his country in the time of Sylla to Rome, where he opened a school of grammar and polite literature, that was frequented by persons of the first rank. His friend, Marcus Furius Bibaculus, gives his eulogium in these two lines:

"Cato grammaticus, Latina fyren,
Qui solus legit, et facit poetas."

From the competence acquired by his professional labours, he fell into poverty, which he bore with great unanimity, and died at a very advanced age, B. C. 20. He was the author of several grammatical works, and some poems, one of which (if it be his) entitled "Diræ," expressive of his sorrow at quitting his native country and his Lydia, has reached our times. It was printed separately by Christopher Arnold at Leyden, in 1652, 12mo. and is contained in Mattaire's *Corpus Poetarum*. Gen. Biog.

CATO'S *Distichs*, in *Literary History*, a well-known metrical system of ethics, which has been erroneously ascribed by some to Cato the censor, and by others to Cato of Utica; although it is perfectly in the character of the former, and Aulus Gellius (*lib. xi. cap. 2*) has cited with commendation M. Cato's "*Carmen de Moribus*," which is altogether different from this. It is entitled "*Disticha de Moribus ad Filium*," which are distributed into four books, under the name of Dionysius Cato. This work has been absurdly attributed by some writers to Seneca, and by others to Ausonius. It is, however, more ancient than the time of the emperor Valentinian III., who died in 455. On the other hand, it was written after the appearance of Lucan's *Pharsalia*, as the author, at the beginning of the second book, commends Virgil, Macer, Ovid, and Lucan. The name of Cato probably became prefixed to these distichs, in a lower age, by the officious ignorance of transcribers, and from the acquiescence of readers equally ignorant, as Marcus Cato had written a set of moral distichs. Whoever was the author, this metrical system of ethics had attained the highest degree of estimation in the barbarous ages. John of Salisbury, in his "*Polycraticon*," mentions it as the favourite and established manual in the education of boys. It is also much applauded by Isidore, the old etymologist, Alcuin, and Abelard; and it must be owned, that the writer, exclusive of the utility of his precepts, possesses the merit of a nervous,

nervous and elegant brevity. It is perpetually quoted by Chaucer, who calls the writer Caton or Cathon; and Caxton observes, that it is "the beste boke for to be taught to yonge children in scole." But he supposes the author to be Marcus Cato, whom he duly celebrates with the two Scipios, and other noble Romans. It was translated into Greek at Constantinople by Maximus Planudes; and at the restoration of learning in Europe, illustrated with a commentary by Erasmus, which is much extolled by Luther. There are also two or three French translations. Fabr. Bib. Lat. t. ii. p. 213. Wharton's Hist. of English Poetry, vol. ii. p. 168.

CATO, in *Geography*, a military township of New-York state in America, 12 miles S.E. of lake Ontario, and about 20 S. of Oswego fort.

CATOCHE, or CATOCHUS, in *Medicine*, from *κατέχω*, *I occupy*, or *detain*, are terms nearly synonymous with CATALEPSIS. Galen observes that the ancient physicians denominated the disease Catochus, which the later authors have named catоче and catalepsis. The latter term was first used by Asclepiades. The ancients, however, it is obvious, did not distinguish the different forms of soporose diseases, with that accuracy with which they are now discriminated, and hence there is considerable difficulty in ascertaining the precise meaning of their terms. It appears that the word catochus was applied by different writers, not only to catalepsy, but to *Coma* and to *Tetanus*, and perhaps to other diseases, in which the voluntary power of muscular motion was diminished, or destroyed. Among modern nosologists, Dr. Cullen considers the catochus of Galen, as a variety of tetanus; and Sauvages refers it to the same class; observing, however, that it differs from the tetanus; 1. in being a slow or chronic disease; and, 2. because it is not attended with vehement agitation of the breast and difficulty of breathing. It is equally difficult and unimportant now to affix a precise signification to a word, which was never accurately appropriated by those who originally used it.

CATOCUTES, in *Natural History*, the name of a fossil mentioned among the ancients, as having great virtues in medicine, and in the cure of wounds. It is said to have been found in Corsica; and Pliny records this remarkable property of it, that if the hand were held upon it for some time it would stick to it in the manner of glue. Hence it appears to have been a bitumen.

CATODON, in the Artedion system of *Ichthyology*, the name given to a genus of cetaceous animals, the characters of which are these: the teeth are placed only in the lower jaw; there is no fin upon the back, and the fistulous aperture is placed either in the head or the snout.—This genus is not admitted by Linnæus; his genus PHYSETER comprehends those cetaceous animals which have teeth in the lower jaw, and none in the upper; and the species *P. catodon* is one of the two species of that genus, which has no dorsal fin.

CATOLUCA, in *Ancient Geography*, see CATUJACA.

CATOMUM, or CATOMUS, from *κατα* and *ωμος*, *shoulder*, in *Middle Age Writers*, denotes that part of the body below the neck, and between the shoulders.

CATONBELLA, in *Geography*, a large river in Africa, in the kingdom of Benguela, which runs into the river, called by the Portuguese Rio de las Vacas, or Cow's river. It is composed of three large streams united, and of a saltish nature: along the banks the natives dig large channels to receive its briny liquor, which is afterwards condensed into a good salt.

CATONIA, in *Botany*, Juss. p. 441. Brown Jam. Class and order, *tetrandria monogynia*, Nat. ord. undetermined. Gen. Ch. *Cal.* superior four-cleft. *Cor.* none. *Stam.* four.

Pist. Germ inferior, globular; style one; stigma one. *Peric.* Berry, succulent, crowned, four-seeded; one or two of the seeds often abortive. A shrub. *Leaves* opposite. A native of Jamaica.

CATOPSIS, in *Surgery*, a disorder of the sight; more usually called MYOPIA.

CATOPTRICS, derived from *κατοπτρον*, *speculum*; of *κατα*, and *οπτική*, *video*, *I see*, the science of reflex vision; or that branch of OPTICS, which illustrates the laws and properties of light, reflected from mirrors or specula.

The principles and laws of catoptrics, as a distinct branch of optics, will be found under the articles, REFLECTION and MIRROR. See also LIGHT and VISION.

The principal authors who have treated of catoptrics, among the ancients, are Euclid, Alhazen, and Vitellio. Euclid's treatise is the first that is extant on this subject; it was published in Latin in 1604, by John Pena, and is included in Herigon's course of mathematics, and in Gregory's edition of the works of Euclid. Some, however, have suspected that this piece was not written by that great geometrician; though it is ascribed to him by Proclus (lib. ii.) and by Marinus in his preface to Euclid's Data. See EUCLID. Alhazen was an Arabian author, and composed a large volume of optics about the year 1100, in which he treats pretty fully of catoptrics. See ALHAZEN. Vitellio was a Polish writer, and composed another treatise on this subject about the year 1270. Among the moderns, many authors have either directly or indirectly treated of this subject. Tacquet has demonstrated very much at length the properties of plane mirrors in the first book of his Catoptrics, printed in the collection of his works in folio. Fabri has also written on this subject in his book, entitled "Synopsis Optica." James Gregory in his "Optica Promota," and particularly Dr. Isaac Barrow in his "Optical Lectures," have also directed their attention to the principles and laws of catoptrics. Dr. Barrow, in the last mentioned work, has laid down and demonstrated the principles of this branch of optical science with peculiar accuracy and clearness; and deduced from them the properties of spherical mirrors, both concave and convex. We have also David Gregory's "Elements of Catoptrics;" Wolfius's "Elements of Catoptrics;" Dr. Smith's elaborate work on optics, in which he has amply discussed the laws of catoptrics; and many others of less note or of later date; either printed separately or comprehended in those courses of mathematics and philosophy, both theoretical and experimental, to which we have occasion to refer in various parts of the dictionary.

CATOPTRIC Dial, a dial which exhibits objects by reflected rays. See DIAL.

CATOPTRIC Telescope, a telescope that exhibits objects by reflection. See REFLECTING TELESCOPE.

CATOPTRIC Cistula, a machine or apparatus, whereby little bodies are represented extremely large; and near ones extremely wide, and diffused through a vast space; with other agreeable phenomena: by means of mirrors, disposed by the laws of catoptrics, in the concavity of a kind of chest.

Of these there are various kinds, accommodated to the various intentions of the artificer: some multiply the objects; some deform; some magnify, &c.—The structure of one or two of them will suffice to shew how many more may be made.

To make a catoptric cistula to represent several different scenes of objects, when viewed at different holes.

Provide a polygonous cistula, chest, or box, of the figure of the multilateral prism, ABCDEF (Plate IV. Optics, fig. 1.) and divide its cavity by diagonal planes EB, FC, D.A.,

DA, intersecting each other in the centre, into as many triangular locules, or cells, as the chest has sides. Line these diagonal planes with plane mirrors: in the lateral planes make round holes, through which the eye may peep within the cells of the box. The holes are to be covered with plain glasses, ground within-side, but not polished, to prevent the object, in the cells, from appearing too distinctly. In each cell are to be placed the different objects, whose images are to be exhibited; then covering up the top of the box with a thin transparent membrane, or parchment, to admit the light; the machine is complete.

For, from the laws of reflection, it follows, that the images of objects, placed within the angles of mirrors, are multiplied, and appear some more remote than others; whence the objects in one cell will appear to take up more room than is contained in the whole box. By looking, therefore, through one hole only, the objects in one cell will be seen, but those multiplied, and diffused through a space much larger than the whole box; thus every new hole will afford a new scene: according to the different angles the mirrors make with each other, the representations will be different: if they be at an angle greater than a right one, the images will be monstrous, &c.

The parchment that covers the machine, may be made pellucid, by washing it several times in a very clear ley, then in fair water, and bracing it tight, and exposing it to the air to dry. If it be desired to throw any colour on the objects, it may be done by colouring the parchment. Zahnus recommends verdigrise ground in vinegar, for green; decoction of Brasil wood, for red, &c. He adds, that it ought to be varnished, to make it more pellucid.

To make a catoptric cistula to represent the objects within it prodigiously multiplied, and diffused through a vast space.

Make a polygonous cistula, or chest, as before, but without dividing the inner cavity into any apartments, or cells; (*Plate IV. Optics, fig. 2.*) line the lateral planes CBHI, BHLA, ALMF, &c. with plane mirrors, and at the foramina, or apertures, pare off the tin and quicksilver, that the eye may see through: place any objects in the bottom MI, v. g. a bird in a cage, &c.

Here the eye looking through the aperture *hi*, will see each object placed at bottom, vastly multiplied, and the images removed at equal distances from one another. Hence, were a large multangular room, in a prince's palace, lined with large mirrors, over which were plain pellucid glasses to admit the light; it is evident the effects would be very surprising and magnificent. For other modes of applying and combining mirrors, see MIRROR.

CATOPRITES, in *Natural History*, a name given by some writers to a stone of the marble kind, which, when polished, was capable of serving as a speculum, either flat, and only used to represent the images of things; or concave, and used as our reflecting burning-glasses. The hard black marbles were most frequently used for this purpose; but sometimes the reddish ones, and sometimes one or other of the jaspers. All these were indiscriminately called by the name *catoprites*, when put to this use.

CATOPTROMANCY, formed from *κατοπτρον*, *speculum*, and *μαντις*, *divinatio*, a kind of divination among the ancients: so called, because it consisted in the application of a MIRROR.

Pausanias says, it was in use among the Achæians; where those who were sick, and in danger of death, let down a mirror, or looking-glass, fastened by a thread, into a fountain, before the temple of Ceres; then, looking in the glass, if they saw a ghastly disfigured face, they took it as a sure

sign of death; on the contrary, if the face appeared fresh and healthy, it was a token of recovery. Sometimes glasses were used without water, and the images of things future, they say, were represented in them.

CATO-SIMIUS, PETIV. in *Zoology*. See LEMUR VOLANS.

CATRA, or CATRÆA, in *Ancient Geography*, a town of the island of Crete. Steph. Byz.

CATRALEUCOS, a town of Spain, placed by Ptolemy in Lusitania.

CATRENSIS, an episcopal see of Africa, in Mauritania Cæsariensis.

CATROPITÆ. See AGONISTICI.

CATROU, FRANCIS, in *Biography*, a learned and ingenious writer, was born at Paris in 1659, entered among the Jesuits in 1677, and took his vows at the college of Bourges in 1694. He officiated as a preacher for 7 years, and then abandoning that office, on account of the difficulty of committing his sermons to memory, he devoted himself to literature, and was employed from 1701 for 12 years in writing for the "Journal de Trevoux." In 1702, he published "A general History of the Mogul Empire," from the Portuguese memoirs of Manouchi, a Venetian; to the third edition of which, in 1715, is annexed the reign of Anrengezebe. His "History of the Fanaticism of the Protestant Religion," containing only that of the Anabaptists, appeared in 1706; and in 1733 he added, in two volumes, that of Davidism and of the Quakers. His "Translation of Virgil in Prose, with historical and critical notes," began to be published in 1708, and was completed in 6 vols. 12mo. in 1716. With many defects and faults, this work displays both ingenuity and industry. The most elaborate performance of Catrou is his "Roman History, from the foundation of Rome," which employed the greatest part of his literary life, and in which he was assisted by his brother Jesuit, Julian Rouillé. This appeared in 1737, with the notes, dissertations, medals, &c. in 20 volumes 4to. and, without these appendages, in 20 volumes 12mo. The history was brought down by Rouillé, after the death of Catrou, in one volume 4to., to the end of Domitian's reign. The work displays great labour and research, and contains an ample and well-connected collection of facts; though the style is affected, and not characteristic of a solid and dignified historian. It has been translated into Italian and English. Catrou died in 1737, in the 78th year of his age, and retained to a very advanced period the force and vivacity of his imagination. *Nouv. Dict. Hist. Gen. Biog.*

CATRY, in *Geography*, a particular sect of Hindoos, mentioned by Thévenot, who places them in the vicinity of Moultan, and who says that they spread from hence over all the Indies. He explains this tribe to mean "Rajpoots," or warriors; that is, the Kuttry tribe, properly. These Catries, according to Rennell, were the Catheri of Diodorus Siculus, and the Cathi of Arrian; with whom Alexander contended on the borders of the Malli. See CATHAIA.

CATSAL, a town of Chinese Tartary; 28 miles W. of Concha.

CATTABANIA, in *Ancient Geography*, a country of Arabia Felix, according to Steph. Byz.; called by Strabo *Catabania*.

CATTACK, or CUTTACK, in *Geography*, a city of Hindoostan, and capital of a district of the same name, in the province of Orissa. It is seated on the river Mahanuddy, and is an important post, as it lies in the only road between Bengal and the northern circars; and the possession of this city and its dependencies gives the Berar rajah more consequence in the eyes of the Bengal government, than even his

extensive domain and central position in Hindoostan. It is distant 785 miles from Agra, 452 from Beuares, 1034 from Bombay, 251 from Calcutta, 902 from Delhi, 651 from Hyderabad, 641 from Lucknow, 779 from Madras, 482 from Nagpore, 822 from Ougein, and 968 from Poonah. N. lat. 20° 32'. E. long. 86° 1' 30".

CATTAHUNK, one of the Elizabeth isles, in the state of Massachusetts.

CATTAIO, a town of Italy, in the Paduan territory; 5 miles S. of Padua.

CATTARO, or CATARO, a town of Dalmatia, capital of the territory of the same name, surrounded with thick walls, and defended by a castle; the see of a bishop, suffragan of Bari. It is subject to the state of Venice, and seated on a gulf of the same name. N. lat. 42° 25'. E. long. 19° 19'.

CATTECORONDE, in the language of the Ceylonefc, prickly cinnamon. This is a bark very much resembling cinnamon, but produced by a tree which differs very much in the shape of the leaves, and is full of sharp thorns, which the true cinnamon tree is not. The bark has nothing either of the taste or smell of cinnamon, though so like it externally. The natives use the root, leaves, and bark of this tree externally, to soften tumours. Phil. Trans. N° 409. See CASSIA and CINNAMON.

CATTEGAT, or SCAGGERAC, in *Geography*, a large gulf of the North Sea, between North Jutland to the west, Norway to the east, and the islands of Zealand and Funen to the south; about 120 miles from north to south, and from 60 to 70 from east to west. This gulf is sprinkled with an astonishing number of rocks and islands. See BELTS.

CATTENOM, a town of France, in the department of the Moselle, and chief place of a canton in the district of Thionville. The place contains 1067, and the canton 14,876 inhabitants; the territory comprehends 297½ kilometres and 47 communes.

CATTERTHUN, a remarkable Caledonian post, situate a few miles N. of the town of Brechin, in the county of Angus, in Scotland. Mr. Pennant represents it as a very strong post, and particularly describes its structure and dimensions. Near it is another similar fortification of inferior strength, called "Brown Catterthun," from the colour of the ramparts, which are composed only of earth: the other consisting of stones. The former is of an oval form; but that of the latter is circular. Catterthun denotes "Camp-town;" and Mr. Pennant is of opinion, that these might be posts occupied by the Caledonians before their engagement at the foot of the Grampian mountains with the Roman general Agricola.

CATTI, in *Ancient Geography*, a people of Germany, who lived in the vicinity of the Cherusci. They were a warlike people, and their infantry was reckoned the best in Germany. The most remarkable places of their country were Castellum Cattorum and Munitium. Under the lower empire they were divided into two bands or classes; one of which joined the Cherusci, and the other established itself in a district of the country of the Batavi.

CATTIER, ISAAC, in *Biography*, born at Paris in the early part of the 17th century, received his education at Montpellier, where he took his degree of doctor of medicine, in 1637. Returning to Paris, he was made physician in ordinary to the king, and ranked among the most eminent physicians of his time. He was author of several learned works. "On the Waters of Bourbon;" "On the Powder of Sympathy," which he did not admit to be possessed of the qualities attributed to it; "De Rheumatismo, ejus Na-

tura, et Curatione," Paris, 1653, 12mo.; "Observationes Medicæ rariores," published the same year. They were afterwards joined with the observations of Peter Borelli. Among them is one of a malefactor who was executed at Paris, in whom the viscera of the thorax and abdomen were found to be transposed; those belonging to the right side being placed on the left, and vice versa. He has also observations on varieties observed in the lacteals, and in the thoracic duct, and on some monstrous births. Haller. Bib. Anat. et Chirurg.

CATTIGARA, in *Ancient Geography*, a considerable port of India, the position of which corresponds, as M. d'Anville endeavours to prove, with that of Mergui, on the west coast of the kingdom of Siam.

CATTING *the Anchor*, is the operation of hauling the stock of the anchor up to the cat-head.

CATTIVELLAUNI, in *Ancient Geography*, the inhabitants of that part of Britain which lay north of the territory of the Trinobantes, and east of that of the Dobuni, in the country which now comprehends Hertfordshire, Buckinghamshire, and Bedfordshire. These ancient British people are sometimes called by Greek and Roman authors Catti, Cassii, Cattieuchlani, Cattidudani, Caticludani, Catycuciani, &c. It cannot be doubted that they were of Belgic origin, and it is not improbable, that they derived their name of Catti from the Belgic word Katten, which signifies illustrious or noble, and that the addition of Vellauni, which denotes on the banks of rivers, might be given them after their arrival in Britain, as descriptive of the situation of their country. (Baxt. Gloss. Brit.) However this may be, the Cattivellauni formed one of the most brave and warlike of the ancient British nations, when Cæsar invaded Britain, and long after. Cassibelanus, their prince, was made commander in chief of the confederated Britons, not only on account of his own personal qualities, but also because he was at the head of one of their bravest and most powerful tribes. In the interval between the departure of Cæsar and the next invasion under Claudius, the Cattivellauni had reduced several of the neighbouring states under their obedience; and they again took the lead in the opposition to the Romans, at their second invasion, under their brave but unfortunate prince Caractacus. The country of these people was much frequented and improved by the Romans, after it came under subjection to them. It made a part of the Roman province called Britannia Prima. Its capital was Verulamium. Cæf. Bell. Gall. l. v. c. 9. Dio. l. lx. Tacit. Annal. l. xii. c. 33. Henry's Hist. vol. i.

CATTIVO, *Ital. bad*: in *Musical*, it is chiefly used in speaking of accentuation, as *tempo buono*, an accented part of a bar; *tempo cattivo*, an unaccented part. Of the former, in common time of 4 crotchets in a bar, the 1st and 3d are accented, and the 2d and 4th unaccented.

CATTLE, in *Rural Economy*, a name commonly applied to a certain kind of quadrupeds or beasts of pasture, as those of the *bos*, or cow and ox tribe; which are animals of vast importance in the practice of husbandry.

As marking the division of domestic animals, or what is usually termed live stock, they are often denominated *neat*, or the *larger-horned* cattle, and in some districts *black cattle*, though this last appellation is more frequently employed to signify a particular breed or variety of this sort of animals. See BLACK CATTLE. It seems not improbable but that all these sorts of animals were originally in a wild or untamed state, and that in proportion as the art of cultivation increased, such as were the most proper and best suited to this purpose and that of domestication, were gradually selected and made subservient to the power of man. This is more probable

CATTLE.

bable from some being still found in a state of nature in different countries.

The characteristic distinctions of the genus or kind, according to the very intelligent naturalist, Mr. Pennant, are that they are "cloven footed, with or without horns, the horns bending out laterally; eight cutting teeth in the lower jaw, and none in the upper; the skin along the lower side of the neck pendulous; rounded horns with a large space between their bases."

This species constitutes the principal particular sorts, being formed from the original and most remarkable divisions or distinctions; and the varieties are produced by the intercopulation of these, which, from their being accidental, as well as from the great diversity of soil, food, and climate, must obviously assume a vast diversity in respect to shape and form. Some of these varieties, whether original or acquired, have, however, been preserved in a *permanent* state by the efforts and attention of the careful breeder. But notwithstanding the variations produced in neat cattle by the influence of climate, or the agency of other causes, the principal specific distinction which has been made in their kind by the naturalist is that of the *urus*, or common bull of temperate climates in its native wild state, and the *bison* or bull of the more hot regions, having a bunch between his shoulders, which in some of the largest is said to be of considerable weight and exquisite flavour, and to form the characteristic distinction of the animal: while the elevated crest, and in some cases the lion's mane, form nearly a characteristic mark of the common bull, the former of which being individually preserved to the ultimate stages of domestication, as is occasionally seen in the Devonshire, Alderney, and other kinds or breeds.

Before we come to consider the various breeds and varieties of domesticated cattle in our own country, it may be of advantage to take notice of some particulars respecting those in others, that are the most remarkable.

In regard to the *urus*, or native wild bull, it has in general a curled shaggy coat, especially on the forehead; the hair constantly long on the fore quarters, neck, and forehead, and depending from the chin; the neck elevated, thick and short, with the tail long, the eyes red and fiery; the horns thick and short. It grows to a large size, the female being larger than our largest bull, and is of a black colour.

The *bison* has the same hairy appearance in his fore part only; his long shaggy mane forms a sort of beard under his chin, but he differs from the former in having a lump or bunch between his shoulders, and the tail and legs are short, the eyes fierce, the forehead large, and the horns extremely wide.

The former of these sorts of animals are dispersed over the more temperate and cold climates, and especially throughout America, probably imported from Europe; while the latter have spread over most of the more southern parts of the world, but with considerable diversity in respect to their size and form:—Those met with in the island of Madagascar, in Malabar, as well as other parts of India, in Persia, the Ukraine, Calmuck Tartary, the Upper Ethiopia, and in Abyssinia, being of the proper *bison* or large kind; while those of Africa, the higher southern latitudes of India, and some parts of Arabia, are of the small dwarf or *zebra* kind; in which the hair is more fine, glossy, soft, and beautiful, than that of the common cow:—The largest animals of the different sorts being constantly met with in those temperate situations or districts, where the supplies of water and herbage are the most regular and abundant.

In some of the former of the above countries the animals rise to a very large size, sometimes being wholly without horns, but in other cases with extremely large branching or

pendulous ones, having a very great substance or thickness at the basis. They are in much estimation, especially the oxen, when of a fine white colour, for the purpose of quick draught in carriages. And in some of the more barren and less fruitful parts of the latter countries the sort is found extremely useful in carrying loads, though often not more than three feet in height.

The Indian cattle have been occasionally brought from their native situations, and blended with the breeds of this country.

The *musk bull*, which is found in the interior parts of North America, between Churchill and Seal rivers, may perhaps be considered as a variety of the above sort produced by intercopulation with the wild European kind, as the wild bull of this part of the globe emits a musky scent. It is described as somewhat lower, but more bulky than the deer; the legs short, a small hump or bunch on the shoulder; the hair of a dusky red colour, very fine, and so long as to reach the ground; beneath which the body is covered with an ash-coloured wool of exquisite fineness, capable of forming stockings finer than silk. The tail not more than three inches in length, being covered with long hairs, which the Esquimaux Indians convert into caps. The horns are close and large at the base, bending downwards, and turning out at the tips, being two feet in length or more.

The *farbuc*, or grunting ox of Tartary and Thibet, where it is brought into a domestic state, from having the hump between the shoulders, and being capable of generating with the bison, may obviously be concluded to belong to that kind. The chief circumstance in which it differs, is that, instead of lowing, as in the ox kind, it has the peculiarity of grunting like the hog, but it varies in other particulars. It has the whole body covered with a very long hair, which hangs down below the knees, mostly of a black colour, except on the ridge of the back and the mane, which is white. The horns are short, upright, sharp, and slender at the extremities. The tail in the form of that of the horse, but white and bushy. It butts or strikes with its head like the goat, and in its wild state is extremely unruly. The tail is held in high estimation for various purposes of ornament.

How far any of these foreign breeds or varieties of cattle are capable of being introduced with advantage into this country, remains to be further proved by the test of actual experiment, in respect to the qualities or properties of hardiness, quickness of fattening, fineness of flavour in the meat, and many other points, as has been ingeniously suggested by Dr. Anderson.

In regard to the cattle of our own country, as they are not less numerous in their varieties than those of the foreign kinds, and of much more importance to the farmer in a variety of different points of view, but particularly in that of profit; the greatest care and attention should obviously be bestowed on the breeding, rearing, and providing such sorts as are the best suited to the particular nature of the farm, or land on which they are to be supported. And as no one particular breed is suitable for every situation or kind of farm, much circumspection should be employed in adapting them to the peculiar nature of the climate, situation, and soil.

The circumstances that are to be more particularly regarded, in respect to the breeds themselves, in so far as they interest the farmer, have been already explained, in considering the methods of breeding this sort of live stock. See BREEDING.

It is not well ascertained what were the primitive or original sorts of cattle in this island, but it seems probable from those breeds which have, from particular circumstances, remained

mained without being much debased by the admixture of other sorts, such as the Highland, the Welsh, and the North Devon, as well as perhaps the Lancashire long-horns, that, in the more hilly regions and the low vallies, they consisted of the long and middle-horned varieties, perhaps without any of the short-horned sort, which have, probably, been since introduced from the opposite continent. Some, however, think, with much probability, that the long-horned sort was originally brought into this country from Ireland, from the native stock of that island consisting wholly of that breed, and from no other country possessing cattle, which have a similarity of form and size of horn.

Poland is likewise supposed to have supplied the breed, which, from their having no horns, is termed the *polled*, though it is probable from the want of horns being a part of the generic character, that a mixture of this sort of cattle may have originally existed in the country, notwithstanding they are now so blended and intermixed with others as not to leave a possibility of discovering the original.

It is probable that the primitive or original sorts of cattle have not deviated much from their standard forms, except in what has proceeded from an increase of size, bulk, and substance, in consequence of being better supported from the improved state of husbandry, and their being blended and moulded into different varieties by crossing, and other means made use of by the breeder.

The numerous breeds and varieties of cattle which are to be found in different districts of this kingdom have been principally designated either from the appearances which they immediately present to the farmer, or the places in which they are found to prevail in a state of the greatest perfection; though no very correct enumeration of them has hitherto been given, only a few of the more valuable and useful sorts having been fully described.

These are the *long-horned* or Lancashire breed; the *middle-horned* breed; the *short-horned* breed; the *Welsh* breed, the *polled* or Galloway breed; the *Scotch* breed; the *Alderney* or *French* breed; and the *wild* breed.

It has been observed by Mr. Culley, in his "Treatise on Live Stock," that the *long-horned* or Lancashire breed of cattle are distinguished from others by the length of their horns, the thickness and firm texture of their hides, the length and closeness of their hair, the large size of their hoofs, and coarse, leathery, thick necks; that they are likewise deeper made in their fore quarters, and lighter in their hind-quarters, than the other breeds in general. And Mr. Donaldson says that in size they are superior to the Suffolk duns, but inferior to the short and middle-horned breeds. Mr. Culley thinks also further that they are narrower in their shape, less in point of weight than the short-horns, though better weighers in proportion to their size; and that the cows give considerably less milk, though it is said to afford more cream in proportion to the quantity.

These cattle are more varied in colour than any of the other breeds; but whatever the colour be, they have generally a white streak along their back, which the breeders term *finched*, and mostly a white spot on the inside of the hough. And in the bending of the horns there is an equal variety in this sort of cattle.

It is likewise remarked by the same author, that many people contend that they are the native or original breed of this island. It is not easy, he says, to ascertain this matter; but if he may venture a conjecture, he thinks it is probable these have been the inhabitants of the open plain country; whilst the wild breed, or perhaps the Welsh and Scotch, possessed the woody, wild, and mountainous parts of the island.— "However," says he, "Lancashire at present, and for a

long time past, has as much right to be called the mother country for long-horned cattle, as Lincolnshire has for the large long-woolled sheep; for though all or most of the cheese-dairies in Cheshire, Gloucestershire, &c. and indeed the greatest part of the midland counties employ a kind of long-horned cows, yet they are only a shabby mixed breed, much inferior in size and figure to the Lancashire breed, from whence it is very probable they all originated." The author of "The present State of Husbandry in Great Britain," however, thinks it probable that the long-horned breed originated in importations of cattle from the neighbouring country of Ireland; and that bulls and cows brought from that island, having been coupled with the ancient breed of the district, produced the sort of cattle known by the name of the Lancashire or long-horned, and which now occupy a large portion of the pasture lands of this kingdom. It is added, that besides Lancashire, the long-horned cattle are also very general in the counties of Warwick, Leicester, Gloucester, Chester, and several others of the midland counties; and what is surprising, and shows great attention in the one instance, and equal neglect in the other, this sort of cattle is said to be found in greater perfection in the county of Leicester than in the district whence they take their name. This has arisen, according to the observations of the author of the Treatise on Live Stock, from the graziers of these counties buying their best bulls and heifers for many years past, before the people of Lancashire were well aware of it. The former paid more attention to that kind which were of a true mould or form, and quicker feeders; while the latter contented themselves with the old-fashioned, large, big-boned kind, which are not only slower feeders, but when fed, are not such good beef. In short, the little farmers in Lancashire, tempted by the high prices given them for their best stock, had lost their valuable breed before they were sensible of it." It is evident that the original breed of this sort of cattle spread themselves from the great breeding districts of the northern parts of Lancashire, Westmoreland and Cumberland, into the extensive grazing and dairying districts of the midland counties, where they are at present met with in the most improved state.

It is asserted that this breed is understood by graziers to be in general rather slow feeders, except that particular kind selected and recommended by the late Mr. Bakewell, which are said to eat less food than the others, to become remarkably fat in a short space of time, and to lay their fat upon the most valuable parts, but have little tallow in them when killed; and, when used in the dairy, give very little milk. This variety also differs from the rest of the long-horned cattle, in having very fine, clean, small bones in their legs, and thin hides. They are stated to be "a middle-sized, clean, small-boned, round-carcased, kindly-looking cattle."

It is supposed by Mr. Culley that the Irish cattle are a mixed breed between the long horns and the Welsh or Scotch, but more inclined to the long horns, though of less weight than those in this part of the kingdom.

It was from the midland long-horned breed of neat cattle that the late Mr. Bakewell selected the stock for his great improvements in these animals. Much attention had indeed been previously paid to the procuring and introducing of the best cow stock of this sort into this district by others, and it was by selecting from these that Mr. Webster constituted the noted Canby stock. And from cows of this celebrated sort with Westmoreland bulls the very intelligent breeder just mentioned commenced his plan, which, after breeding repeatedly from the best of the same kind, constantly choosing individuals with the roundest forms and smallest bones, he produced that variety, which has since acquired so high

a character for their fattening property. It is, of course, obvious that this variety which has been denominated the *Difley* or *new Leicester*, is principally calculated for the purposes of the grazier, while the original long-horns have preserved their superiority for the pail. The size of this improved sort is considerable, and its utility sufficiently shewn by the high prices that are frequently given for them.

There is a sort of mixed kind which are termed half long-horns, that are an useful sort of stock, and which will be noticed below.

The *middle-horned breed* of cattle are, according to the author of the Treatise on Live Stock, most frequently met with in the south and south-west parts of the island, as Suffex, Dorsetshire, Hampshire, Devonshire, &c. and have also reached so far north as Herefordshire, in which district perhaps the largest breed of this sort of cattle are now to be found. The cattle of this breed that are met with in Devonshire are said by Mr. Culley to be found in the greatest purity, and of the best kind, in the vicinity of Barnstaple; these are of a high red colour; if they have any white spots they reckon the breed impure, particularly if those spots run into one another; with a light dun ring round the eye, and the muzzle of the same colour; fine in the bone, clean in the neck, horns of a medium length bent upwards, thin-faced and fine in the chaps, wide in the hips, a tolerable barrel but rather flat on the sides, tail small and set on very high: they are thin-skinned, and silky in handling, feed at an early age, or arrive at maturity sooner than most other breeds; they are well fitted for draught, both as to hardiness and quick movement, and their shoulder-points are beautifully fitted for the collar.

But according to Lord Somerville, who has given a full account of them in the "Annals of Agriculture," and who must be allowed to be no mean judge of this breed of cattle; they are, when described, "not as they might be in imaginary individuals, but as they really are found, in general, speaking of this as of all other breeds, that conclusions must not be drawn from the shape and size of the bulls, but from the general quality of their stock. Certain it is (he says) that individually handsomer bulls are often to be found in other breeds; and it is as certain, that this race, of which the whole produce is brought to view, stands the confessed favourite, or among the very first at Smithfield, where prejudice cannot find the way. And in forming an estimate of merit or demerit, the annual produce is to be the object attended to; this in oxen, which for superiority of grain, activity in labour beyond all competition, and what in horses is termed blood, will be found a right criterion to judge of the bulls which got them."

And that "beginning with the shape of the bull, in any very handsome individual, the horn is (he says) found neither drooping too low, nor rising too high, nor with points inverted, called here *flag-headed*; tapering at the points, and not too thick, or *goary* at the root; the colour yellow, or waxy. The eye clear, bright, and prominent; looking well behind and shewing much of the white;—a dead-eyed ox not often a good prover, or fine in skin;—an occasional variation of colour round it. Forehead flat, indented, and small:—this found almost universally in this breed, and is a point that shews much blood. Cheek small and muzzle fine:—if the forehead is fine the muzzle is so too. The nose of a clear yellow, if possible like the horn, or mottled:—a black nose always to be avoided; for although occasionally a black-nosed ox may bear work, and die well, yet it is a point often demonstrative of a bad constitution, of such as turn scourers, or *skinters* provincially, and particularly when the cast of the coat is of too pale a colour. The nostril high

and open. In respect of throat, the bulls of this breed are sometimes reproached with being *throaty*, or with the skin too profuse and pendulous. The hair curled, giving an apparent coarseness to the head not to be found in the New Leicester bulls, when carefully trimmed with scissars. The neck perhaps thick and *goary* in the estimation of strangers, with which property the oxen of this breed are not to be reproached, or they would not labour as they do.

"Generally speaking (he thinks) the bulls are relatively to oxen not of a large size; and it should be observed respecting size in general, that nature operating in food and climate is imperious, and will produce oxen proportioned to those two circumstances in due course of time, whatever may have been originally the size of the bulls and cows.

"Here end (he says) the points wherein there is any essential difference between the bull and the ox; the variation in others is small and unessential: a remark which is, however, subject to limitation; for individual instances will occur, which if too much attended to, would seem to establish a different rule.

"The neatness of form, and energy and vigour in labour, greatly, if not wholly, in this breed arose (he supposes) from breeding by heifers and year-old and two years' old bulls. Although an old ewe may produce a finer lamb than a younger one, yet the quality of vigour is unnecessary and extraneous (he says) to the sheep. This, (continues he,) is a prejudice deeply rooted in the minds of all practical men, although much, in the estimation of some, may be given to climate.

"Compared with the horse, the shoulder is (he conceives) low. It should correspond with the general thickness of the animal; on no account projecting. If a bullock is *inkneed*, or bending towards each other, the point of the toe must be out; the point of his shoulder must be the same; and he must be hollow behind the withers, (an incorrigible point in an ox for feeding) and he must be, of necessity, a slow worker.

"The bosom is not sharp with a loose, pendulous dewlap; but wide in form, and mellow in handling. In buying an ox great notice should be taken of the breadth of the bosom, and between the fore-legs, standing quite wide, the legs like straight pillars supporting a great burden. Much in buying is lost or gained by attention to this point: it is not for symmetry only, but implies strength and speed; a proportionate breadth of breast giving wind: and here we find (he says) the application to a working ox.

"The legs are straight; and the more blood an ox shews, the smaller will they be. The circumstance of this breed shewing more blood than any other in the kingdom, has (he observes) been remarked by many persons ignorant of cattle, but deeply skilled in horses. The leg neither too long, nor too short: an undue length is to be avoided.

"Very much of a bullock's proof is admitted, (he adds) on all hands to depend on the size of the rib, rotundity of the barrel, and mellowness of the skin. These are the first points to handle in a lean and in a fat ox. The two hind ribs should be bold, prominent, and widely independent of each other. The skin rising easily from the ribs, mellow, and elastic, affording room to lay fat on below it. A man buying a lean ox would do well to handle him on both sides: it often happens, that the frame or barrel is not equally round on both; one being evidently to the eye and hand flatter than the other.

"The hips, or pins, lie so high as to be on a level with the back, either in a fat or lean state; by no means dropping. The older the animal, the lower the upper flank drops, and consequently, the higher the hips appear. In this point of

the upper flank, a skilful judge will (he thinks) discover much of the inward properties of a fat bullock. The hind quarters from the pin to the catch, or point of the rump, should be long and well filled up: handling the centre of this space is a leading feature, in the estimation of choice judges, and ascertains more of the substantial quality of the flesh and fat of a beast than the prominence of fat so much admired by bad judges on the catch of the rump.

"The setting on of the tail is on a level with the back, something elevated, nothing depressed: size long, small, taper, and with a round bunch of hair at the bottom; the tail, as in a horse, denoting much of high blood.

"The gaskins are not too much cut away, nor, as in the Holdernefs breed, heavy and loaded: bearing always in mind, that these oxen are not bred for inactivity, but for wind, vigour, and strength: for although a breadth in the bosom, inasmuch as it is essential to wind, in a working animal, is beneficial; yet a load of flesh on this hind part tends nothing to activity; and being of second-rate quality, is not desirable for profit.

"In point of skin they are among the thinner classes, rather than the thicker. It is very rarely that an ox is found with a hard or wiry skin. Much depends on colour: the shades most admired are the mahogany; and the more glossy silkiness, if smooth, the better. Those with curled hair are deemed excellent provers, and a very glossy mahogany skin, paler or lighter, with curls like ripples of wind on a smooth mill-pond, is also in the highest estimation. It is hard to say which of these is the best; all turning out such numbers of good fat oxen. The paler shades, if the eye is clear and good, will bear hard work, and prove as well as any. This rule only is absolute, that a pale skin, hard under hand, with a dark and dead eye, too often denote a *skinter* in hard work, and rarely under any indulgence, a good prover.

"Respecting the lower flank and the cod, they do not deserve that attention which many persons pay them, who consider these points of prime importance.

"The graziers like this breed (he says) best at five years old. The worked-out steers of the vale sell for more, at five years, than at six: but six is the proper age. At eight, nine, and ten, they are going back in all their points; and in their value after seven. No ox should be kept after seven, or, at most, after eight.

"They (the red cattle) are (he says) yoked at two or three years old, and lightly worked; labour increased at four; from that period till six full worked. Worked oxen attain a larger size than unworked; finish their growth generally at six years old; but the larger size grow the longest."

From the actual experience of the noble writer, "the pole and yoke form the true lever of an ox, and he can draw a greater weight in yoke, than in collar and harness, particularly in a steep country. The bullocks never come home in the middle of the day; a bundle of hay is carried into the field; all the calves of this breed are reared."

These oxen are "not (he says) parted with by the tillage-farmers until the barley-sowing is over, and, in many cases, the turnip-ground once stirred; yet they are grazed fat, in six or eight months, to the average weight of forty-five score: these, kept on, after Christmas, fattened on hay alone, which, in the grazing districts of the west, is held equally nutritious with any other sort of corn; oil-cake feeding not practised: these hay-fed oxen stand the drift to London without waste. Instances of marsh-feeding heifers bought in April or May, quite poor, fit for the butcher by the middle of July; in August uncommonly fine beef."

"The station of this breed begins (his lordship observes) at Barnstaple, and is traced, by pursuing the line of the river Taw, as high as Chumleigh, then to Tiverton on the Ex, Wellington, and nearly to Taunton. Then turning north straight to the sea, over the eastern boundary of the Quantoc hills, to Stoke Courcy; from which place, on the eastern extremity, to the mouth of the Barnstaple river on the western, includes the whole, to the length of forty-five miles, and to the breadth across, from Tiverton to Minehead, of twenty-two. To the east of this range, the breed gets into a mixture of Gloucester, Welsh, Upper Somerset, &c. being a varied dairy sample: and more to the west, a Devon, verging on the principle of the Cornish stock. To the south, the variety of the south hams is found; coarse, with a good deal of white and brown, with black and white mixtures, of uncertain properties. Exmoor is the highest point of the district thus defined, the country shelving from it in every direction, the source of all the rivers, and the head-quarters of all the cattle. At Bampton and Wyvelcomb, they are found in great perfection."

It is observed by Mr. Lawrence, in his "Treatise on Cattle," that "the red cattle of North Devon and Somerset are, without doubt, one of the original breeds, and one of those which has preserved most of its primitive form: the excellence of this for labour is best proved by the fact, that the fashionable substitution of horses has made no progress in the district of these cattle; by their high repute as feeders, and for the superior excellence of their beef, which has been acknowledged for ages."

It was remarked by Mr. Bakewell, that the Devonshire could not be improved by any cross with other breeds.

This breed has been supposed by some to run to too great length of leg, crooked behind, or *sickle-hammed*, and to be of insufficient general substance, as well as to be more apt to be *in-kneed*, that is, crooked in the fore legs.

It is suggested, by the writer just mentioned, that, "by a proper selection from their own stock, they might be bred somewhat more square and substantial, without at all detracting from their delicacy, shew of blood, or speed. Their labouring powers might be thus increased, and their quantity of beef, without either debasing its fine qualities, or rendering necessary a larger portion of keep. These cattle have generally, for a century past, it is added, commanded the best price at Smithfield; but of late years the buyers there have shrewdly remarked, that although blood and fine form are very pleasing to the eye of the gentleman breeder, yet substance and weight are, and ever must be, the grand objects at market."

It is stated that "the Devonshire variety of this breed are the quickest working oxen in this country, and will trot well in harness; in point of strength, they stand in the fourth or fifth class. They have a greater resemblance to deer than any other breed of neat cattle. They are rather wide in the horns, in part inclining. Some, however, have regular middle horns, that is, neither short nor long, turned upwards and backwards at the points. As milkers, they are so far inferior to both the long and short-horns in quantity and quality of milk, that they are certainly no objects for the regular dairy. They have, however, been formerly used with success at Epping in Essex, in one or two instances; as a balance to which they are universally rejected by the dairies of their own and the neighbouring counties."

It has been stated by Mr. Young, "that the *natt* or *polled* Devonshire breed, in the neighbourhood of Barnstaple, is coloured, middle-sized, thick-set, and apt to make fat, but

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coarser than the true-bred. The Devonshire sort, being a hill-cattle, are said to be much more hardy, and better winterers, than might be supposed from their appearance."

The Suffex and Herefordshire cattle are varieties of the middle-horned, or Devonshire breed of a greater size; the Herefordshire being the largest. Of these cattle Mr. Culey gives the following description. Colour red, fine hair, and very thin skin, neck and head clean, horns neither long nor short, rather turning up at the points; in general, well made in the hind quarters, wide across the hips, rump, and furloin, but narrow on the chine; tolerably straight along the back; ribs or sides lying too flat, thin on the thigh, and bone not large. An ox, six years old, when fat, will weigh from 60 to 100 stone, of 14lb. to the stone, the fore-quarters being generally the heaviest. The oxen are mostly worked from three to six years old, sometimes seven, when they are turned off for feeding.

It is conceived by Mr. Lawrence, that the Herefordshire variety of cattle, which at present are a mixed breed, are, in general, to be considered as having been originally of the Devonshire sort. And that "its great size is probably derived from an intercopulation with the heaviest of the Welsh or Shropshire breeds."

According to Mr. Marshall, "this variety has the countenance pleasant, cheerful, open; the forehead broad; eye full and lively; horns bright, taper, and spreading; head small; chap lean; neck long and tapering; chest deep; bosom broad, and projecting forward; shoulder-bone thin, flat, no way protuberant in bone, but full and mellow in flesh; chest full; loin broad; hips standing wide, and level with the spine; quarters long and wide at the neck; rump even with the general level of the back, not drooping, nor standing high and sharp above the quarters; tail slender, and neatly haired; barrel round and roomy, the carcass throughout deep and well spread; ribs broad, standing close and flat on the outer surface, forming a smooth even barrel, the hindmost large and of full length; round bone small, snug, not prominent; thigh clean, and regularly tapering; legs upright, and short; bone below the knee and hough small; feet of middle size; cod and twist round and full; flank large; flesh every where mellow, soft, yielding pleasantly to the touch, especially on the chine, the shoulder, and the ribs; hide mellow, supple, of a middle thickness, and loose on the nache and huckle; coat neatly haired, bright and silky, colour a middle red, with a bald face, characteristic of the true Herefordshire breed." However, Mr. Lawrence says, "of late years, considerable coarseness of bone has been observed even in the best Hereford cattle; a circumstance which is of trifling importance, as they have proved themselves of such superior excellence that no possible cross could probably improve them." It is suggested "that the breeders should reflect on the importance of preserving the old blood in a state of as great purity as possible, as they possess, for some purposes, the most valuable breed of cattle in the kingdom, and have been very judicious and fortunate, in nicely blending the elements of such a variety; but they ought not to forget, that, by further mingling and crossing with inferior stock, they may, by degrees, recede from the great eminence they have attained. Should, however, a cross become really necessary, from too much coarseness or over-size, the Devonshire or Norman bulls are supposed the proper ones."

It is added, that "the great distinguishing properties of the oxen of this district are, the great produce of beef, quick feeding in proportion to their growth and size, and the union of strength and speed in labour. It is observed

that, with respect to the most profitable return in quantity of beef, it may be presumed no breed in England can stand in competition with this, and they have accordingly been most successful at the annual prize shews. They also are said to command the first price alive or dead."

It has been stated that the weight of Mr Westcar's ox, which carried the prize at the Smithfield shew in December, 1802, was as follows:

	Stones of 8lb.	lb.
Head, tongue, skirts, heart, and lights	13	2
Tripe, guts, feet, and liver	19	1
Hide	16	5
Blood	6	0
Fat	37	5
Offals	92	5
Fore quarter	72	1
Hind ditto	65	2
One side	137	3
Ditto	137	3
Carcass	274	6
Offals	92	5
Gross weight	367	3

Though the short-horns are of larger size than these, they do not feed so quickly, and require more keep than the Herefordshire sort, which vary very conveniently as to size, but require to be well kept. They are the most powerful draught oxen, being speedy enough for any work, either in the plough or cart, and generally walk sufficiently quick. It is said that they are docile and tractable, and, if trained with temper and kindness, will drive to an inch with reins. But "as milkers they have nothing particular to boast."

Mr. Lawrence thinks the old *Gloucestershire Reds* and *Browns* were middle-horned, shewing blood, and resembling, in a considerable degree, the South Devons, but of a more square and substantial form. They were, however, he supposes, a mixed breed, which shewed much Welsh blood, and were, it may be presumed, more apt to fatten than milk, since they have given way to the long-horned species in that dairy country. It would be difficult, he thinks, at this time, to find any genuine specimens of this old variety.

The Suffex variety of cattle are, he says, in high estimation for beef and labour, and, in some degree, for milk; in which latter respect they are superior to the Devonshire and Hereford sorts, to which they are related. They are a mixed breed, in which much Welsh crossing is sufficiently obvious; but equal pains do not seem to have been taken in their improvement as with the Herefordshire kind. They may be easily found in a state of original purity as to form. This sort are very flat and deep, generally red or brown in colour, and show much blood; both wide and middle-horned, the points turned upwards and backwards; of various size, but the largest generally far too coarse in the bone, and of insufficient width or substance for their great depth of carcass. They yet, he thinks, need no alien crosses, having all the materials of improvement within themselves, unless, indeed, to remedy the excessive fatness in some, a Hereford cross might be useful. Their speed appears to him remarkably great, and he doubts whether even the Devons are, in that respect, superior; they are, in the mean time, equal in

power to the cultivation of the heaviest clays, and to draught over the deepest roads; in temper somewhat quick, like the Devons. These different varieties of the middle-horned breed of cattle are said, for their particular excellencies, to deserve the utmost care from breeders, and to be one of the first objects of national interest, to spread them through the country as beasts of labour.

He supposes that the *Kentish Homebreds*, which are raised from dairy heifers, are of a mixed breed, the Suffex generally forming the base, crossed with Welsh long-horns, Alderney, &c. A variety is, he says, thus raised of excellent butter-cows of a small size; and he suggests it to the breeders of that district whether it may not be worth while to establish and render the breed permanent.

A good specimen of a bull of this sort raised from Suffex bulls, introduced into that county about forty years ago, was remarkable for shortness of the leg, length of carcass, and vast substance; the bone somewhat coarse, and crooked in the hams. It is observed by the same writer that, of the white cattle of Surrey, mentioned by old authors, he knows nothing, nor does he believe Surrey was ever a breeding county. The notion may have arisen, he thinks, from some temporary introduction of Alderney, or other stock of light colour. "In fact, says he, it is said, that some gentleman, about fifty years since, brought up from Lincolnshire, into Surrey, a lot of white cows, very large milkers, and that the same kind were at that time kept in Suffolk; they were probably, he thinks, of Dutch extraction."

The author of the "Present State of Husbandry in Great Britain" remarks, that when all the properties which should attach to an useful breed of cattle are considered, the middle-horned may be said, as a general variety, to come nearer to perfection than any other in England. They are of a large size, well formed, and in disposition to fatten, they are probably, he thinks, much on a par with the short-horned, and generally superior to the Suffolk. As dairy-cattle, they are also as valuable as any that fall under the description of quick feeders; for although they give a less quantity of milk than the Suffolk or the long-horned, it is said to be of a richer quality.

The *short-horned breed* of cattle, according to Mr. Culley, differs from the other breeds in the shortness of their horns, in being wider and thicker in their form or mould, consequently feeding to the most weight, in affording by much the greatest quantity of tallow when fattened, in having very thin hides, and much less hair upon them than any other breed, except the Alderney; but that the most essential difference, he thinks, consists in the quantity of milk they give beyond any other breed; there being instances of cows of this breed giving 36 quarts of milk per day, and of 48 firkins of butter being made from a dairy of 12 cows; but the more general quantity is 3 firkins per cow in a season, and 24 quarts of milk per day. The great quantity of milk, thinness of their hides, and little hair, are, he says, probably the reasons why they are tenderer than all the other kinds, except the Alderney. It is said of this kind, and he supposes very justly, that they eat more food than any of the other breeds; nor can we, says he, wonder at this, when we consider that they excel in these three valuable particulars, viz. in affording the greatest quantity of beef, tallow, and milk. Their colours are much varied; but the generality of them are red and white mixed, or what the breeders call *flecked*, and, when properly mixed, a very pleasing and agreeable colour. They are chiefly to be found in Lincolnshire, and the eastern parts of the counties of York, Durham, Northumberland, and Berwick. And this breed, in consequence of its having been originally imported from Holland, is, he adds, frequently called the Dutch, and sometimes the Holdernefs breed, from a place of

that name in Yorkshire, where it would seem it was first established in this kingdom. Destitute of the exertion and agility of the middle-horned sort, says Mr. Donaldson, they are not so well adapted for the cart or the plough. And considering their size, and the quantity of food they devour, it is probable, he thinks, that they are inferior to any of the above-mentioned; and, when compared with the Suffolk duns, greatly so. Much attention, he observes, was formerly bestowed by the graziers in the midland districts on the improvement of the long-horned breed of cattle; and probably a greater number of eminent breeders have lately embarked in the laudable undertaking of improving the short-horned breed; and from their knowledge, assiduity, and exertions, much may be expected. Mr. Charles Collings at Kettnes, near Darlington, in Yorkshire, is supposed at present in possession of the best breed of short-horned cattle in England.

There are many reasons, says the author of the "Treatise on Live Stock," for thinking this breed has been imported from the continent. First, because they are still in many places called the Dutch breed. Secondly, because we find very few of these cattle any where in this island, except along the eastern coast, facing those parts of the continent where the same kind of cattle is still bred, and reaching from the southern extremity of Lincolnshire to the borders of Scotland. The long horns and these have met upon the mountains which separate Yorkshire from Lancashire, &c. and by crossing have produced a mixed breed, called half-long-horns; a very heavy, strong, and not unuseful kind of cattle; but we do not find that the one kind has spread further west, nor the other further east. This breed, says he, like most others, is better and worse in different districts; not so much from the good or bad qualities of the land, as from a want of attention in the breeder."

It has been observed, that the northern short-horned species is the largest breed in the island, the Herefords being the next. They are an original breed, but whether those of the northern counties are so or not, cannot at present be ascertained; "that is to say, whether they are aboriginal, or were imported in very early times, as we know they have continually been during several centuries."

Contrary to the long-horns, this sort has great depth of carcass; but with ample substance, large bone, thin hide, and gives much milk, which is not distinguished for its richness. They are not of first-rate character as labouring cattle, as has been seen, which, nevertheless, the Holdernefs variety, Mr. Lawrence says, seems to promise by their form. "We look, continues he, to the coarse, square, Dutch beefy breed, as the basis of this species. In many parts of the north, they remain, he adds, still coarse, and by no means equally disposed to large milking. The common Lincolnshire cattle are coarse in head and horn, large boned, high upon the leg, and, to borrow a jockey phrase, *ragged hipped*. Equally coarse internally, but producing flesh in great quantity. The Lincoln neat cattle, in fact, plainly, he thinks, demand a Bakewellian improvement, such as their sheep have received. The most accurately marked and distinguishable permanent varieties of the northern short-horns appear to him to be the Holdernefs and Lincolnshire. Culley, says he, tells us, that amongst the old stock there were some with black flesh, which would grow, but never fatten, provincially called *lyery*; these were to be known by the rotundity of their shape, approaching, in many respects, that of an ill-formed cart-horse. And the extreme coarseness and size of the northern short-horns led, he thinks, to the introduction of Norman or Alderney bulls at some period of the 18th century, with the precise date of which we are unacquainted." And he supposes "there never was a more fortunate cross,

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as in no other country exists so excellent a breed of cattle, including all the useful properties. In one, perhaps the most important, respect, great milking, they are (says he) superior, and even without rivals. Their beef is finer than that of the old short-horned breed, and they fatten much earlier and quicker, carrying still a vast depth of natural flesh, and tallowing within in the first degree. They have both speed and strength enough (he supposes) for labour, and their shoulders are well formed and well posited for draught. Being beautifully variegated in colour, spotted, striped, sometimes *sheeted* red and white, or black, or brown and white, they make a fine park stock. From their superior quantity of milk, they rival, in his opinion, the best long-horns in the cheese and butter dairies, and for suckling are unrivalled. It may be presumed (he says) they are at least equal to the Herefords in the stall, at all points: and there seems but one respect in which they are, in any considerable degree, inferior to any breed which can be named, which is fineness of flesh; in that particular, it is obvious, they can never equal certain other breeds without the entire overthrow of their Dutch basis by a repetition of the Norman or some other cross, which would go to destroy the present superior breed. An occasional mixture, however, of Norman blood may, he says, keep the Holdernefs stock sufficiently fine, and prevent its degeneration on the other side; or a selection might be made of very elegantly shaped and fine-boned Holdernefs cows, with the view of improvement. These are well known as the stock generally kept by the London cow-keepers. They have small short horns, in the shape of a half-ring, rather a long plain head, fine skin, the legs seldom too long, the carcass large but compact, good back and loin, the general figure square. They are not the species of stock for short keep, however small their size; indeed they are said to be great consumers." But "this high character of the Holdernefs cattle (he desires) should be received with considerable reserve. It relates to the cows chiefly, and to a selection of the oxen; to what they ought, and might be, rather than what they generally are." They are too often, he thinks, "the worst shaped cattle in the island, and perhaps the least profitable. Long, gaunt, deep carcasses, without adequate substance, placed upon high stilts of the coarsest timber; slow feeders, never fat, and the flesh excessively coarse. The feeding such ill-shaped stock must (he farther observes) be immensely disadvantageous, and is particularly disgraceful in districts which produce the best models." The first object, in respect to their improvement, is (he supposes) to shorten the legs; "which might be effected (he thinks) by a conjunction of the best Teeswater and Holdernefs bulls, with selected short-legged cows. It is a striking fact, obviously (he supposes) indicative of a rapidly increasing population, that, notwithstanding unprecedented prices, encouragement, and improvements, store cattle are at this instant so scarce, that many graziers must come short of their needful quantity."

The following statement has been given, by the author of the "Treatise on Live Stock," as the weight of a five years old beast of the Teeswater sort killed in 1789, allowing 14lb. to the stone.

	Stone lb.		£.	s.	d.
Two fore-quarters	74 8½ at 4s. per stone	14 18 5			
— hind ditto	75 10 at 5s.	18 18 7			
Weight of carcass	150 4½	33 17 0			
— tallow	16 0 at 4s.	3 4 0			
— hide	10 11 at 4s.	2 3 0			
Total	177 1½	Value £. 39 4 0			

It is added, by Mr. Lawrence, that the best and quickest

feeders of this breed are not remarkable for milking, and that the *Tweed-side* short-horns are a valuable variety of the Teeswater sort.

It is believed, by the same writer, that the northern *half long-horns* are the immediate produce of a conjunction of the long and short-horns, which must, of necessity, frequently happen upon, and in the vicinity of those mountains which separate the native districts of the two kinds. The horns of this variety, he thinks, generally run out pretty straight and even, unlike those which are called middle or wide-horns. They are a large and long breed of cattle, partaking equally, as may be supposed, of the qualities of each species, and thence ought to be good dairy cattle, as uniting quality and quantity of milk, and size; in fact, he has been assured, by an intelligent Essex dairy-man, that they have the best title to such character, and many years since, when cow-stock was at a low rate, he preferred going to the price of 16 or 17 guineas a piece, for this description. They are not, he thinks, so permanently established and generally known as their originals.

And "the northern or *Yorkshire* polled cattle have (according to him) the same qualities as the short-horned, carrying vast substance, and some he has seen lately are of great size, although in that particular they are most conveniently various. In his opinion they are a most excellent breed, and well merit improvement, with the view of labour, by a selection of the finest breed and most active individuals. From the shape of these polled cattle, they hold a strict affinity in all respects with the short-horned, amongst which they are found; and it seems that various breeds of horned cattle are attended with hornless, but perfectly congenial varieties."

The *Berwickshire* cattle have probably, he says, a relation to this breed, having been improved by Teeswater bulls from Northumberland. They rise, at three years old, to sixty, or perhaps nearly eighty stones, of fourteen pounds, and at five or six from the last to one hundred and twenty. The best cows affording so high as six gallons of milk in the day. The ox is described as having a "long face, open countenance, clean and small, turned up, curving, and spreading horns, straight shanks, straight and round along the back, full and deep in the ribs, short legs, thighs turned out, open boned." This breed in the improved sort is highly valuable.

The *Wells* breed of cattle, especially such as are found in Cardiganshire, are, the author of modern agriculture says, mostly black, with thick horns turned upwards; of a small size, clean boned, of a good shape, especially where the native breed has not been injured by injudicious crossing with others from England. They are hardy and active; and in great request in the southern counties of England, on account of their being quick feeders. The quantity of milk which the cows of this breed afford is trifling; but they are, upon the whole, a breed well adapted to that country, although still capable of very great improvement: which might be effected with more certainty, and to a greater extent, he thinks, by selecting the best individuals of the native breed, than by bringing others possessing probably very different qualities from England. But the author of a late treatise on cattle supposes that there may have been originally two distinct breeds, in this district of the kingdom, as the mountain kind having large wide horns, thick hides, and much bone in proportion to their size; the cows affording but little milk; and the low land or southern sort, which are of a larger size and finer form, having middle horns, being in some instances good milkers, those of some parts, as Glanorganshire, being in high estimation for the purpose of draught on the lighter sorts of hilly lands. In general, he thinks, the cattle of this district are, however, deep

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deep and flat in form, "some of them cloddy and of great substance also."

Those of the above part, Pembroke and Montgomeryshire, are considered as the most valuable sorts of the cattle of this part of the kingdom.

It is supposed that the principal defects in these cattle are, at present, the want of substance, and great length of leg; the remedy of which is supposed to be a Herefordshire cross in the view of beef or labour. Their appearances in the different countries of this breeding district, are stated by a late writer somewhat as below.

The original *Carmarthenshire* sort, Mr. Lawrence says, is "black, coarse, ill formed, short and thick, having wide horns of great substance at the base. The cattle, in course, small in the mountain districts, and of large size in the vales, in good keep." "The improvers there," he adds, "have tried various crosses. Hereford, Shropshire, Leicester, Pembroke, Glamorgan, but they say without the desired success. The produce of a Pembroke heifer and Hereford bull, is, he says, the favourite stock in this county, where, in truth, the prior object ought to be an improvement of keep."

The *Glamorganshire* cattle are, according to the same writer, "in the cows rather small, of light bone, in colour black or brown, handsome, and shew much blood. They milk well, and feed quick, and are used as beasts of labour: they need no improvement from alien crosses (he thinks); but there are inferior varieties of them, from being mixed with the stock of the borders. This breed (he supposes) prevails in Monmouthshire, and is to be found at the fairs and markets of Pontypool."

But the *Pembrokeshire* cattle are, he says, "coal black, sometimes dark brown, finched, or white towards the tail; some have white faces. They were originally finer than at present, probably the same race as the Glamorgans, which some of the Pembroke cows resemble at this time: but the breed has been crossed with the *old* Leicester, with the view of obtaining milk, in which the improvers did not succeed so well; as in rendering their stock coarse, bony, and unfit for labour. If butter was the object, they had better, he thinks, probably, have retained the imported long-horns unmixed. This cross accounts (he supposes) for the Pembrokes being finched, and having long and round carcasses. They generally labour on the roads, yoked with horses, and their journeys are performed with a speed unknown elsewhere. But the Pembroke ox is too leggy, but he becomes early ripe, and will make fat at four years old. He attains the weight of 80 to 130, or 140 stone London weight, and is said to stand his drift or journey better than any from Wales, whence he finds a preference particularly in the counties adjoining the metropolis. Two year old Pembroke bulls are bought up at the fairs, at considerable prices, by the improvers of the neighbouring counties."

The native *Brecknockshire* sort are, he thinks, "much the same as those of Carmarthen and Pembroke; but being crossed with Hereford, and some with Devonshire bulls, labour seems to be the object, and with such crosses and attention to good keep, a very excellent breed may (he believes) be raised."

And the *Cardiganshire* breed are a smaller variety of the Pembroke and Carmarthen sorts; according to the same writer, being hardy, and less milky than most breeds.

The *Radnorshire* sorts are, Mr. Lawrence observes, "dark red, and brindled in consequence (he supposes) of the original black stock being crossed with the bulls of Hereford and Shropshire, which are adjoining counties. Although these crosses produced stock too large for the hills, they make excellent cattle, in good keep, and of considerable size, namely,

from 100 to 120 stone London weight. But it is said that the produce of the Hereford cross has not the characteristic bald face."

The *Montgomeryshire* sort are in the favourite colour blood red, with a smoky face. The oxen from this county produce good prices.

The *Merionethshire* sort are, according to Mr. Lawrence, a small and ill shaped breed, said to be the worst in Wales; but in Mr. Corbet's improvements, in crossing with good English stock, much advantage has, he says, been obtained.

The *Carnarvonshire* is a hardy native sort, which has been formerly crossed and improved by English bulls and cows, some of the New Leicester and Warwickshire kinds. The improvement succeeded, and with a small additional expence in rearing, the stock has been found sufficiently hardy, whether on the mountains or plains; and the improved cattle at two or three years old, are, in the opinion of the above writer, worth more by two or three pounds than the original breeds.

The *Denbighshire* and *Flintshire* sorts have, he says, been much crossed and mixed with those of England. There are some good milch cows in these sorts, which give six or seven gallons per day, three or four months after calving.

The *Anglesey* sort is, he observes, "a small black breed, with wide and thick horns, being prevalent there, and in far greater purity than in most other parts of Wales. This hardy race is preferred on account of the constant winter exposure, and defect of winter provision, and also because they are approved by the purchasers. An English cross has been attempted without success, which was a necessary result, unless the keep were at the same time improved. The breeders decline keeping any cattle beyond the age of three years, not finding themselves reimbursed the charge of another year. The weight, when fat, at three or four years old, from 60 to 120 stone, the fore quarters being the heaviest. No cross could (Mr. Lawrence supposes) possibly improve these islanders, unless bulls could be found of superior form, and equally hardy; such are, perhaps (he says) to be sought for in the Isle of Sky."

The same writer thinks, that, in the quality of the Welsh cattle, generally, there is no appearance of improvement of late years, notwithstanding the encouragement held out by prices, of which no former age can furnish a precedent. Indubitably the want of winter keep, and a good winter system, is, he thinks, the chief cause of this defect.

According to the above writer, the Shropshire *wide-horns*, which are large, square, deep, and bony, with thick hides, in colour brindled red and brown, the horns branching, points turned upward and backward, are used for labour, and said to be better milkers than their neighbours of Herefordshire, with which they are doubtless, he says, often blended. Of the origin of this variety no accounts, he observes, are extant, or how long they have been a permanent or established breed. It has, probably, he supposes, originated in a mixture of the old long horns, the Welsh, and the red breed of the western districts.

According to Mr. Culley, the *polled* or *Galloway* breed of cattle are a very valuable breed, and seem to be, in weight and size, as much less than the long-horns, as these are than the short-horns; they generally weigh from 40 to 60 stone. Some particular ones reach 70 and upwards; but their most essential difference from every other breed of cattle is, their having no horns at all: some few indeed, in every other respect polls, have two little knobs or unmeaning horns, from two to four inches long, hanging down loose from the same parts that other cattle's horns grow, and are joined to the head by a little loose skin and flesh. In most other respects,

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except in that of wanting horns, these cattle resemble the long horns, both in colour and shape, only they are shorter in their form, which probably makes them weigh less. Their hides seem to be in a medium between the two last-mentioned breeds, not so thick as the long horns, nor so thin as the short horns; but like the best feeding kind of long horns, they lay their fat upon the most valuable parts, and their beef is well marbled, or mixed with fat.

We find, he says, a few of this breed straggling through different parts of England; amongst the rest, he remembers the earl of Darlington having had a very handsome variety of them, finely globed with red and white. But we must, he says, look for the original of these in Galloway, a large district in the south-west of Scotland, where they are mostly bred upon the moors or hilly country, and grazed upon the lands nearer the sea, until rising four or five years old, when the graziers and drovers take them up in great numbers to the fairs in Norfolk and Suffolk, previous to the turnip-feeding season, from whence the greatest part are again removed in the winter and spring, when fat, to supply the amazing consumption of the capital, where they are readily sold at high prices; few or no cattle selling so high in Smithfield market, from their being such nice cutters up, owing to their laying the fat upon the most valuable parts; a great excellence in all feeding cattle. It is no uncommon thing, in this refined market, says he, to see one of these little bullocks outsell a coarse Lincolnshire ox, though the latter be heavier by several stones. And he has been informed, from good authority, that the polled cows are very good milkers, in proportion to their size, and the milk of a rich quality, yielding much more butter from a given quantity of milk than the short-horns; and also that the oxen and spayed heifers answer well for the draught; which certainly adds to the value of this excellent breed. But though the generality of the cattle of the above district are polled, yet they have several with horns, which, they say, are a balbard or mongrel breed, by crossing with long-horned bulls from Westmoreland and Cumberland. They prefer the polled ones, and of these the black or dark brindled ones, to any other; and all allow them to be the original breed of the country. The breeders in Galloway complain of their old breed being lost, or at least much worn out; probably by want of proper attention in the breeder.

Mr. Lawrence supposes that the moors of *Monigaff* and *Glenloue* are the only places where this sort of cattle at present exist in their original purity, and that they are generally thinner in the hind quarters than those which have been crossed with other breeds. They are likewise prevalent in Dumfriesshire, especially on the Nithdale side.

There are frequently among the common Galloway cattle some that are white-faced and pied, with small grizzly horns, which is supposed to be from a mixture of Dutch or English short-horned bulls, and to "detract 20 per cent. from the worth of the beast."

In respect to form, according to the above writer, this sort of cattle are broad and square in the shoulders, long and round bodied, but deep, straight and broad on the back, with a thick shaggy coat, the legs of a middling length, with large feet. It is added, that the *pelvis*, or hinder part beneath the tail, and between the two bones, is frequently too narrow in the cows of this sort, from which they want assistance, and occasionally fail in bringing forth their calves.

The oxen of this sort, as well as the spayed heifers, make middle sized beef, which is of an excellent quality. It is supposed that all the calves of this sort are reared in their native district, and more of the females spayed than of any

other breed, the operation being performed on the yearlings in the month of May. This sort of cattle are usually sold at about two years and a half old, the graziers in England being supposed to take off 30,000 head annually.

It is probable that this useful sort of neat cattle might be much improved in their native district, by having better accommodation and protection during the severity of the winter season, and a more abundant supply of different sorts of food.

The *Suffolk dun* breed is so called from its being the prevailing kind of neat cattle in the county of Suffolk, and which some may think a distinct sort, but which Mr. Culley is inclined to believe no more than a variety of the Galloway breed; which might easily, he says, take place from the great connection that has long subsisted between the Scotch Galloway drovers of cattle and the Suffolk and Norfolk feeders or graziers of them. Both kinds are in general polled; and though the Suffolks are almost all light duns, while the others are of various colours, yet this might at first proceed from a partiality to that colour. But from whatever place or cause this variety took its rise, they are, he says, at present a very useful kind of little cattle, particularly for the dairy; and great numbers of them are employed in that line, in some parts of Suffolk, where, perhaps, the best butter and the worst cheese in the kingdom are made. The cows give great quantities of milk. Mr. Young asserts that they give in common 24 quarts a day, which is nearly equal to the best short-horned cows. We find the cows of this kind, like all other deep-milkers, very lean, very plain in their forms, and very big-bellied. The weight of this breed of cattle is about 50 stone on an average.

These are said to have a lighter colour, and to be smaller and finer in the bone than the Galloway sort; and to be long, with a large carcass, clean throat, the neck tapering to the head, the tail thin, and the legs rather short. They are excellent for the purposes of milking, whether for the dairy, or private use; though the milk is probably less rich than that of either the Alderney or long-horned sorts. It has been suggested that this breed is incapable of being rendered more valuable by the art of crossing.

The *Scotch* breed of cattle are, according to Mr. Culley, still less in proportion to the polled cattle than they are to the long-horns; this breed are also covered with a long close coat of hair, like the polls and long-horns; and, like these, their beef is fine grained, well flavoured, and mixed or marbled, but not so handsome on the outside of the beef when killed, being not of so bright a colour, and often spotted with black, even upon the best parts, except when made very fat. When grazed, they feed very readily, their weight in general being from 20 to 35 stone. The most prevalent colour is black, some are brindled or dun; but the breeders here, like those in Galloway, prefer the black ones. These hardy animals are in possession of all that extensive and mountainous country called the Highlands of Scotland, together with the western isles, bounded on all sides by the sea and the Grampian hills; the latter of which begin on the north side of the Firth of Clyde, and run eastward into the sea near Aberdeen. This sort of cattle are frequently termed *kyloes* in these parts of the country, probably from a district in Ayrshire, called Kyle, where they prevail much. But all the lowlands of Scotland, except Galloway, have a mixed breed of cattle; towards Cumberland they are half long-horns, half polls; on the borders of Northumberland they are mixed with short-horns until you reach Tiviotdale, where they become altogether a coarse kind of short-horned, or what the Yorkshire jobbers call runts, except a few pretty good short-horned cattle, bred in that pleasant and fine country,

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country, the Tweed side. This same kind of runtyish coarse breed continues all the way to the firth of Forth. Crossing this narrow sea into Fifeshire, you would at first imagine the Fife cattle a distinct breed, from their upright white horns, being exceedingly light lyered, and thin thighed; but he is pretty clear it is only from their being more nearly allied to the Kyloe, or Scotch breed, and consequently having less of the coarse kind of short-horns in them. The cattle all along this coast continue to change more and more, growing still less, until upon the edges of the mountains they become quite of the Kyloe kind; but still much inferior to that pure, unmixed, valuable breed of Kyloes which we meet with on the more northern and western Highlands, and all the isles; but particularly in the Isle of Skye, and that tract of country called Kintail. It is in these two districts that you meet with the native breed of Kyloes: a hardy, industrious, and excellent breed of cattle, calculated in every respect to thrive in a cold, exposed, mountainous country, and better adapted to the cold regions where they are bred than any other kind we are acquainted with. These cattle are driven to the southwards in great numbers every autumn; many into the western districts of Yorkshire; but the greatest part are sent into Norfolk, Suffolk, Essex, and other parts in the south of England, where they are fattened, and either slaughtered at their home-markets or sent to Smithfield.

The great demand for this breed in the southern parts of the island has rendered its improvement more attended to than formerly, and attempts have been made by different spirited breeders by crossing Isle of Skye cows with bulls of the long-horned kind.

Though it is allowed that the beef of the Kyloe sort is superior to that of others, it is believed by some that there is a deficiency in respect to quantity on the acre, so that if it be the best it is not the least expensive.

The Highland cattle sometimes, however, rise to a considerable weight, especially when crossed with the larger breeds.

The bulls of the Isle of Skye sort are held in high estimation by the breeders and improvers of this kind of cattle, the principal distinguishing marks of which are fine eyes and horns, with a thick pile, and not thick-skinned. They excel in the quality of the milk, but with regard to the quantity, should be crossed with the Norman or some other breed that is known to afford a large quantity of milk. This property is likewise said to be increased by crossing with the Fife sort. The Highland cattle are hardy, and very little subject to diseases of any sort.

The *Orkney islands* are said to contain a small breed that are good milkers, and which afford beef of a good quality; but they are a badly formed sort.

The Fife sort are of considerable size, being of a black colour, lively and uphorned. They feed with expedition, and are fitted for labour, being held in high estimation by the graziers in the southern parts of the kingdom. As milkers, they are valuable for the quality of milk and steadiness of continuing it, rather than the quantity. It is probable that they might be improved in this last respect by crossing with those smaller breeds that produce it in larger quantities.

The *Renfrew, Ayrshire*, or what are termed the *Dunlop* sort, are considered, in relation to their size, the most valuable for the purpose of milking in the island, excelling equally in the quantity and quality. Mr. Lawrence says they produce "from $3\frac{1}{2}$ to 7 gallons per day," and that they "have the character of being the best possible poor man's cows," from their ability to shift on very scanty keep. In appearance they are, he says, small and ill-looking, with the shape and pile of Highlanders, yet bearing more resemblance to the Dutch

than to any native Scotch breed. Their horns, he adds, "are short and small, standing remarkably irregular and awkward; the colour generally pied, or of a sandy red. They appear unthrifty and thin like the Alderney, even in the best pasture, and the few which are bred up to oxen make but a poor figure in grazing, scarcely reaching the common weight of Kyloes." He "apprehends this milky race to be the result of crossing the cows of the country with Alderney bulls; the cows, perhaps, having previously a portion of Dutch blood."

The *Alderney* or *French* breed of cattle is mostly to be met with, according to the author of the "Treatise on Live Stock," about the seats of our nobility and gentry, upon account of their giving exceedingly rich milk. He imagines this breed to be too delicate and tender ever to be much attended to by British farmers, because they are not able to bear the cold of the island, particularly the northernmost parts of it. They are very fine-boned in general, light red or yellow in colour, and their beef generally yellow or very high-coloured, though very fine in the grain, and well-flavoured. They make themselves very fat: and none of them are in the least subject to lyer, or have black flesh. He has seen some very useful cattle bred from a cross between an Alderney cow and a short-horned bull. See **ALDERNEY CATTLE.**

The *Wild* breed of cattle, from their being untameable, can, in the opinion of Mr. Culley, only be kept within walls or good fences; consequently very few of them are at present to be met with, except in the parks of gentlemen, who keep them for ornament, and as a curiosity: those at Chillingham-Castle in Northumberland, a seat belonging to the earl of Tankerville, are, he says, invariably of a creamy white colour, with black muzzles; the whole of the inside of the ear, and about one third of the outside from the tips downward, red; horns white, with black tips, very fine, and bent upwards: some of the bulls have a thin upright mane, about an inch and a half or two inches long. The weight of the oxen of this breed is from 35 to 45 stone, and the cows from 25 to 35 stone, the four quarters, 14lb. to the stone.—The beef is finely marbled, and of excellent flavour. From the nature of their pasture, and the frequent agitation they are put to by the curiosity of strangers, it is scarcely to be expected that they should get very fat: yet the six-years old oxen yield generally very good beef, from whence it may be fairly supposed, he thinks, that in proper situations they would feed well. When the cows calve, they hide their calves for a week or ten days in some sequestered situation, and go and suckle them two or three times a day. If any person come near the calves, they clap their heads close to the ground, and lie like a hare in form to hide themselves: this is a proof of their native wildness. The dams will not allow any person to touch their calves, without attacking them with an impetuous and savage ferocity.

It would seem clear from the above general descriptions of the different breeds of cattle, that all the sorts taken notice of are not equally profitable to the breeder, the rearer, the dairyman, the grazier, the butcher, or the consumer. Some have greater disposition to fatten than others. Some, being cleaner boned and better formed, have less offal. Some give a greater quantity of milk than others. In a word, some of the particular properties for which cattle are estimable are more discernible in one breed than in another. Whether, says Mr. Donaldson, these can be all united in the same animal, or whether a breed of cattle, possessing all the requisite qualifications, would be equally suitable to all situations, are questions not easy to be determined. In regard to the first, says he, it seems universally agreed, that

there are two properties for which cattle are esteemed valuable, that cannot be united; that is a disposition to fatten, and a tendency to yield a large quantity of milk. The form of the animal most remarkable for the first is very different from that of the other; in place of being flat in the sides, and big in the belly, as all great milkers are, it is high-sided and light-bellied: in a word, its body is barrel-formed, while that of the other is more fitted to embrace a horse collar with the wide side downwards. It is not probable, therefore, that the properties of two breeds of cattle, so opposite in form and general appearance, can ever be united in the same animal. If a large quantity of milk, whatever be its quality, is the object, the dairyman must content himself with such plain ill-looking animals as have been described above. And as the milk of all cows is well known not to be of the same quality, it appears, he says, highly probable that in proportion as the cows of the milking tribe exceed those that are more disposed to fatten in quantity, in nearly the same proportion will their milk be inferior in quality. If this should prove to be the case, the superiority of the quick feeders, one would suppose, says he, to be completely established; as while cattle of this description are confessedly better for the purposes of the graziers, the butchers and the consumers, they would, if this point were determined in their favour, be also more valuable for the dairy. No person will think of asserting, that a gallon or two of whey or of butter-milk extra (for the question, he thinks, comes to that) is a sufficient reason for preferring a breed of plain-looking, ill-formed cattle, to one that, except in this particular, is more valuable in every respect. In a word, no person who pretends to a knowledge of the different breeds of cattle, will think of supporting an opinion so erroneous, as, that cattle which are disposed to fatten quickly, and at an early age, that, from the superior excellence of their form, have a small proportion of ossal, or what the breeders call non-essentials, and that although they yield not a large quantity of milk, yet make up that deficiency in the richness of its quality, are no more valuable than those which have nothing to recommend them, but the single property of being great milkers.

It has been remarked by the author of the "Treatise on Live Stock," in comparing the breeds of long and short-horned cattle, that the long-horns excel in the thickness and firm texture of the hide, in the length and closeness of the hair, in their beef being finer grained and more mixed and marbled than that of the short-horns, in weighing more in proportion to their size, and in giving richer milk; but they are inferior to the short-horns in giving a less quantity of milk, in weighing less upon the whole, in affording less tallow when killed, in being generally slower feeders, and in being coarser made and more leathery or bullish in the under side of the neck. In few words, says he, the long-horns excel in the hide, hair, and quality of the beef; the short-horns in the quantity of beef, tallow, and milk.—Each breed have long had, and probably may have, their particular advantages in different situations. Why not, the thick, firm hides, and long loose-set hair of the one kind, be a protection and security against those impetuous winds and heavy rains to which the west coast of this island is so subject; while the more regular seasons and mild climate upon the east coast are more suitable to the constitutions of the short-horns?—When he says the long-horns exceed the short-horns in the quality of the beef, he means that preference is only due to the particular variety of long-horns, selected, improved, and recommended by that attentive breeder Mr. Bakewell: for, as to the long-horned breed, in common, he is inclined to think their beef rather in-

ferior, than superior, to that of the generality of short-horns; and there is little doubt, he thinks, but a breed of short-horned cattle might be selected equal, if not superior, to even that very kindly-fleshed sort of Mr. Bakewell, provided any able breeder, or body of breeders, would pay as much attention to these as he and his neighbours have done to the long-horns. But it has hitherto been the misfortune of the short-horned breeders to pursue the largest and biggest boned ones for the best, without considering that those are the best that pay the most money for a given quantity of food. However, the ideas of our short-horned breeders being now more enlarged, and their minds more open to conviction, we may hope in a few years to see great improvements made in that breed of cattle. Such rapid improvement has indeed lately taken place in the breeding of short-horned cattle, that he has reason to think they must soon surpass their rivals the long-horns. But he adds that, notwithstanding these two breeds have hitherto been in possession of the best part of the island, he is inclined to think that the Galloway cattle, and even the Scotch or Kyloes, might be bred with advantage in many situations, so as to be more profitable than either the short-horns or the long-horns: he has a very high opinion of both these breeds of cattle, as true quick feeders, and being kindly-fleshed, or excellent eating beef; which character they have established in the first market in the island.

He is likewise of opinion that the Scotch or Kyloes are better adapted to cold, exposed, heathy, mountainous situations, than any other breed we have; and that particular breeds are probably best adapted to particular situations; on which grounds he recommends to breeders of cattle to find out which breed is the most profitable and best suited to their situations, and to endeavour to improve that breed to the utmost, rather than try to unite the particular qualities of two or more distinct breeds by crossing, which is a precarious practice; for, says he, we generally find the produce inherit the coarseness of both breeds, and rarely attain the good properties which the pure distinct breeds individually possess.

It must be plain from what has been already advanced, that, in order to have good cattle of any breed, particular regard must be paid in selecting those that are the most complete and perfect in their form, shape, and other qualities, and to breed from them. See BREEDING, BULL, and COW.

The author of the Rural Economy of Yorkshire has well remarked, that the horn is a good criterion for distinguishing the different species, if the term be applicable, of cattle. It is a permanent specific character. The colour, though not altogether accidental, is changeable; and neither the form nor the flesh is permanently characteristic of any particular species. Good form and good flesh may be found in every species; though they are by no means equally prevalent, nor equally excellent in all; but a horn six inches long was never yet produced by the Craven long-horn breed; nor one a yard long by the Holderneßes breed. And the middle-horned breed of Herefordshire, Sussex, and other parts of the island, appears to be as distinct a species as either of the former. He is not, however, a bigot to horns of any shape or length: as he would as soon judge of a man's heart by the length of his fingers, as of the value of a bullock by the length of his horns. If his flesh be good, and well laid on, and his ossal be proportionably small; if he thrive well, fatten kindly at an early age, or work to a late one, if required; he would much rather have him entirely without horns, than with any which enthusiasm can point out. But the horn, as a permanent specific character of cattle, may, in varieties,

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varieties, have its use as a criterion. Thus, says he, supposing a male and female of superior form and flesh, and with horns resembling each other as nearly as the horns of males and females of the same variety naturally do, no matter whether short or long, sharp or clubbed, rising or falling; and supposing a variety to be established from this parentage, it is highly probable that the horns of the parents would continue for a while to be characteristic of the true breed, and might by inferior judges be depended upon, in some degree, as a criterion. But still, says he, it is indisputable that horns remain the same while the flesh and fattening quality change; but every man of superior judgment will depend more upon the form and handle of the carcass, than upon the length and turn of the horn. For it is a notorious fact, that the individuals of a given variety may have exactly the same horns, without having exactly either the same fashion or the same flesh. If, however, there be any criterion or point of a beast which may be universally depended upon as a guide to the grazier, it is, he thinks, the eye, not the horn. The eye is a mirror in which the health and habit of the animal, at least, may be seen with a degree of certainty.

In respect to the rearing of cattle, different methods are pursued in different districts; but it is obvious that the better they are fed, at an early period, the better stock they will, in general, make. The rearing of cattle is become, in the opinion of Mr. Marshall, as stated in the Rural Economy of Norfolk, a subject of the first importance to this country; as an universal and growing scarcity of neat stock is experienced, more or less, throughout the kingdom. He has, therefore, paid more than common attention to the rearing of calves, (the first and most difficult part of the business) in this district; not only as being a primary object in the East-Norfolk system, but because the practice there is, in many respects, peculiar to the country. The number, he says, varies with the quantity of meadow or other natural grass-land belonging to a given farm; and sometimes, but not always, with the time at which the cows happen to come in. Some farmers "bring up" all the year round; rearing every calf they have dropt. Others rear in winter, only fattening their summer calves for the ped-markets; or, at a distance from them, for the butcher. Norfolk farmers, in general, begin early in winter to rear their calves: some so early as Michaelmas; in general, if their cows come in before Christmas: not only as being fully aware of the advantage of rearing early, but in order that they may rear as many of their own calves as possible; drove calves being always hazardous and sometimes scarce. No distinction is made as to sex: males and females are equally objects of rearing, and are both, occasionally, subjected to castration; it being a prevailing custom to spay all heifers intended to be fattened at three years old; but such as are intended to be finished at two years old are, he believes, pretty generally left "open," as are, of course, such as are intended for the dairy. There are two reasons, he observes, for this practice; they are prevented from taking the bull too early, and thereby frustrating the main intention; and by this precaution they lie more quietly; and are kept from roving at the time of fattening. This may be one reason why spayed heifers are thought to fat more kindly at three years old, and to be better fleshed than open heifers. The method of treatment depends, in some measure, on the time of rearing. The raising of the young animals in winter requires more milk than the later ones.

The particular practices that are followed in different places, in respect to the treatment of calves in rearing them,

have been described more fully under the head to which they belong. See CALVES, *Rearing of*.

In the management of young cattle, it is remarked by Mr. Donaldson, that the method of managing them during the first winter is pretty generally the same in every part of the island. They are almost always housed: sometimes bound up to the stall; but more frequently allowed to remain at freedom. The way of feeding them in England is chiefly with hay, or hay and straw mixed; and in Scotland, sometimes hay, but more frequently straw and turnips. They are mostly turned out on some of the inferior pastures on the farm the following summer, and maintained the second winter on straw in the straw-yard, or in houses or sheds erected for the purpose. Some farmers in the more northern parts of the kingdom, from being situated at a distance from any market at which they can dispose of stall-fed beef, very frequently give a considerable part of their turnip-crop to their young cattle. This is, he thinks, an excellent practice; and one that ought to be followed even by those who, from being better situated in regard to markets, can adopt other methods of using turnips to advantage. The benefit of green winter food for live stock is so great, that there is, probably, he says, no way in which turnips can be used, by which the farm or the farmer would reap greater benefit, than by giving the young cattle a daily allowance during the first two or three winters. There is but very little variation in the management of young cattle from this during the time they remain in the breeder's possession, which must be longer or shorter, according to the peculiar circumstances of the case and the nature of the farm. In some districts, he further observes, it is the usual practice to allow the young heifers to take the bull at two years old; in which case, those which are not necessary for keeping up the stock are disposed of the following spring, before they drop their calves. And where the practice of ploughing with oxen is continued, or has been a second time introduced, young oxen are broken into work in the course of the second summer; this, however, is by no means common, as, he says, probably nine-tenths of the cattle reared in Great Britain remain in the breeder's possession till the spring of the third year. The young cows are then disposed of to the dairy-farmers, who often do not breed a sufficient number to supply themselves; or to the cottagers, who have the means of keeping a cow in summer, but not in winter. And the young oxen are sold, either for the purpose of supplying the ox teams, where these are still kept; or to the graziers, who sometimes fatten them for the butcher in the course of the grass-season, but more frequently content themselves with only putting them in condition to be stall-fed during the following winter. The premature age at which such cattle as are not employed in the operations of husbandry are now fattened, is, he thinks, a positive evidence of the scarcity of that species of live stock. Exclusive of the cattle used in the plough or the cart, which are permitted to live a year or two longer, the oxen in this country are, in general, killed before they are four years old;—an age at which, it is well known, an ox does not fatten to the greatest advantage. And Mr. Marshall says, that in Norfolk, when the lattermath and stubbles are finished, the yearlings, provincially "buds," are put to turnips; either as followers to the bullocks, or have some fresh turnips thrown to them: in either case, they sleep in the par-yard, and generally have a separate par allotted them; though sometimes they are parred with the two-year-olds. In the yard, the best of the "stover" is allowed them, and, perhaps, a little ordinary hay; it being

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a maxim, pretty generally adopted among good farmers, to keep their young stock as well as they can the first winter. In spring and summer they follow the bullocks, and run in the meadows; or, if these be wanting, are sometimes sent out to summer grafs in the marshes, or grazing-grounds. The two-year-olds run in the stubbles, and broken grafs till Christmas, or until turnips can be spared them; when they generally follow the bullocks. In winter they are always "parred" at night; sometimes with the cows; sometimes with the buds; sometimes alone. Good farmers generally keep them separate: if parred with the buds, they rob them; if with the cows, they are liable to be "horned," and are never at rest; except while the cows are eating up the best of the fodder. Some farmers, when turnips run short, "put out" their two-year-olds in winter; and others, when they are plentiful, "graze," that is, fat their two-year-olds. In general, however, they are "kept over-years," on meadows or lays, or are sent to the marshes or grazing-grounds, as situations and circumstances point out; and, at Michaelmas, are put to turnips as fattening cattle. The agistment price for two-year-olds, from May-day to Michaelmas, varies with the keep.

On the management of young stock it is also observed, in the Rural Economy of Yorkshire, that they are invariably housed the first winter; generally loose, and mostly indulged with the best hay the farm will afford. Their summer pasture is such as convenience will allow them; frequently of a secondary nature. In the open-field state, the common was generally their summer pasture. The second winter oat-straw is the common fodder of young cattle; generally tied by the neck in hovels, or under sheds. Their summer pasture, commons, woody wastes, rough grounds, or whatever best suits their owner's convenience. At two years old the steers, provincially "stots," are generally broke-in to the yoke; but are not, by good husbandmen, worked much at that age. At two years also the heifers, provincially "whies," are generally put to the bull. This, however, is not an inviolable practice. In the state of commonage they were frequently kept from the bull until they were three years old: now, in the state of inclosure and improvement, and at the present high rents, they are frequently suffered to take the bull when yearlings, bringing calves at two years old. This, says he, is an interesting subject in the management of cattle. Farmers in every district differ in their opinions respecting it. The arguments for bringing heifers in at two years old are, that they come sooner to profit; and that farmers cannot afford, at the present rate of rent, to let them run, unprofitably, until they be three years old. On the other hand, the argument in favour of bringing them in at three years old is, that, not being stunted in their growth, they make larger, finer cows than those which are suffered to bear calves at a more early age. But we have not yet met with any man who even attempts to prove which of the two is, upon the whole, the more profitable practice. The gardener, he remarks, seems to be well aware that, suffering a tree to bear fruit too early, checks its growth: and there may be some analogy, in this respect, between vegetables and animals. But even admitting this, if the cow receive no injury, as to thriving, calving, milking, nor any other than that of being checked, in point of size, the objection appears to fail. If, however, early production check not only the cow but her progeny likewise, an objection, no doubt, will lie against it. He has long been of opinion that it is, in general, the farmer's interest to let his heifers take the bull whenever nature prompts them. There is, undoubtedly, some present profit arising from their coming in at an early

age; and whether a middle-sized cow may not afterwards afford as much neat profit as one of larger stature, is certainly an undetermined point. Much, however, depends upon keep. A starveling heifer will not take the bull at a year old. Nor ought any yearling heifer, which has taken the bull, ever afterwards to be stunted in keep. If she be ill kept, while with calf, there will be danger at, or after the time of her calving. If afterwards pinched, there will be danger of her not taking the bull next year. Hence, he thinks, we may infer, with a degree of safety, that the propriety or impropriety of bringing heifers into milk at two years old depends principally upon soil and situation. On a good soil, and in a genial climature, in which heifers do not experience a check from the time they are dropt, they ought, he is clearly of opinion, to be permitted to take the bull whenever nature prompts them. But in less genial situations, where lean ill-herbaged lands are to be pastured with young cattle, it appears to him equally evident, that heifers ought not, in strictness of management, to be suffered to come into milk before they be three years old.

Neat cattle are capable of living a considerable length of time, as fifteen or twenty years; but they are unfit for many purposes of the farmer after they become aged, and especially that of being employed as grazing stock; hence they are usually disposed of before they have attained their ninth year. For the purpose of breeding, they may, however, be kept much longer. With respect to the males, or bulls, where the chief object of the farmer is having good cattle stock, great attention should be paid to them, both in the rearing and their management afterwards, as well as to the form and kind. They should likewise be kept separate in a paddock inclosed for the purpose, and be constantly fed in the best manner, and not be employed till they are three years old, when the cows should be separately admitted to them. Some farmers are, however, of opinion, that a little work does not in the least injure them, while it has the tendency of rendering them more tame and gentle.

But in other cases, as merely for the purpose of the dairy, where rearing the produce is not practised, less attention is necessary with regard to these animals, it being of little consequence to the farmer, provided the cows be duly served. In these cases the bulls are for the most part kept along with the cows, in sufficient proportion to the number of cows that may be kept. Under these circumstances they are seldom kept in any better manner than the cows; but it is probable that much loss may often be experienced by the dairy-farmer on this account, as it would seem proper that they should constantly be much better fed. In these instances they are often employed while very young, being frequently castrated, or what is termed *segged*, in the third year of their age. The use of such young bulls is not, however, in general to be recommended. See BULL.

In respect to the management of the cows, it must of course vary in some measure according to circumstances, and the particular objects of the farmer. Such as are in calf should constantly have a sufficient supply of good food both during the summer and winter seasons, and in the latter should be well protected from the severity of the weather by proper houses, sheds, or fold-yards. With the straw some other sorts of food should be combined, such as hay, turnips, cabbages, &c. as the first is insufficient for keeping them in proper condition, and they will repay the increased expence of such keep, by their superior appearance, by the greater quantity and better quality of the milk, and by the better size and form of the young stock. Under the con-

trary circumstances they readily dwindle, and become less valuable.

With regard to the season of putting cows to the bull, it is different, according to the views of the farmer; where his principal object is the milk, it is a matter of little consequence at what time they take the bull; but where the calves are to be reared, it is a point of material importance to have them dropped when the season begins to be warm, and there is a spring of young grass, as at that season they can be reared with the least trouble and expence, and in the most perfect manner. In the winter time this sort of business is attended with great expence, and the animals are often injured by the severity of the weather.

There is another point that ought likewise to be regarded in this sort of stock, which is, that the cows should not be too greatly exhausted by milking them too long, or too near the period of their calving; but when they have good rich keep, they may be milked to a much later period without injury, than under the contrary circumstances. It is usual to let them become dry six weeks or two months before the period of their calving; but, with good keep, a month may be sufficient.

It is a bad practice to have bullocks in the same place with cows, as much injury may be done both to themselves and the cows, by their riding upon them. Some farmers think it a point of importance to present cows to the bull with full udders.

It is of great utility in the management of cow stock, that exact accounts be kept of the periods at which they receive the males, as well as of the times at which the young are brought forth. In large concerns, a sort of *stock book* should be kept for the purpose of entering various memoranda of this nature, as by such means accidents and uncertainty may be in a great measure prevented. As the time of calving approaches, more strict attention should be bestowed upon the cows, in order that, at the period of it, every necessary assistance may be afforded, and the welfare of the animals insured. It, however, rarely happens that any extraordinary aid is required where they are left wholly to themselves.

It is the practice of some farmers to lessen the quantity of food for a little time before the cows calve, from the idea that they do not succeed so well when they are in too high condition; but this is most probably a supposition which is not by any means well founded, as cows that are kept in good order are, in general, the least liable to accidents in these cases. It is of much consequence that, at these times, the cows be provided with due shelter, especially during the inclement parts of the year; as much injury is frequently done by letting them calve in exposed situations without any protection from the inclemency of the weather. See *Cow*.

Such young cattle stock as is intended for labour, should be gradually accustomed to be handled from their infancy, and by that means be rendered perfectly tame and gentle, which will be of vast advantage afterwards when they are brought into labour. See *Oxen* and *Team*.

With regard to the management of cattle, there cannot be any doubt but that a large stock in feeding demands considerable and constant attendance, and that of steady and capable hands: as, unless a proper regard be paid in these respects, much confusion must occur, especially when fed in the fold-yard. Next to proper food, says the author of the "Farmer's Calendar," the two great points in feeding animals to proof are, regularity, and a particular care of the weaker individuals. On this last account there ought ever to be plenty of trough or rack-room, that too many may not feed together, in which very common case the weaker are not only trampled down by the stronger,

but they are worried, and become cowed and spiritless, than which there cannot be a more unfavourable state for thrift; besides, these are ever compelled to shift with the worst part of the meat. This domineering spirit is so remarkably prevalent amongst horned cattle, that he has a hundred times observed the master beasts running from crib to crib, and absolutely neglecting their own provender for the sake of driving the inferior ones from theirs. This is, much oftener than suspected, the chief reason of that difference so visible in a lot of beasts, after a winter's keep. It is likewise, he says, a very common and very shameful sight in a dairy of cows, to see several of them gored and wounded in a dozen places, merely from the inattention of the owner, and the neglect of tipping the horns of those that butt. The weaker animals should be drawn and fed apart; and in crib-feeding in the yard it is a good method to tie up the master-beasts at their meals. Where a sufficient number of cattle are not bred upon the farm, they are generally bought in at the neighbouring fairs to fat at spring, and about Michaelmas. Those bought in at spring will be fat in July, August, or September, according as they are forward, and there is keeping for them; and those which are bought in at August, September, or October, must be either for sale in winter or in spring, and must be forward in flesh to be improved the beginning of winter, and kept up in flesh during the winter with burnet, hay, turnips, carrots, or other kinds of food, to be fit for a good market whenever it offers; or they must be young lean cattle, that may, by their growth, pay for their wintering, and be fit to fat the next summer. Some, upon ordinary land, buy in young Welsh heifers, which, if they prove with calf, they sell in spring, with a calf by their side for the dairy: and those that are not with calf they fatten; all which ways frequently turn to good account: but as most commonly all meat, either at Christmas, or in the spring, is one third part dearer than in summer; as all have not the convenience either of hay, turnips, &c. to fatten cattle with in winter; it is best to have them ready for the markets about these times.

The farmer who intends to graze cattle to the most advantage, should be particularly attentive to these three things: first, to raise a good quantity of artificial grass for hay and aftermaths. Secondly, to turn a good quantity of ground into rich pasture, by feeding it, dunging it, and laying on it other manure, to make it fit for raising the bullock or heifer in the spring, when they come first from hay to grass, and to receive them with a vigorous aftermath, when other grasses, as clovers and other grass aftermath, go off. Thirdly, to have hovels or other buildings inclosed with close walls, to shelter the cattle in the winter from winds and rain. By adopting these methods in fattening cattle, the grazier, from having plenty of hay, will be enabled to purchase barren beasts before the spring grass comes, when it is most likely they will be cheap, and may be bought to the best advantage, allowing for the value of the hay they may eat in consideration with the purchase: and if, by winter-haying some meadow-ground after it has been kept high in heart by feeding, &c. he can, early in the spring, by April, or sooner, have a bite to take off such grazing-beasts from hay to grass, it will be very advantageous before clovers can be ready, which, in many places, are seldom so till a week or a fortnight in May; and, by keeping such meadows for an aftermath, which, towards the end of summer, are in very good heart, he may support his bullocks, and carry them on when the strength of other grass fails. All fattening cattle, whether barren cows or oxen, require a proportional progression from coarser to better food, as they grow more and more into good flesh; otherwise, when
half

half fat, they will frequently go back, and the grazier will not, without great difficulty, be able to raise them again; which must be a great loss. See *GRAZING*.

In regard to the system pursued with oxen, they are in most places, where they are worked, turned off to fattening at two seasons of the year, which, in several respects, are very convenient. The first is about May-day, when the labour is pretty well over for the spring season; the spring corn being then generally all sown. The second is the beginning of winter, as, from the first of October to the middle of November, when the wheat and winter vetches are mostly put into the ground.

In regard to the various kinds of food with which cattle are generally fattened, it may be reduced under the following heads; grass, turnips, grains, wash from the distilleries, oil-cakes, corn, cut chaff, and a few other kinds.

The fattening cattle, according to Mr. Donaldson, are usually put to grass in May or June, according to the season and situation in regard to climate. The period necessary for fitting an ox for the butcher depends on several circumstances; as the condition he was in when put to grass, the nature of the pasture, and many others: but in ordinary cases, an ox will be completely fattened in three months. There is, he says, one method of fattening, connected with the grazing system, that the farmers in England are enabled, from the superior excellence of the climate, to adopt with success, which can never, he thinks, be attempted with propriety in Scotland. It is very common, at the close of the grass season, when the fattening stock happens not to be fully in condition for the butchers, to render them so, by giving them hay two or three times a-day in the field, or in hovels erected for the purpose, into which they have access at pleasure.

When turnips are employed for the purpose of fattening this sort of stock, especially if they are put up to the stalls in proper condition, which, considering the season of the year (November), must, with ordinary attention, always be the case, from 10 to 13 weeks is fully sufficient to render them fit for market.

It is observed, that the fattening of cattle with grains may, in some respects, be considered as a branch of the distillery business; but yet there are some instances wherein those who cultivate farms practise it with a double view of obtaining a profit on the sale of the cattle, and the acquisition of a valuable treasure of useful manure. Mr. Adam, the renter of the farm of mount Nod, near Streatham, in the county of Surry, has erected a very complete building, for the purpose chiefly of fattening cattle on grains. In this building, says he, may sometimes be seen several hundred head of cattle.

And the method of fattening cattle with oil-cake, corn, cut chaff, &c. is practised in many of the English counties, with a degree of success sufficient to warrant farmers in other parts of the island to follow the same practice. The cattle are commonly put up to fatten at the end of the grass season. The usual allowance of oil-cake, after it is broken in a large mortar, or, in the fruit districts, in a cyder-mill, is about half a peck per day, which is given, one half in the morning, and the other in the evening; to which is added hay, and in some cases ground corn, that is, oats and barley of inferior quality, and cut straw, provincially "chaff." As bullocks fattened in this manner, get regularly five, sometimes six, meals a-day, it is sufficiently evident that, although it may be upon the whole an expensive mode of fattening, yet it must be both expeditious and effectual. But the subject of fattening cattle in the stall will be fully considered in another place. See *STALL feeding*.

Mr. Marshall, in speaking of a Cotswold grazier, observes, that his fattening cattle are all tied up, some in single, some in double stalls. His reason for this practice is not altogether that of saving room; he is clearly of opinion that they do better, fat faster, than bullocks which are kept in loose stalls. His reasoning is, he thinks, fair. Besides the indisputable advantage of their not being liable, in this case, to foul their meat and water; he holds out another which is not so obvious, but may nevertheless, perhaps, be equally true: cattle, which are tied up, are more cadish (tamer, less wild) than those which are kept in loose stalls. A loose bullock (some loose bullocks at least), when a stranger enters the shed or any disturbance happens in it, will rise and fly into the yard for refuge; while a bullock which knows that he has not the power of flight will lie still and chew his cud. In the yards, loose bullocks are equally liable to disturbance; and quietness is no doubt essential to quick fattening. Each bullock has two troughs, a small one for corn, a large one for hay, with a water trough, which runs the whole length of the shed, and is covered by a board; each bullock having a hole (large enough to admit the nose) to drink at. The water trough (a hollow tree) forms, as it were, a top rail to the partition wall of the gangway. The others are beneath it, nearly level with the bed of the stall. The corn is ground, and given to them, mixed among cut hay, two or three times a day, beginning with half a peck, and increasing to about a peck a-day. The method of feeding with hay, which, in this instance, is practised, does, he says, the practitioner infinite credit. He feeds his bullocks with hay as cart-horses are usually fed with corn; giving it to them by handfuls at once; never more at a time than the two hands can grasp; continuing to feed them in this manner until they lie down, or till they refuse to eat. Thus they never have any hay to blow upon (the great objection against tying up bullocks); even at night, they have not a mouthful left before them. The leading principle of this practice is, that fattening cattle should never be cloyed with food; but should always eat with an appetite. In the morning they are fed with the worst of hay (if any difference); for, being then hungry, they eat it with an appetite. Thus the hay is eaten up clean, and the bullocks are preserved in a thriving habit; while the extraordinary expence, where a number of cattle are fatted at once, is inconsiderable. In this case it is proper to appropriate a man's time to their attendance; and he might as well be employed in feeding them by handfuls, he thinks, until they lie down, as in cloying them with armfuls, and idling the rest of his time away.

According to the author of the *Agricultural Report of Lincolnshire*, about Hauckthorn the larger farmers buy in beasts in autumn, put them to eddish, and then feed with cake; and sell from Christmas to May-day; this is done for the sake of the dung, and it is thought if that is cleared that it answers well. Mr. Thorpe at Kirton, he says, fattens many beasts every winter on cake; his landlord, Mr. Harrison, having built him for that purpose very convenient stalls, in a double range, with a gangway between their heads. They are in the Hereford style; the beasts may be loose or tied; a pump supplies water by troughs to cisterns; the whole well executed. He has sold beasts from these to 38l. a head, and fats 40 in a season. The same farmer has, on his farm at Owersby, another bullock-house, in the same form nearly; here he fats also on oil-cake; but the dearthness of it induced him to substitute lint-feed, boiled and mixed with barley meal; two quarters of barley, four bushels of lint-feed; and mixed, to give cold, in the form of a rich jelly: this quantity will go as far as half a ton of cakes, costing less, when barley is not extravagantly high, that is, 24s. a quarter:—

half

Half a peck of lint-seed is boiled in four gallons of water. He inquired of Mr. Thorpe particularly if he had reasons adequate to the expence for not tying beasts in their stalls, instead of giving them so much room separately; and he is clear they fatten much better: this necessity, however, he says, is not ascertained; for the question can hardly be considered as answered in any case where a farmer builds and a landlord pays. Mr. Thorpe buys his beasts at Lincoln: he thinks the Holdernefs too big for his purpose; but there is a very good cross of long and short-horns about Spillsby, which fatten kindly, and which he likes to buy. He is of opinion, from very considerable experience, and speaking of grazing in general, both summer and winter, that middling sized beasts will pay better than large ones, for instance two of 50 stone will answer better than one of 100; they do not take so much food to bring them to their weight; and will do on worse pasture.

It is added, that at Knaith, in the same county, where the pasture is not of the first quality, Mr. Dalton has fattened Teeswater beasts to 130 stone, at seven years old, and gave only half a ton of cake to each. He prefers this breed to any other he has tried. His beasts of 80 stone will be fat at five years from grass, without any cake; and his regular return is seven a year, at four years old. The cows are good milkers in their own country, but here are not equal to Lincolns. He is of opinion, in relation to the size of fattening animals, that an ox of 80 or 85 stone will not eat more than one of 50, and his bailiff thinks he will not eat so much. At Bankside, Mr. Webster feeds his cows, and his team horses, with steamed turnips and cut chaff, with great success. Mr. Elifson, at Sudbrook, buys in about 30 bullocks annually; from April to Midsummer; which are put to grass till a fortnight after old Michaelmas; then he places part in stalls, and part remains in grass till near Christmas. In the stalls, he feeds with cake and hay; they eat about 2½ cakes a day, at 7lb. each, and about half a ton of hay each beast; and are up about 10 weeks, some 12. They were bought in at 15l. each (1788): and sold at about 26l. In general, he reckons them to pay 10l. each, which answers well. He prefers the short-horned breed, and has tried long-horned Cravens, but they did not answer at all. His bailiff chooses the finest boned ones he can get, clean heads and muzzles, wide in the hips, out in the ribs, and deep in the fore quarter. The greatest fault in the Lincoln short-horns is, he thinks, being thin in the backs and chins; it is not universal, but very common; but upon the whole they fatten kindly. He observes, that the oil-cake dung is uncommonly rich, so as by mixing to make the straw dung excellent. Mr. Moody, of Rifeholm, fattens many beasts upon oil-cake, even as far as buying 100 tons of cake in a year. He keeps them loose in a straw yard, and finds them do well without any hay, giving straw only in addition; and has sold beasts thus fed at 40 guineas. The duke of Ancafter fattens many beasts; he buys in from Caudlemas to Midsummer generally Scotch and Welsh bullocks of from 34 to 50 stone, sometimes larger; sells fat from Midsummer to December. He gives on an average, for the two last springs, 8l. 8s. or 9l. each, and sells at 13l. to 17l. They are kept through the winter in the park, and go off at Midsummer, twelve months after. They have no fodder, except in a blast. North Wales, Pembroke, and Highland Scots, are found very little different in advantage; the Welsh grow rather more, and come to greater weight. The Fifes grow more than any, when they happen to be bought, but they require foddering.

It is observed by the author of the Rural Economy of Norfolk, that the practice of fattening bullocks on turnips is now beginning to obtain in every part of the kingdom; but it may be said to be still in a state of infancy every where

except in Norfolk; therefore an accurate account of the practice of this parent country cannot fail of being useful to every other turnip-land district. Impressed with this idea, he spared no pains, nor let slip any opportunity of making himself acquainted with the subject. The only species of cattle fatted in East Norfolk, he says, may be said to be the home-breeds and Scots. Some Irish beasts have at different times, but not regularly, been brought into the country, and have generally done very well. In West Norfolk, great numbers of Lincolnshire and Yorkshire oxen were formerly, and some few, he believes, are now fattened; but in this district they have always been considered as much inferior to the Scotch and home-bred stock. Home-breds consist of steers, spayed heifers, open heifers, barren cows, and running calves. The last is a species of fattening cattle peculiar, perhaps, to this country. They are calves which are suffered to run with their dams until they be a twelvemonth or more old; the cow being all the while at head-keep, of which the calf partakes, as well as of the milk of its dam: while herself, in the mean time, generally gets fat enough to be sent to Smithfield with her calf (perhaps as heavy as herself) by her side. The Scotch cattle fatted in Norfolk consist of Galloway Scots, other Lowland Scots, Highlanders, and those of the Isle of Skye. The Galloway Scot is large, thick, short-legged, mostly hornless, and of a black or brindled colour; the flesh well grained, and the form altogether beautiful, chine full, back broad and level, quarter long and full at the nache, round barrel, deep girt, and the bone, head, and chaps, in general, fine. This, he apprehends, is the genuine original Galloway Scot, and a principal part of the bullocks brought into Norfolk under that name is of this description; but the droves are generally adulterated with a mongrel sort, the produce of a cross with the long-horned breed. This species of adultery, he remarks, is said to be committed and encouraged by the nobility and landed gentlemen of the counties they are bred in; but the fact appears to be, that they have already one of the finest breeds of cattle in the world upon their estates; and it behoves them to hand it down to posterity as pure at least as they received it. In this age of improvement it might be laudable, he says, to endeavour to improve it to the utmost; not, however, by foreign admixtures, but by giving the most beautiful females to the most beautiful males of their own breed. They appear to him to have much to lose, but nothing to gain, from crossing, not even with the present long-horned breed of the inland counties. This species of Scotch cattle appears, he says, to be originally of the county of Galloway, which forms the southern extremity of Scotland; but they are now, it is said, propagated in other parts of the Lowlands, especially in the rich land counties of Lothian, in the neighbourhood of Edinburgh. He has known them fattened to 80 stone, and has been informed, from authority which he has no reason to doubt, that they have even reached near 100 stone, of 14 pounds each.

Lowland Scots are the ordinary breed of black cattle in the Lowland counties, size below the Galloways, and appear to be a mixture between these and the Highland Scots. Sixty stone is a good weight for a Lowland Scot. In form and inclination to fat they partake of the Galloway breed; the former, however, is seldom to near perfection as that of the true Galloway Scot. Lowland Scots are some of them horned, some of them polled; their colour black, or brindled, or dun.

The Highland Scots seem to be a distinct breed. The size is beneath that of the Lowland Scots; 40 to 50 stone is the ordinary weight of a Highland Scot. In form, flesh, and fattening quality the Highlanders resemble much the Galloway Scots, except that their backs in general are

coarser.

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coarser, their bone proportionably larger, and in that they have in general, but not always, horns of the middle size, and mostly bent upward, like those of the Welsh cattle, but finer. In general appearance there is a strong resemblance (their horns apart) between the Highland Scots and the black cattle of North Wales; but with respect to flesh and fattening quality, the main objects, the comparison is greatly in favour of the Scotch breed, which the gentlemen of North Wales are said to fetch annually out of Scotland, or to buy them up at the English fairs to be fattened for their own tables.

Those of the Isle of Skye appear to be only a variety of the Highland breed, contracted by soil or climature, or both. They are, in point of size, the lowest in the gradation; but with regard to flesh and fattening, and growth while fattening, they may be said to stand foremost. He has known an Isle of Skye Scot bought at $2\frac{1}{2}$ years old, for less than 40s., reach, in about 20 months, to 45 stone. At that age, says he, their growth in England is astonishing; owing, perhaps, not more to their nature than to a change of climature and a change of food. Much, however, depends upon their age. If they be intended for immediate fattening, the age of four years is the most proper. An Isle of Skye or a Highland Scot at two or three years will grow, but he will not fatten; at five or six he will fatten, but he will not grow, while fattening, equal to a four-year-old bullock. At this age the weight of Isle of Skye Scots, when fat, varies from 20 to 40 stone.

These are the four species or varieties of cattle which are brought by the Scotch drovers to the Norfolk fairs, and which are bought up and fattened by the Norfolk farmers under the foregoing names. A comparative statement of the process, expence, and profit attending the fattening of three different kinds of Scotch cattle grazed in Norfolk, is given by Mr. Burton in the Appendix to the Agricultural Report of that county. The first is a bullock bought at St. Faith's for about 6l. turned of four years old, in such condition as is fit to be put immediately to turnips. This bullock is supposed to be brought to from 50 to 52 stone. He is put to turnips for about 24 weeks, the average expence of which, including turnips, carriage, and attendance, and in case of bad weather, when a little hay is usually given, besides the straw, cannot be reckoned less than 4s. per week; this brings him to 13l. 16s.: and such a bullock generally will fetch about 5s. 6d. per stone of 14lb. which amounts to 14l. 16s. The second bullock is bought quite lean, about the same time as the former, for about 6l. and is a year younger than the former. He is first put into stubble or ordinary grass till the straw-yard is open, and then he is put to straw at night, and eats the offal turnips after the better beasts in the day-time; his keep in this way 24 weeks, till May-day, may be set at 1s. 6d. per week; he should then be put to marsh, or into good pasture, till a fortnight after Michaelmas, which, say 28 weeks, at 2s. 3d. per week, is 3l. 3s.; he then goes to turnips, like the former bullock, for 8 weeks, at 3s. which is 1l. 4s.; his aggregate charge is then 12l. 3s. His weight may be expected to be 44 stone, and value 12l. 2s. The third is supposed to be purchased at Harleston, in December, a lean beast of the same age as in the first case, at 7l. which goes immediately to straw and offal-turnips for about 8 weeks, at 1s. 6d. which is 12s.; then goes to full keeping at turnips by day, and lies in the straw-yard at night, for about 10 weeks, at 2s. 6d. which is 1l. 5s. It is then put into the second year's lay, or good pasture, till harvest, for about 20 weeks, at 3s. per week, which brings it to 11l. 17s.; it will then have attained in general about 46 stone, at 5s. 6d. which will amount to 12l. 13s.

On this it is remarked, that the first deduction to be drawn is that the first pays 10 per cent. interest upon the capital laid out, as well as a fair price for every thing that it con-

sumes. That the second returns no interest for the original cost, but pays a fair price for what it consumes. That the third pays 15 per cent. for the original sum laid out, besides paying as the others for what is consumed. It is obvious that in this system the principal advantage is in the large supply of dung that is raised.

The author of *Modern Agriculture* has well observed, that, considering the early period at which the cattle of this country are generally slaughtered, it is not now of so much importance to lay down rules whereby to ascertain their age with precision, yet in many cases it must prove useful. The age of cattle, like that of horses, is discernible by their teeth. They lose the first fore-teeth at the age of 10 or 11 months; these are replaced by others of a larger size, and when about a year and a half old, the teeth next to those in the middle drop out. These are also replaced by others; and at the age of three years the others are renewed in like manner. They then appear white, even, and regular, and pretty long, becoming gradually black, unequal, and short, as the animal advances in age. Another mark by which to determine the age of cattle, is the appearance of the horn. Cattle shed their horns at the end of three years; and towards the root of the second set of horns there is a kind of ring or joint, formed every year that the animal lives afterwards; so that, reckoning three years for the top or plain part of the horn, and one for every interval between the rings or joints, the most ignorant person may, with considerable certainty, ascertain the age of any ox or cow that has horns. See *AGE of Neat Cattle*.

The diseases of cattle make the subject of that art, called by the ancients *mulo medicina*, and *veteratoria*; and by us *farrying*.

The ancient riches consisted wholly in the number of cattle; whence it is supposed to be, that the Romans called money by a name formed from that of cattle; *pecunia* from *pecus*.

By the 6th article of the Union, no Scots cattle brought into England shall be liable to any other duties besides those to which cattle of England are liable. 5 Ann. c. 8. By 5 Geo. III. c. 10. made perpetual by 16 Geo. III. c. 8. all sorts of cattle may be imported from Ireland duty free. By 5 Geo. III. c. 43. Bastials may be freely imported from the Isle of Man.

Factors, and those who sell cattle for others, are prohibited to buy any ox, steer, runt, cow, heifer, or calf, and to sell the same again alive in the same market or fair; on pain of forfeiting double value, half to the king, and half to him who shall sue. Stat. 3 and 4 Edw. VI. c. 19. 3 Ch. I. c. 4. See *DROVERS*.

Stealing of cattle, or killing them with an intent to steal any part of the carcases, or assisting in such offences, are now made felony without benefit of clergy. See 14 Geo. II. c. 6. and 15 Geo. II. c. 34.

By cattle, in this act is to be understood any bull, cow, ox, steer, bullock, heifer, calf, sheep, and lamb, and no other cattle whatever. Stat. 13 and 16 Geo. II. c. 34. And every person who shall apprehend and prosecute to conviction any offender, shall have 10l. reward. See also *BLACK ACT*.

CATTLE Farm, in *Agriculture*, is that sort of farm in which the principal object of the occupier is the profit of live stock in some way or other. And from the different modes in which advantage is derived from this kind of stock, it is obvious that they must be of several different kinds, as breeding farms, where the chief object is that of raising young animals of the several kinds for the purpose of sale, dairy farms, in which the main object is that of either milk, butter, or cheese, or the two latter; the first sort being sometimes called cow-farms; grazing farms, when the chief point

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point is the fattening of different sorts of animals for the butcher; and suckling farms, as where the principal point of attention is the fattening of calves for the market. See FARM.

CATTLE-SHED, in *Rural Economy*, is that sort of erection which is made use of for the purpose of containing cattle while feeding or otherwise. Houses of this kind are most readily and cheaply constructed when placed against other buildings or offices, and are of very different forms according to circumstances and situations.

This sort of buildings may be used as cow-houses or feeding-houses, being built to answer either one purpose or the other, and they are either single or double: in the latter way a great many cattle may be accommodated at a very small expense.

The principal requisites in these buildings are, according to Mr. Beaton, the following: "1st. That they be capable of being well aired. 2. That they are so constructed as to require the least possible labour in feeding the cattle and clearing away the dung. 3. That the stalls be so formed as to keep the cattle as dry and clean as possible, with sufficient drains to carry away, and reservoirs to collect the urine and dung. He observes, with regard to the first requisite, that a free ventilation is as necessary in these buildings as in stables. How often do we see, says he, on entering a house where there are a good many cattle or cows, most of them, perhaps, in the highest state of perspiration, and smoking as if they had been at the hardest labour? at the same time the whole timbers of the roof are completely wet by the condensed fumes arising from the heat and breath of the cattle. This can only happen in close buildings, which must undoubtedly be extremely unwholesome; and, he supposes, must prevent the cattle thriving so well as they might otherwise do. To a feeder of cattle, says he, who looks eagerly forward to the profits he is to reap, and who estimates every additional pound of weight that a bullock ought to take on each day, it would be well worth his attention to consider, whether any bullock, in a perspiring state, can fatten so well as when kept in a proper degree of temperature. He thinks it stands to reason he cannot. When such buildings are in the form of sheds, they are not so liable to this want of ventilation; but wherever the timbers above appear wet by the heat and perspiration of the cattle, it is an evident proof there should be some additional air-holes, which, in his humble opinion, ought principally to be in the roof, as recommended for stables. If there are gable ends, they should, he thinks, have a window in each, as high up as possible, with moveable boards, as in granary windows, which may, by means of a cord or small rod, be easily opened or shut at pleasure. The advantages of this free and wholesome ventilation to the cattle must be very evident, and also to the preservation of the timbers of the building; for where the timbers are often wet in this manner, they cannot be of long duration, consequently the expense of repairing or renewing them would be greatly increased.

With respect to the second qualification, there are many different constructions of these buildings, but chiefly in the interior parts. "In many (he observes) the cattle are fastened to stakes ranged along the wall at the distance of about three feet from each other, with a space of 18 or 20 inches between the wall and the stakes to lay their food in. This is a very general construction in many parts of the country; but it is somewhat remarkable (he says) in this as well as in many other things, that the plan most generally followed is the very worst that could have been thought of: according to this construction, except sometimes, when the cattle are fed from without, the feeder is obliged to go in among them to give

them their food, which occasions a great waste of time as well as being attended with many other inconveniences. No construction can, he supposes, be more commodious than when a sufficient space is left before the cattle, for the feeder to go with a large wheelbarrow to distribute their food. This may (he thinks) be obtained, either in single sheds, or in double ones, by making the cattle face each other, and leaving a free space of about four feet to admit a wheelbarrow," in the foddering of them.

He adds that the single ones may be formed as in *Plate IV. fig. 3. Agriculture*, in which A is the passage before the cattle, B the rack for their hay or straw, C a place for laying fodder or litter in occasionally. Or it may be constructed as in *fig. 4.* D the passage, E a perpendicular rack behind which are thin deals all along in the position F, for laying the hay upon; and under F is a square hole G, opposite each stall, through which the cattle are fed from the passage D. This is a very good construction for this sort of shed, and is taken from the new offices of Mr. Bishton's, of Kilsal in Shropshire, where economy in labour and convenience have been much attended to.

Double sheds may be constructed as in *fig. 5*, in which A is the passage; B, B are the stakes to which the cattle are bound; C, C are posts or pillars to support the roof. It might, he thinks, be an improvement here to adopt Mr. Bishton's plan, and make similar racks, with holes below, as is shewn in *fig. 4.* Another way of constructing these double sheds is shewn in *fig. 6*, by which a very convenient loft may be obtained in the roof. A is the passage between the cattle, and B the loft above, which, if close boarded, may serve many useful purposes. These double sheds are, Mr. Beaton supposes, perhaps the best construction for feeding-houses, being not only the most commodious, but requiring less building for the same number of cattle than by having them all to face one way.

It is justly remarked, by the same writer, that where cattle are fed from the outside through holes left for that purpose, many inconveniences may arise, either in wet weather or in a severe frost, or by a heavy fall of snow. When they are fed within, no sort of weather can occasion any interruption, especially if there is a proper place adjoining, to keep the provender in security and under cover. In single sheds, it would be convenient to have a place above the cattle, as at B, *fig. 6.* for holding occasionally some hay or straw. This place might be boarded, and made to open from without by covers suspended on hinges, which, when opened, will afford an easy access for putting in the fodder from a cart. It would there lie ready for the feeder to throw into the racks when required. The roof is in this case to be supported by posts or pillars about three or four feet high, on the top of the wall, and placed about eight or ten feet distant from each other, as at A, A, A, &c. *fig. 1.* in *Plate V.* B, B, B, &c. are the hinges of the covers, and C, C, C, &c. the rings to raise them up. D is one of the covers open, which may be held up in various ways, as by a catch, F, *fig. 2.* moveable on a small iron pin, the heaviest end, E, being within the fixed boards, and F without to catch in a hole in the cover, when opened.

In the third place, great attention is, he says, necessary to keep cattle clean and dry. The common method of taking away the dung in wheelbarrows is attended with a good deal of labour, and where there are many cattle or cows will require perhaps several men's attendance. If this labour can, therefore, be abridged, and one or two men's work saved by a proper construction of building, it will be a great advantage. This should be considered in the original design before the building is begun, and must be determined in a great measure

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measure by the form and situation of the ground. If a proper receptacle can easily be had immediately behind the cattle, for throwing in the dung at once with a shovel, without wheeling it, this would be the easiest way, and will not only save trouble and expence, but if properly contrived, the dung will be the better for it. By the common method, the dung is, he says, in general so scattered about, and exposed to the weather, that a great part of its virtues is exhaled and lost; a matter of great importance to the farmer; for it is not merely the quantity, but the quality also of dung that is to be considered.

To preserve dung under cover would be attended with an expence in the construction of a proper place, that perhaps few would chose to go to; at the same time, there is no object of more consequence to the farmer than preserving the quality of his manure.

It is added that the facility of keeping cattle clean and dry, depends very much on the construction and paving of the stalls, of which there are various kinds. In many places, however, there is no such thing known as a stall for cows or oxen, they being bound to stakes, without any division whatever betwixt them. In some parts again, particularly in Cheshire and Lancashire, he observes cows are bound in pairs, at least there is but a very small division betwixt them, as will be seen by *fig. 3.* in *Plate V.* in which is a plan of these stalls; A, A, A, &c. being the stakes to which the cows are bound. In other parts they are not bound at all, but every cow or ox has a separate stall so divided from the rest by rails of wood, that they cannot get out, and so narrow that they cannot even turn about. At *fig. 4.* is a plan of these stalls; S, S, S, &c. are the stalls. P is the passage betwixt them; T, T, &c. are the troughs out of which the cattle feed: At *fig. 5.* is an elevation of the rear of these stalls. RR is a rail that lifts out at the end of each stall. Sometimes there is a little door that opens, as at G. *Fig. 6.* is a section of these stalls, in which it will be observed there is a short rail or brace at A, to prevent the cattle touching each other with their horns. Some people are of opinion, that cattle feed much better and quicker in stalls of this kind than when they are bound.

It is supposed that double stalls may be made without the short division, as already mentioned. The division between them, however, ought to be sufficiently boarded at the top, to prevent the cattle seeing their neighbours in the next stall. At each stake should be a trough for holding meat, and between these two troughs, another common to both cattle, for holding water, with which it may be supplied by a pipe communicating with a cistern or reservoir without.

These three troughs may be of stone, as in *fig. 7.* and all of one piece, if thought proper. A perpendicular rack for holding hay or straw may be placed over them, as represented in *fig. 8.* which is a section or view of one of the stalls, and *fig. 1.* is a plan. Perhaps it would be an improvement to divide them by a rail in the middle, as at AB, *fig. 7.* which would prevent the cattle turning too much about, and spreading their dung over the whole stall, for the more they are made to dung in the same place, the easier it will be to keep them clean. But although the double stalls here recommended are a good deal used for milch cows in different parts of England, yet they have in general only one trough for each cow, without any for water; nor indeed has he seen any with this conveniency, except at Burleigh, in Rutlandshire, a feat of the earl of Winchelsea, where offices and farm-houses are on an excellent construction, being planned chiefly by himself.

In paving stalls for cattle, the same author remarks, "that there is generally too great a declivity made, which will

cause them always to stand uneasy and uncomfortable; for, when feeding, there cannot be too much attention paid to their ease and comfort, as well as to their food. If they are constantly wet and dirty, or in pain by standing in an unnatural position, it is impossible they can thrive so well as otherwise they might. Yet (says he) how little attention is there in general paid to this. One would almost be led to suppose it is the opinion of many, that if they stuff their cattle quite full of food, whatever may be its quality, it is all that is necessary. Sometimes they are chained so close to a stake that they can hardly move, nay, it is a practice in some places to fasten their heads between two stakes, by which they can neither lie down in comfort nor can they have it in their power to destroy or dislodge those teasing tormenting vermin which frequently prey upon them. Besides this, they are often suffered to be besmeared on the back, and either smoking with heat for want of ventilation, or shivering with cold. No animal can thrive well under such mismanagement, let his food be ever so plentiful, or of ever so good a quality; for, as an ingenious author says; to keep cattle clean and well littered, is to them half food. Cows are more easily kept clean than oxen, for they do not wet their stalls so much; but even oxen, when confined to stand nearly in the same place, cannot wet their stall above half way up, if properly constructed, and that generally about the middle. It is therefore clear, that if the moisture is immediately conducted away, and prevented from spreading, the ox will be easily kept dry. The best way to do this is, (he thinks) in the manner described for paving the stalls of stables." See *STABLE.*

The stalls of oxen or other cattle should, he says, "be paved in the same manner; but as their dung is of a more liquid nature than that of horses, it would be proper to have some commodious method to carry it off. Perhaps in some situations, where there is a proper declivity, this might be done by having an iron grating behind each ox or cow, immediately over the stall drain, and as nearly as can be judged to the place where the dung will drop, which by continuing the drain, or a wooden spout, to a pit or reservoir without, and giving it a sufficient slope, will, with the assistance of the other moisture, run and empty itself therein. If it should require the aid of a rake or hoe fitted to the drain, that may be easily applied, especially if those drains are made open and covered with a strong plank to take up when necessary. The moist dung being thus carried away, the remainder will be easily removed.—Something of this principle, suited properly to the situation of the place, would, (he thinks) save a great deal of labour, and very much facilitate the keeping of the cattle clean, and also be the means of saving a great deal of litter when scarce or dear. The advantage of proper drains to carry off the moisture from within the offices, and reservoirs for collecting it in, are therefore very obvious, as without such drains it cannot be expected that the offices or the cattle within them can be kept sufficiently dry."

But though these forms and modes of constructing cattle-sheds and feeding-houses are, probably, the most frequently met with in different parts of the kingdom, they are often built on other places and in other forms, such as the circular and long square; the first of which, though rather more expensive in the construction, is probably the most economical in respect to labour, and the most convenient in the distribution of the food, especially where a great number of cattle are to be kept. In this case, the animals, contrary to the usual method, stand all round having their tails to the out wall, by which much convenience is afforded in throwing out the dung through crevices left for the purpose

in the wall into covered pits made on the outside in order to receive it. The area or space within is converted to the use of feeding and attendance. There should be a room above in order to store up different sorts of food that may be wanted for the animals, to render the plan complete. The passage or gangway next the wall is left sufficiently large to permit the cattle to pass to and from their stalls; and the openings in the wall for the discharge of the dung should be so contrived as to be capable of being shut up when the weather is severe.

The long square likewise admits of much room and convenience, and is a form in which many houses of this description have lately been erected. For this sort of shed the length of fifty or sixty feet affords room for a great number of cattle; the roof being made shelving, having the height of fourteen feet in the highest part and six or seven in the lowest; the large place destined for the reception of the cattle being separated from that where the dung is to be deposited by a wall or some other convenient division. For the former the space of eighteen or twenty feet on the inside is sufficient to afford good room, the stalls being made each about twelve feet long, having the width of four feet, or four feet and a half; the gangways at the heads and behind the cattle being made three feet, or three feet and a half in breadth, doors being fixed to each, one for the admission of the animals, and the other for that of the persons who attend them. And when the buildings are of great length, it may be convenient to have doors at each end. There should likewise be troughs in each stall for the reception of water, which, where it can be made to run through them, is of great advantage; and boxes or mangers for particular sorts of food, as well as racks for hay, are also necessary to render them complete. The bottoms of the stalls may be formed of strong planking laid so as to have a very slight descent, and be perforated with holes for the ready passage of the urine into the reservoir for it. There should be openings made in the wall behind the cattle, for the purpose of discharging the dung, between every two stalls of about two feet square, with proper shutters fitted to them; and also a wooden window of about the same size to each stall, to admit light and free ventilation, being placed as high as the house or shed will admit. The reservoir for the dung and urine should extend the whole length of the shed or building.

A shed on this plan has been found useful in practice by a person who has bestowed much attention on the convenience of this sort of farm building. See *Cow-House*.

CATTU-GASTURI, in *Botany*, Rheed. Mal. See *HIBISCUS abelmoschus*.

CATTUPHUS, or **COSSOPHUS**, in *Ichthyology*, a name given by Aristotle and other Greek writers to a species of Labrus of a bluish black colour; the *MERULA*, and *TURDUS nigricans* of some Latin authors. It is rather uncertain which of the Linnæan species is intended by those writers.

CATTUS, or **CATUS**, *cathouse*, was in ancient history a sort of covered shed, sometimes fixed on wheels for the purpose of moving it, in some respects similar to the vinea and pluteus.

CATTU-SCHIRAGAM, in *Botany*, Rheed. Mal. See *CONYZA anthelmintica*.

CATTUSE, in *Geography*, a town of America, in the state of Georgia; 12 miles W. of Tugeloo.

CATTU-TIRPALLI, in *Botany*, Rheed. Mal. See *PIPER longum*.

CATUDÆI, in *Ancient Geography*, a name given by Strabo to those who dug their habitations under ground; such were the Troglodytes.

CATUIACA, erroneously written *catoluca*, *carluce*, a

place of Gallia Narbonnensis, between Alaunium and Apta Julia, according to the Itinerary of Antonine.

CATULENSIS, an episcopal see of Africa, in Mauritania Cæsariensis.

CATULLI-POLA, in *Botany*, Rheed. Mal. See *PANCRATIUM zeylanicum*.

CATULLUS, **CAIUS VALERIUS**, in *Biography*, an eminent Latin poet, was descended from reputable parentage, and born at or near Verona, about the year of Rome 668, B. C. 86. At Rome, where he settled at an early age, he formed an intimate acquaintance with some of the principal persons in that city, as Cicero, Cinna, and Plancus, to whom he recommended himself by his wit and gaiety, and by the beauty of his poetical compositions, the obscenity and lasciviousness of which seemed to have been no great hindrance to his reception among the ancient Romans. In some of his poems he attacked the private character of Cæsar with severity; but a slight apology effected a reconciliation; and Catullus was again admitted to his table. Although he accompanied the prætor Memmius to Bithynia, Rome seems to have been the place of his stated residence; where he lived under the character of a wit and a man of pleasure. He possessed, however, a small villa at Tibur, whither he occasionally retired for relaxation, and he also speaks with an amiable enthusiasm of his paternal seat on the peninsula of Scrinio, delightfully seated on the lake Benacus. He was much attached to a mistress, whom he has rendered immortal by the name of Lesbia, though her real name was Clodia. That the unrestrained libertinism of Catullus had not extinguished in his breast the amiable feelings of fraternal love and friendship, we have sufficient evidence in the tender lines which he addressed to a friend on the death of a brother. The Eusebian chronicle has placed the death of Catullus in the year of Rome 696, B. C. 58; but as he alludes in a poem (Carm. iii.) to the consulate of Vatinius, in 707, he must have survived that period. In Blair's tables his death is placed in the year of Rome 714, B. C. 40. Joseph Scaliger extends his life to 71 years, and consequently refers his death to the year of Rome 739, B. C. 15; but Mr. Bayle has examined his arguments for this date and refuted them.

The rank of one of the principal Latin poets is assigned to Catullus by Ovid, who places him on a parallel with Virgil:

“Mantua Virgilio gaudet, Verona Catullo.”

Amor. l. iii. el. 15.

Martial also acquiesces in the same opinion; (lib. xiv. Ep. 195.), and modern critics reckon him one of the most valuable examples of the golden age of pure Latinity. “He is the earliest remaining writer who gives specimens of a great variety of measures; and his subjects and styles of writing are almost equally various. His peculiar excellence is thought to consist in the sweet and tender, combined with a sort of playful simplicity, and no pieces have been more frequently repeated than some of his short tributes of affection to Lesbia. They have, indeed, by their endearing diminutives, served as a model to a whole class of imitators. In other compositions Catullus aims at a higher flight, and exhibits much strength of imagination and expression, not yet arrived at its due polish and correctness. His epigrammatic pieces are of various characters; but such are the licentiousness of idea and freedom of language in most of them, that nothing can be more offensive to moral purity. His amorous poems are likewise often in the extreme of warmth.” Of his works we have extant, his “*Liber Epigrammatum variorumque Poematum*,” dedicated to Cornelius Nepos. His poems are divided into three books, one of lyrics, another

of elegies, and a third of epigrams, which division appears in the edition of Venice, 1487, fol. The most approved editions of Catullus are those of Vossius, Lond. 1684, 4to. with a commentary, and Utr. 1691; of Vulpius, Patav. 1710, 4to. with annotations and an index; of Corradini, Venet. 1738; the "Variorum," by Grævius, with the poems of Tibullus and Propertius, Utr. 1680; and Mattaire's, in 1715, 12mo., and in the Corpus Poetarum, with Tibullus and Propertius, Lond. 1713, fol. A correct edition was printed a few years ago by an alderman of London; but not sold; and in 1795 was published an English translation, entitled "The Poems of Caius Valerius Catullus, in English verse, with the Latin text revised, and classical notes;" prefixed to which are engravings of Catullus and his friend Cornelius Nepos, 2 vols. Fabr. Bib. Lat. T. i. c. 5. p. 60. &c. Nouv. Dict. Hist. Gen. Dict. Gen. Biog.

CATULUS, in *Ichthyology*, a name by which old authors have described the spotted dog-fish, *SQUALUS CATULUS* of Linnæus, which see.

CATURIGES, in *Ancient Geography*, a Celtic people, who inhabited the mountains of Gallia Lyonnensis, or the Cottian Alps; placed by Ptolemy between Ebrodunum and Vapincum. The country which they occupied was called in Latin "Cottii regnum," and in Celtic "Cou-rich," or "Catt-rich."

CATURIGES, or CATURIGÆ, a town of Gallia Lyonnensis, and the capital of the Caturiges, between Ebrodunum and Vapincum, according to the Itinerary of Antonine and the table of Peutinger, who names it "Caturigomagus;" its modern name is thought to be Chorges.

CATURIGIS, a place of Gaul in Belgica Prima, N.W. of Nasium, on the route to Durocortorum.

CATURACTONIUM, a town of the Brigantes in Britain, which was unquestionably the present Cattarick near Richmond, in Yorkshire. In the time of the Romans it appears to have been a great city; and seems to have derived its name from a fort of cataract in its vicinity. Here one of the Roman highways crossed the river Swale. On its banks are the foundations of large walls, and a mount cast up to a great height. Many Roman coins and urns have been dug up here. The city was finally destroyed by the Danes.

CATURUS, in *Botany*, Linn. Mant. Class and order, *diæcia triandria*. Nat. Ord. *Tricocceæ*, Linn. *Euphorbia*, Jusl.

Gen. Ch. Male. *Cal.* tubular, three-cleft to the middle, or three-leaved, permanent; segments egg-shaped, acute, concave. *Cor.* none. *Stam.* filaments three, capillary, longer than the calyx; anthers roundish. Female. *Cal.* from one to three-leaved; leaves egg-shaped, flat, permanent. *Cor.* none. *Pist.* germ villous; styles three, long, multifid, pinnated, coloured, stigmas acute. *Peric.* capsule roundish, tricoccous, three-celled. *Seeds* solitary, round.

Sp. 1. *C. spiciflorus*, Linn. Mant. Mart. Lam. Illust. Pl. 805. (*Acalypha hispida*, Burm. Flor. Ind. 303. tab. 61. fig. 1. Watta-Tali, Rheed. Mal. 5. p. 63. tab. 32. *Cauda felis agrestis alba*, Rumph. Amb. 4. p. 84. tab. 37. fig. 2.) "Spikes axillary, solitary, pendulous." A shrub. *Stem* from 15 to 20 feet high; wood white and close; bark thick, dusky, unctuous, inodorous; pith yellow. *Branches* diffuse. *Leaves* alternate, petioled, nearly heart-shaped, acute, bright green above; midrib pale, hairy, with a few lateral nerves. *Flowers* in axillary, solitary, hispid, pendulous spikes; but, according to Burman, the spikes in most of the plants brought from the island of Java are not pendulous. *Fruit* round, yellowish-green, inspid. A native of

the East Indies, where a conserve of the flowers is used in diarrhoea, and all disorders arising from a laxity of the vessels. From a comparison of Rumphius's figures in tab. 36 and 37. with those of Rheede and Burman, La Marck suspects that several species are confounded together. 2. *C. scandens*, Mart. Lour. Coch. 612. "Spikes axillary, upright; leaves oblong, somewhat ferrated; stem climbing." An unarmed shrub. *Stem* long, branched, climbing, but without tendrils. *Leaves* alternate, acuminate, veined, smooth. *Flowers* very small, white, in close short spikes, with awl-shaped bractes. calyx of the male flower three-leaved. A native of the woods of Cochinchina.

CATURUS *ramiflorus*, Linn. Lam. See *BOEMERIA ramiflora*.

CATUS, in *Geography*, a town of France, in the department of the Lot, and chief place of a canton in the district of Cahors; $2\frac{1}{2}$ leagues N.N.W. of Cahors. The place contains 1344, and the canton 9907 inhabitants; the territory includes 200 kilometres and 16 communes.

CATUS *pardus*, in *Zoology*. See *FELIS pardalis*.

CATUS *zibethicus*, a name given by some old writers to the civet, *VIVERRA civetta* of modern naturalists; called also by Gesner and others *felis zibethi*. The English name is civet, this being the animal which produces the perfume of that name: it is oftentimes, though improperly, called the *civet cat*.

CATUSIACUM, in *Ancient Geography*, *Chauris*, a place of Gaul, in Belgica secunda, at some distance N. of Durocortorum.

CATU-TSIERN NAREGAM, in *Botany*, Rheed. Mal. See *LIMONIA acidissima*.

CATWYCK, in *Geography*, a village of Holland, on the borders of the sea, near which the Rhine loses itself in the sand. The Romans built a castle near this spot, and the ruins may be sometimes seen, when the sea retires more than usual; 2 leagues N.W. from Leyden.

CATY, CATI, or CATTI, an East India weight, used especially in China. It is equivalent to one pound five ounces and two drams English.

The caty is divided into sixteen taels, and the pic into an hundred eaties.

The caty is also used in Japan, Batavia, and other parts of the Indies, where it weighs more or less, according as it contains a greater or less number of taels; the caty of Java is equivalent to twenty taels; that of Cambaya to twenty-seven; the caty of Siam is double that of China, and amounts to about 150 French pounds.

The Chinese also give the denomination caty to the Siamese *seban*.

CATY is also a small weight whereby the lapidaries of the East weigh their emeralds, equivalent to three grains.

CATY is also a money of account, used in Java, and some of the neighbouring islands, amounting to about nineteen florins Dutch money.

In the island of Sumatra, caty is said to denote a piece of money valued at six shillings and eight pence sterling.

CATZ, JAMES, in *Biography*, an eminent Dutch statesman and poet, was born at Brouwers-haven in Zealand, in 1577; and became so much attached to literature, that he resigned very elevated posts under the civil government for the sake of study and repose. He was prevailed upon, however, by the States to undertake the arduous office of ambassador to England in the critical and tumultuous time of Cromwell. On his return he retired to one of his estates at Sorgvliet, where he died in 1660. His poems in Dutch, almost all of which are on moral topics, have been held in high

high estimation by his countrymen, and have passed through several editions. The latest edition was that of 1726, in 2 vols. fol. Nouv. Dict. Hist.

CATZENELNBOGEN, or **KATZENELNBOGEN**, *County of*, in *Geography*, a county of Germany, in the circle of the Upper Rhine, which devolved to the landgrave of Hesse in 1479, after the decease of Philip, the last count. It is composed of many districts, which, if they were united, would form a country 20 leagues long, and 10 broad; but the city of Mentz, with its territories, insulated in this country, makes an interruption of 10 leagues. The Mayn passes through it, and divides it into Upper and Lower; the Upper belongs to the prince of Hesse-Darmstadt, and is called Darmstadt from the capital. The Lower county fell to the landgrave of Hesse-Rhinfels in 1648, except the town of Catzenelbogen, Breubach, and the castle of Marburg, which belong to Darmstadt.

CATZENELNBOGEN, a town and castle of Germany, in the circle of the Upper Rhine, seated on a mountain which gives name to a county belonging to the prince of Hesse-Darmstadt; in its vicinity are mines of iron; 28 miles N.N.W. of Mentz, and 22 E.S.E. of Coblenz.

CAVA, in *Anatomy*, is a name applied to some large veins.

The superior or descending vena cava is the vessel which returns the blood from the head, upper extremities, and chest, to the right auricle of the heart.

The inferior or ascending cava receives the blood from the lower extremities, abdomen, and pelvis, and pours it into the right auricle.

The venæ cavæ hepaticæ are the returning veins of the liver, which join the inferior cava. For a description of these vessels, see **VEINS** and **LIVER**.

CAVA, in *Ancient Geography*, a large village of Asia, mentioned by Xenophon; and supposed to be in Bithynia.

CAVA, in *Geography*, one of the smaller Orkney islands, about a league S. from Pomona.

CAVA, LA, a town of Naples, in the province of Principato Citra, the see of a bishop, immediately subject to the pope. Since a new road has united the Sorrentine promontory with the Apennines, which passes by Cava, it has brought to this city a concourse of travellers and merchants. It has also been encouraged to traffic by many valuable privileges; a cloth manufactory has enlivened it, and increased its population; and it carries on a great trade in silk and linens. It is distant $2\frac{1}{2}$ miles N.W. from Salerno. N. lat. $40^{\circ} 20'$. E. long. $14^{\circ} 55'$.

CAVADO, a river of Portugal, which runs into the sea near Espofenda.

CAVÆDIUM, in *Architecture*. This term, derived from the words *cava ædium*, signifies a vacant space within the body of a house; it has therefore the same meaning with our word court. Vitruvius has a chapter upon cavædiums (lib. 6. cap. 3.) which he divides into five kinds, called, from their various forms, Tuscan, Corinthian, Tetrastyle, Displuviated, and Testudinated. The Tuscan cavædium was a square court, with a roof projecting from the sides to shelter the walls, and convey the rain water towards the middle. The Corinthian cavædium was similar to the last, except that the roof, projecting further, was supported by columns underneath. The Tetrastyle was so called, from having four columns supporting the angles of the roof. The Displuviated was entirely open, having no roof projecting from the sides, and was therefore lighter and more agreeable for the windows of winter apartments to look into. The fifth kind was covered over, being testudinated or vaulted;

this manner was used when the span was not very great; and the space above was used for chambers or other apartments.

CAVAGIRO, in *Ichthyology*, a small fish found in the Mediterranean, which Ray describes as being something of the eel shape; but thinner and flatter. The same writer also calls it *Tænia rubra*, and *Freggia*. This is the *CYPOLA TÆNIA* of recent authors, which see.

CAVAGLIA, in *Geography*, a town of Italy in the lordship of Vercelli; 16 miles W. of Vercelli.

CAVAILLON, a town of France, in the department of Vaucluse, and chief place of a canton in the district of Avignon, situated on the Durance, in a pleasant and fertile country, and abounding with remains of Roman magnificence; 4 leagues S.E. of Avignon. The place contains 5192, and the canton 9875 inhabitants: the territory includes 115 kilometres and 6 communes. N. lat. $43^{\circ} 52'$. E. long. $4^{\circ} 17'$.

CAVAILLOX, a town on the south side of the south peninsula of the island of St. Domingo in the West Indies, about three leagues N.E. of Les Cayes, and five W. by S. of St. Louis.

CAVALA, LA, a town of European Turkey, in the province of Romania; 30 miles E. of Emboli.

CAVALCADE, a pompous procession of an assemblage of people on horseback, with their equipages, &c. by way of parade in order to grace a triumph, a public entry, or the like.

CAVALCADOUR, or **CAVALCADEUR**, anciently denoted a riding-master; but at present is disused in that sense, and only employed to denote a sort of equerries, or officers who have the direction of princes' stables. The French say, *écuyer cavalcadeur* of the king, the duke of Orleans, &c. Menage writes it *cavalecadour*, and derives it from the Spanish *cavalcador*, a *horseman*.

CAVALCANTI, **BARTHOLOMEW**, in *Biography*, a learned Italian, the descendant of a noble family, was born at Florence in 1503; and having been led by the disturbances of his country to assume the profession of arms, he displayed his eloquence and his valour in an oration on liberty, which he pronounced in 1530; armed with a corselet. Taking part against the house of Medici, he was under a necessity of withdrawing from his country after the assassination of Duke Alexander and the election of Cosmo. He then settled at Rome, where he was employed by Pope Paul III. and his grandson Ottavio Farnese, in many important negotiations. He also faithfully served Henry II. king of France in the cause of the Siennese, as long as they were able to defend their liberties. After the termination of the war between France and Spain, he resided at Padua, where he devoted himself altogether to literature, and where he died in 1562. His "*Rhetoric*," first printed in 1559, and several times reprinted, has been reckoned among the best works of the kind in that age, when it was the common fault to regard Aristotle as infallible. His "*Treatises on the best Forms of Republics ancient and modern*," printed in 1555, are also valued. He also wrote an Italian commentary on the first books of Aristotle's *Poetics*, and translated into Italian the "*Castrametation of Polybius*." Moreri. Gen. Biog.

CAVALCANTI, GUIDO, one of the very early Italian scholars, was born of a family of rank at Florence, in the 13th century; and became the disciple of Brunetto Latini, and an intimate friend of Dante. His father, having been a free speculator in philosophy, was placed by Dante in his *Inferno*, among the condemned Epicureans in the lower regions;

gions; and Boceacio intimates, that the son was addicted to similar opinions. Guido was fond of a retired and contemplative life, and attained among his countrymen a high character both as a philosopher and a poet. In his pilgrimage to St. James of Compostella, he formed an amorous attachment to a lady at Touloufe; but having taken part in the contentions of his country against Corso Donati, a principal person of Florence, was in danger of assassination in his pilgrimage. In the year 1300 he was banished to Serezano; but on account of the unhealthiness of the place, where he fell sick, he was allowed to return to Florence, and died there in that or the following year. His poems, for which he is chiefly distinguished, are, allowing for the times, elegant and correct. They consist of sonnets and canzones, and were printed at Florence in 1527, in a collection of ancient Italian poets. Gen. Dict.

CAVALE, LA, in *Geography*, a small town on the northern point of the island of Taffio, in the Archipelago, west of the bight formed by Cape Asperofa: the town projects into the sea, and has some resemblance of a horse, whence its name. This town, which was formerly called BUCEPHALA, was for a long time in possession of the Genoese and Venetians; of late years it has become a very active point of the Levant trade; its harbour, though not very safe, is frequented by ships which load there with corn, tobacco, and other commodities.

CAVALER MAGGIORE, a town of Italy, in the principality of Piedmont; 3 miles north of Savigliano, and 19 south of Turin.

CAVALERI, a small island in European Turkey, in the Archipelago between the south-west end of the island of Negropont, and the continent of Greece. N. lat. $38^{\circ} 7'$. E. long. $24^{\circ} 17'$.

CAVALERIE, LA, a town of France in the department of the Aveyron, and chief place of a canton in the district of Milhau, two leagues S.E. of Milhau.

CAVALET, in the *Glass Art*, a small iron ring which surrounds the lumella, or hole in the center of the floor, in the tower of the LEER, used for annealing glass vessels.

CAVALIA, a town of Africa, on the Ivory coast.

CAVALIER, in *Military Language*, a trooper, a man of warfare or soldier, that serves and fights on horseback. The appellation of *maitre* or master, has sometimes been given to him. Thus they say, *cette compagnie est de trente ou quarante maitres*, non compris les officiers, this company consists of thirty or forty masters, exclusively of the officers. This name is very old. And they inherit it from the men of arms, the first corps of cavalry that was raised under Charles VII. of France. These men at arms, who were gentlemen, carried each of them into the field with him three archers, one cutler, and one page or valet. The numbers of each were distinguished by so many masters, so many archers, so many cutlers, and so many pages. When these last were sent on detachments, by themselves, some of the *gens d'armes* commanded them. And the officers did not march but with the *gens d'armes* alone. This term was formerly confined or restrained to a knight or miles, and had the same import or meaning as that which the French at present annex to the word chevalier. The word now denotes any soldier that serves and combats on horseback: and he is reckoned a good cavalier who takes particular care of his horse and his equipage.

CAVALIER *bas*, the same in a military sense as Bachelor, which title was formerly given to a young cavalier, who had commenced his military career, served his first campaign, and received the military cincture.

CAVALIER, a term in *Fortification*, made use of to denote

a work raised generally within the body of the place from ten to twelve or more feet higher than the rest of the works. Its most common situation is within the bastion, and nearly of the same form. It is sometimes placed in the gorge of a bastion, and sometimes on the middle of a curtain, in which case it is usually made somewhat in the form of a horse-shoe, but a little flatter, or not quite so much rounded, or circular.

The principal use of cavaliers is, to command all the adjacent works, and the country around them. They are seldom or ever made but when there is a hill or rising ground, which overlooks some of the works.

Sometimes the earth of the rampart fills up the whole bastion, which is then called a full bastion; and sometimes the rampart follows the *master-line*, or first draught, running parallel to the parapet of the bastion, which is then called an empty or hollow bastion. The empty spaces in hollow bastions are convenient for magazines of provision and ammunition, and for various other purposes. But when the bastions of a fortified place are full, and there are any eminences or rising grounds near it, that command any parts of the works or outworks, terraces or mounds of earth, called cavaliers, more or less raised as there is occasion, are made in them, which are sometimes walled round, and always have, like other works, a parapet for covering the cannon placed in them for removing such exterior commands, or for defending the faces of the opposite bastions, as well as the bastions themselves, in which they are raised, should the enemy make lodgments in them. Such a cavalier is called *cavalier de bastion*; and, when made nearly of the same figure with one, forms a fort of double bastion, which is often attended with great advantages. To construct such a cavalier in a bastion, draw two right lines parallel to the faces of the bastion, about twenty yards within, and distant from the face; and form, at this distance, an interior bastion, with flanks either straight, or with orillons, similar to those of the outer bastion, or the bastion itself, and you will get the magistral line of the cavalier.

Cavaliers are often made on the middle of the curtains, and near the parapet, in order to command a view of the field from the place, to discover the enemy in his works, and to double the fire which defends such parts of the town as may be attacked. At other times when any parts of the place or works are liable to be *enfiladed*, cavaliers are raised to cover them against an enfilade.

A work of this nature is sometimes erected in the ditch of a fenny place, for the purpose of covering a gate, or lodging a guard in it against surprises. It is then called a *horse-shoe*, and when very irregular, *paté*.

Ever since the invention of modern fortification, cavaliers have been in estimation and use in many fortified towns, as appears from Palma-Nova, Orbi-Novo, the citadel of Turin, and various other places. They are raised considerably higher than any other parts of the works; and as they have different uses, or answer different purposes, they are also of different figures, being sometimes rectangular, sometimes round, sometimes oval, sometimes of the bastion form, &c.; for which, see *Fortification*, Pl. I. fig. 2.

The principal advantages of cavaliers are these, that they molest a besieging enemy as long as he is in the field, expose him to the view of the besieged in his works and approaches, annoy him in his batteries, and oblige him to open his trenches at a greater distance from the place than he otherwise would. They subject him to this inconvenience, that, to be under cover from them he must perform more labour and make greater excavations to raise his trenches and other works a good deal higher than he need do, were it not for them, which, when there is but a small depth of soil and rock under

under it, is attended with much difficulty. At the same time he cannot, but with extreme difficulty, raise works in the field sufficiently high to command them. They serve also for covering those parts of the works or place, that are exposed to an enfilade, and, when conveniently situated, almost double the fire of the faces of the bastions. They likewise answer for firing into the retrenchments from the moment the enemy makes a lodgment in the bastion.

Some engineers disapprove of them, alleging, that they are of no great use or service, and do not contribute much towards the defence of a place, because, being retired from the out-works, they cannot keep the enemy at a distance. Then they observe, that the height of these works is attended with much inconvenience in different respects. First, in the raising of them, as it is difficult to heap up earth upon earth in this manner, and afterwards place a parapet at top of all; secondly, that they are butts for the enemy to fire at; thirdly, that, besides this, in time of need, and, when the enemy is near, they serve in no stead for the purposes of defence, because the men in them cannot point their cannon on objects near and below them, without either exposing themselves, or greatly diminishing the thickness of the parapet; and, lastly, that they hinder the making of retrenchments in the bastions, and that when the enemy once gets possession of them, he can turn them to a good account, and make use of them to great advantage.

In answer to these objections, it may be very justly observed, that several engineers of reputation have made use of them with great advantage, conscious that, when added to good fortifications, they assuredly render it much stronger.

Thus, although they are retired within the body of the place, their height remedies that defect, enabling them to see and command whatever is in front of them. That the difficulty of making them is not so great as has been supposed, as they are actually to be found in many places, and that it ought not to be objected to them, as they afford advantages much more than sufficient to counterbalance it. And that as to their being butts for the enemy's cannon to destroy and batter down, it ought to be considered that, for this purpose, he must face his batteries, and raise them very high, during which operations he is liable to be greatly annoyed and interrupted by the fire of the cavaliers, and to perform a great deal of labour before he can put his own in a condition to do them any essential damage. And after he has made them, they are subject to be more suddenly battered down by the cavaliers, than the cavaliers are by them, as the one is composed of earth well settled and rammed, and the others of earth, loose, and suddenly thrown up.

When there is but little soil on the outside of a fortified place, the besieged may derive great advantages from such works, as they can raise them before-hand at their leisure to what height they choose, and may diminish the means and power of the besiegers to injure them, by bringing the earth from the outside for that purpose, which will compel the enemy to bring earth and materials from a distance to raise his batteries and approaches sufficiently high to counteract the effects, and cover him from the command and fire of the cavaliers; an operation that must be always attended with much loss of time, as well as great labour and fatigue.

Such works cannot fail to be useful by being high, since when placed near the extremities of the curtains, they afford a defence to the opposite bastions; and not only commanding but firing to a distance, they can greatly injure and annoy the enemy after he gets into the ditch, and compel him, when he is going to make the traverse, to raise it very high, in order to put himself under cover. When they are thus placed, they do not interfere with the making of retrench-

ments in the bastions, but furnish a very good defence for them. To say that the enemy will be able to make use of them, after he once gets possession of them, as so many citadels against the town, city, or fortified place, is no argument at all against the construction and use of them. For on the same ground, it might be alleged, that we never ought to make bastions. When it is considered, that after the besiegers shall have taken all the bastions, and all the retrenchments within them, which they must do before they can become masters of the cavaliers so situated, the place will hardly be able to defend itself, whether there be cavaliers or not; and when there are such works there will still remain this defence after the great injury the enemy must have sustained by them before he was able to force all these other works.

It may not be improper to observe, that it would not, however, be advisable to introduce cavaliers as a principal component part of the works of the body of a place, or to retrace them like bastions, and employ them as such. For when the bastions of a fortification are at too great distances one from another to furnish a good mutual defence, or when the curtains are excessively long, it is better to place ravelins before them than to introduce cavaliers into the middles of them.

The height of cavaliers above the level of the rampart, must depend on convenience and the purposes for which they are raised or erected. It ought to be from 10 to 15 feet or more. The length of one should be at the least 14 fathoms, in order to receive conveniently 4 or 6 pieces of cannon, and its breadth 6 fathoms, for them to have room to recoil in, and to be served commodiously. The said height in such works is exclusive of that of the parapet, which should look outwards, or towards the field, like that of the rampart, and ought to be 4 feet 4 inches high, and from 15 to 20 feet thick. On the part looking towards the town a very thin parapet is all that is necessary, and the slope or ascent there, for carrying the guns up should be from 10 to 12 feet broad.

When there are hills or eminences near the works, cavaliers are sometimes made sufficiently large to hold 10 or 12 guns each and are raised much higher.

Different forms of cavaliers are respectively best adapted to different purposes, and much depends in this respect on the judgment and knowledge of the engineer who constructs them. The round or circular form, however, is exceedingly good. Of all figures under the same periphery it contains the greatest area. The fire from it is equally distributed in every direction, which is not the case with that from the rectangle, square, &c. A cavalier of this form is less exposed and less liable to be ruined or battered down in any particular place than one in the form of a rectilinear figure. The same advantages are in a great measure attributable to one of an oval form, as it differs but little from the circular. The exterior slope of the parapet ought always to be considerable, particularly if it be made of loose or bad earth; and so ought also that of the cavalier itself to be, wherever it is not faced with masonry.

Some are for placing them in the entrance or gorge of the bastion, between the two flanks. This position enables them to see and to defend the faces of the opposite bastions. But it interferes with the retrenchments in these works, and is too much retired from their salient angles for commanding effectually the parts without the body of the place. Those in the citadel of Turin are thus situated, but it is in order to command the town.

Cavaliers placed near the extremities of the curtains neither hinder the erection nor occupy the places of other defences, but rather increasing them have a great command of the traverse, which the besiegers make for approaching the bastion.

bastion. These situations, therefore, seem to be very proper for placing them in.

The capital of a cavalier placed at the middle of a curtain, should be at right angles to the same. Its salient angle should be nearly a right one, which will enable the faces containing it to furnish a pretty direct and good defence to those faces of the two bastions that are opposite to them. The middle of the curtain is a bad position for a cavalier, when it is otherwise constructed. No cavalier, indeed, placed on the middle of a curtain ought to be raised high above the rampart; for if it be, its fire along the faces of the adjoining bastions will be too plunging to produce much effect. And, on the other hand, if it be kept low, it cannot command the field much better than the curtain itself. For these reasons the middle of the curtain does not appear to be an eligible or advantageous situation for a cavalier.

That a plunging shot is not near so destructive and annoying as a horizontal one, or one nearly so, is a truth so obvious, that it hardly stands in need of demonstration. For a shot fired horizontally or from a very small elevation grazes and bounds along, and may hurt or injure fifty objects in its progress, before its force is entirely spent; whereas one fired from a considerable height at an object at a moderate distance, or from a small height at one very near, never rises if it can bury itself. But let $A K$, *fig. 3*, represent the line of the horizon, $A B$ the altitude of any place, work, or height above the same, and let $A D$, $A F$, $A M$, $A K$, be different distances on the horizontal line, from the foot, A , thereof. Now if $E G$ be the height of an object, at which a gun is to fire from B , $G O$ be drawn parallel to $A K$, and from the points I , N , O , where $G O$ intersects $B D$, $B M$, $B K$, right lines $I H$, $N L$, $O a$ be drawn parallel to $A B$, the relative degrees of the extent of offence in firing from B at an object of the height $E G$, placed at the points E , H , L , a will be as $E D$, $H F$, $L M$, and $a K$ respectively, or as the tangents of the angles $A B D$, $A B F$, $A B M$, $A B K$, to the radius $E G$.

The chances then of hitting an object of a given height from B , at different distances from A , will, *ceteris paribus*, be as the tangents of the angles, which lines drawn from B along the top of the object at these distances to meet $A K$, form with $A B$, to the height of the object as radius. But if it be considered that a shot fired from B meeting the surface of the earth at D or F will bury itself if the ground admit of it; whereas, meeting the surface at M or K it may have a first, second, and even third graze, in each of which it may hit and injure almost a number of objects. It will be found, that the chance of doing mischief is greatly beyond the foregoing ratio in favour of the shot that is fired horizontally. Heights create dead parts for some distance in front of them, which is the cause why troops in ascending them are generally exposed to but little danger from fire-arms and sustain as little loss.

In maritime places cavaliers are placed either in the bastions or on the curtains, according as their situations are best calculated for enabling them to command a view of the sea, and to fire on shipping at a distance.

Wherever a cavalier is placed within the body of the place, there should be a passage of 6 or 8 feet between the parapet and it, for the convenience of the soldiers, and to prevent its ruins, when it is battered, from falling into the ditch.

Some are for placing cavaliers without the body of the place, beyond the places of arms. But this seems to be a bad plan, as they must in such situations be raised very high, be revetted, and after all can furnish no flanking defences to other work.

CAVALIER de tranchée. Trench-cavalier, is a work raised by the besiegers, of earth, and such other materials as they can most conveniently procure, as gabions, &c. sometimes half way between the termination of the glacis and the covert way; sometimes only a third part of the breadth of the glacis distant from the covert-way; and sometimes close on the very crest or highest part of the glacis. It is difficult to establish such a work. It cannot, indeed, well be done without batteries *a ricochet* to enfilade completely the covert-way. But when the *cavaliers de tranchée* are once well established, they prevent frequent sallies, and soon compel the besieged to retire within the body of the place. For it is then easy to push on direct trenches or approaches to the salient angles of the covert-way, and to make at these angles small lodgments in the forms of circular arcs, by means of which the besieged may be driven entirely out of the places of arms, and from which the besiegers can extend their lodgments to the right and to the left, in directions parallel to the branches of the covert-way, or inside of the glacis, and about three toises distant from the same; which thickness of earth will serve as a parapet to their lodgments, and shelter them from the fire of the cannon of the place.

In order to oblige the besieged to abandon their *cavaliers*, or at least to diminish the briskness of their fire, it is necessary to keep almost constantly throwing large shells into them. These damage them materially, dismount the guns on the batteries in them, break the carriages, and prevent the besieged from re-placing, or re-establishing them, without great loss, if they persist in working on the cavaliers.

If the cavaliers of the besieged be revetted and in the bastions it is also necessary to batter them with heavy cannon, in order so to fill up with the rubbish and ruins that part of the rampart, which is at the foot of each, as not to leave sufficient space for them to retrench themselves to oppose the assault or attack of the bastions.

When the miners once get so far as to penetrate into the earth of the rampart, and into that of a cavalier, they should make use of mines to throw as much as they can of the earth of both into the ditch, to assist in filling it up. After that, they should continue working on the breach, to render it practicable and of easy access, after which the besieged having no retrenchments, either in the bastion or in the cavalier, will naturally surrender, to avoid having the place stormed or carried by assault.

Should the besiegers, however, be driven to the necessity of storming the bastion, they will as soon as they reach the top of the rampart make small lodgments at the foot of the cavalier, on each side of the breach to support that of the top of the breach in the cavalier.

CAVALIERS a cheval. This is an appellation given by the Italians to the large square towers, which they make over the gates of cities for the purpose of placing cannon on them.

The ancients raised cavaliers or terrasses of wood and earth against the walls of towns they were besieging, in order to throw fire, darts, &c. into them.

CAVALIERI. EMILIO DEL, a Roman gentleman, who first set the dialogue, of an oratorio, or sacred drama, to narrative music, or *recitative*. This oratorio was entitled; *Dell Anima e dell Corpo*, and was performed at Rome in 1600, the same year that Rinuccini's *Orfeo*, the first opera, was set by Jucopo Peri at Florence, and performed to similar music; so that the Italians themselves are unable to determine who was the inventor of the musical declamation called *recitative*, which has been cultivated and continued in the musical dramas of Italy, sacred and secular, ever since; and which

which, though attempted in other dialects elsewhere, seems to suit no language but that of the country where it had its birth. See RECITATIVE, OPERA, and ORATORIO.

CAVALIERS, or CAVALEERS, in *English History*, the appellation given by one of the parties in the distracted time of Charles I. called the ROUND-HEADS, on account of the short cropt hair which they wore, to another party composed of reduced officers, and young gentlemen of the inns of court, who offered their service to the king. Under these party names the different factions rendezvoused, and signalized their mutual hatred. See TORIES.

CAVALLERI, or CAVALLERIUS, BONAVENTURA, in *Biography*, an eminent Italian mathematician, was born at Milan in 1598, and entered at an early age into the order of Jesuates or Hieronymites. In the course of his studies he manifested such talents, that his superiors, after he had taken orders, thought proper to send him to Pisa in order to enjoy the advantages of the university established in that city. Cavalleri at first regretted this change of situation; however, it was to this circumstance that he owed the celebrity which he afterwards acquired. Here, with the advice of Benedict Castelli, the disciple and friend of Galileo, he applied to the study of geometry, in order to relieve the pains of the gout to which he was subject; and in this science he made such progress, and acquired such an accurate acquaintance with the ancient geometers, that Castelli and Galileo concurred in predicting the eminence at which he afterwards arrived. Soon after this period he invented his method of indivisibles. In 1629 he communicated to some ingenious persons and to the magistrates of Bologna, his treatise of indivisibles and another on the conic sections; and thus he obtained the honour of succeeding Maginus as professor in the university, in the year 1629. See INDIVISIBLES. Besides his celebrated work on indivisibles, entitled, "Geometria Indivisibilibus continuorum novâ quâdam Ratione promota," and published at Bologna in 1635, 4to. and again in 1653; he also published a treatise of conic sections, under the title of "La Specchio Ustorio overo Trattato delle Settoni Coniche," or "De Speculo Ustorio, &c." Bologn. 4to. 1632; a system of trigonometry under the title of "Directorium generale Uranometricum," 4to. 1632, including an account of logarithms, together with tables of the logarithms of common numbers and trigonometrical tables of natural sines, and logarithmic sines, tangents, fluents, and versed sines; of which a new and enlarged edition was published at Bologna in 1643, 4to. entitled, "Trigonometria Plana ac Sphærica, Linearis ac Logarithmica, &c.;" a "Compendium Regularum de Triangulis;" and a "Centuria Problematum Astronomicorum." He was also the author of a treatise of astrology, entitled "Rota Planetaria," and published under the appellation of Sylvius Philomantius; and this publication was the more surprising, as he was an enemy of judicial astrology. The last of his works was entitled "Exercitationes Geometricæ sex," 4to. Bonon. 1647, and contains exercises on the method of indivisibles; answers to the objections of Guldinus; the use of indivisibles in Cosmic powers, or Algebra, and in considerations about gravity: with a miscellaneous collection of problems. Towards the close of this year, 1647, he died a martyr to the gout, which had deprived him of the use of his fingers. Montucla, Hist. des Math. vol. ii. p. 37, &c.

CAVALLERIA, among the *Ancient Spaniards*, a kind of tax, or imposition on the inhabitants of great towns and cities, for the support of horsemen.

CAVALLEROS, in *Geography*, a town of North America, on the north-west part of the bay of Panama; 75 miles S.W. of Panama.

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CAVALLES, a cluster of small islands in the Southern Pacific ocean, near the coast of New Zealand; 3 leagues N.W. from Point Pocock.

CAVALLI, FRANCESCO, a Venetian dramatic composer, who furnished the theatres of Venice, between the year 1639 and 1666, with 35 operas. Of his genius, science, and fertility, we are now unable to judge, except by *Erismona*, one of his operas that has been preserved in England, and which having examined, we find the music as good as that of any of the time and kind. And indeed, the number of his operas is a strong eulogy upon his genius, in a city where the musical drama was more cultivated in the 17th century, than in any other part of Italy.

CAVALLI Marini, in *Natural History*. These are described by old writers as being little dried animals about the length of a man's thumb, found on the sea-coast near Puzzuoli. The head, they observe, resembles that of a horse, and the body terminates in a tail like that of a shrimp. Women, it is said, use them to increase their milk; and apply them as an anodyne for the breast. Bruised with vinegar and honey they are applied as a plaster to the part bitten by a mad dog. This species of fish is also found on the other side of Italy, along the coast of the Adriatic; but not in such abundance. The marine animal, so curiously described, is no doubt the small species of Syngnathus, or pipefish, known among modern naturalists by the name of *Hippocampus*. See SYNGNATHUS HIPPOCAMPUS.

CAVALLINI, PIETRO, in *Biography*, a historical painter of the thirteenth century, was born at Rome in 1279, and became the disciple of Giotto. The number of his paintings is said to have amounted to 1300, and his piety was no less extraordinary than his assiduity as an artist, in consequence of which he has been esteemed as a saint. His principal works are at Rome, where he assisted Giotto in the celebrated picture in Mosaic, which is over the grand entrance into the church of St. Peter: but his performance in fresco was in the church of Ara Cœli at Rome; in which he represented the Virgin and child above, surrounded with glory, and below was the figure of Octavian, and also that of the sybil, directing the eye and the attention of the emperor to the figures in the air. It has been suggested by Mr. Vertue (see Anecdotes of Painting, vol. i. p. 17) that the shrine of Edward the Confessor, and the crosses erected to the memory of queen Eleanor, were constructed from the designs of Cavallini by Abbot Ware; and he supposes Cavallini to be the inventor of Mosaic, alleging that Giotto was 20 years younger than the other. But this appears, by the testimony of Vasari, and of other writers, to be an anachronism; as Giotto was three years older than Cavallini, and was, in reality, his instructor in the art of Mosaic. Besides, the abbot Ware died in 1283, when Cavallini was only four years old, and eight years before the death of queen Eleanor, who died in 1291. Pilkington.

CAVALLO, in *Geography*, a sea-port town of America in the province of Venezuela, on Terra Firma, or isthmus of Darien, 25 miles N.E. of St. Jago de Leon. It is well fortified, and in a former war was unsuccessfully attacked by Commodore Knowles. S. lat. 10° 15'. W. long. 68° 12'.

CAVALLOS de Fam, two small islands in the Atlantic near the coast of Portugal, about half a league S.S.W. of Espofenda. N. lat. 41° 30'. W. long. 8° 63'.

CAVALQUET. This is the name given to a particular sound of the trumpet, which the cavalry make use of on approaching towns or passing through them.

CAVALRY, in French *cavalerie*, or *cavallerie*, in *Military Language*, a body or bodies of troops, who serve and fight on horse-back. Of these there are different descrip-

tions in almost every country. In this, independent of the yeomanry and volunteer cavalry, we have two regiments of life-guards, one of horse-guards, seven of dragoon-guards, five of dragoons, and nineteen of light-dragoons.

The two regiments of life guards, in consequence of the reduction of the horse-grenadier guards, are kept for the purpose of guarding the metropolis and of escorting his majesty. They are generally called the first and second life-guards. Each of them consists of six troops and a kettle drum.

The royal regiment of Horse-guards, which is commonly called the Oxford-blues, from having been originally raised by the earl of Oxford, consists of nine troops. The quartermaster of this corps holds his appointment under the sign manual, and is, in this respect, an exception to the general regulations, that affect the quartermasters of all our other regiments of cavalry, who hold theirs only by warrants.

The order of precedence among our cavalry is the following. First, the life-guards; secondly, the horse-guards; thirdly, the dragoon-guards; fourthly, the dragoons; and lastly, the light-dragoons.

Horse is also a general term, as well as cavalry, for mounted soldiers. In Ireland there are four regiments of horse-guards. The first troop of horse in our service was raised in 1660.

The dragoons, though regiments of horse or cavalry, differ from the rest in this circumstance, that they are liable to be dismounted, and are obliged, when necessary, to fight on foot as well as on horse-back. The first regiment of dragoons was raised in 1681.

Light-horse is an appellation given by us to all cavalry in general, that is composed of small and lightly accoutred men mounted on light and swift horses. Ours were first raised in 1757.

Hungarian cavalry, now commonly called *Hussars*, wear a short waistcoat, with a pair of breeches and stockings in one, with short light boots, generally red or yellow, and a doubler, that has five rows of buttons, which hangs loosely on the left shoulder. The men wear large fur-caps adorned with cock's feathers. But the officers have eagles' or herons' feathers in theirs. They are armed with long crooked sabres, light carbines, and pistols. Before they begin an attack they lay themselves so flat on the necks of their horses, that it is almost impossible to discover their force or number. But when they come within pistol-shot distance of their enemies, they raise themselves up with astonishing quickness, and charge with such vivacity and alertness, that it is extremely difficult for those they attack, to preserve their order. Being dextrous horsemen, when they find it necessary to retreat, they move with so much celerity, in consequence of their horses being so capable of enduring fatigue, and their equipage being so light, that no other cavalry can pretend to follow or keep up with them, as they leap over ditches and swim across rivers with surprising ease and facility. Most of the German powers have cavalry under the name of Hussars, as well as France, into which they were first introduced by Louis XIII., and were called Hungarian cavalry; which circumstance shews that this appellation was prior to that of *Hussars*.

Cuirassiers is a term made use of to denote a sort of heavy cavalry armed with cuirasses, as most of the German horse are. The several German powers, particularly the emperor and the king of Prussia, have regiments of cuirassiers. And the late king of France had one. But there have been no cavalry of this description in England, since the time of the revolution. The Austrian cuirassiers are reckoned the emperor's best troops.

Of the French cavalry.

Before the year 1678 the regiments of French cavalry consisted of two, three, or four squadrons; each squadron consisted of three companies, and each company of a captain, a lieutenant, a marshal des Logis (quarter master), and fifty maitres (troopers).

During the war of 1688 their ancient regiments were divided into squadrons, and every squadron consisted of four companies. A company consisted of 40 maitres, and had four officers, as formerly. The new regiments consisted each of four squadrons, of which each had three companies. And each company was composed of 50 maitres and four officers.

During the war of 1701 the squadrons consisted each of four companies; and each company had 35 maitres and four officers.

Before the breaking out of the war of 1741 each regiment of their cavalry consisted of four squadrons; each squadron of four companies, and each company of 25 maitres. During the war the companies were increased each to 35 men. The regiment de Royal Allemands, and that de Rosen, consisted each of six squadrons, and each squadron of three companies of 50 men each. The regiment of Fitzjames had four squadrons, and each squadron three companies of 46 men each. That of Nassau had the same number of squadrons and companies, but each company had 50 men.

The ordinance of the 15th of March 1749 reduced the cavalry to 129 squadrons, consisting each of four companies, and each company of 30 men.

The ordinance of the 25th of March 1776 made each regiment consist of four squadrons of cavalry, and one of light horse, of one company each. By the 11th article of that ordinance there was attached to each regiment of cavalry a squadron under the title of an auxiliary squadron, for the purpose of replacing, in time of war, the men, that might be deficient or wanting in the squadrons of cavalry or light-horse.

The ordinance of the 8th of August, 1784, made some alterations in this arrangement, and made each regiment of cavalry consist of four squadrons, and each squadron of one company. By it both a peace and a war establishment was prescribed. But in both the one and the other the number of officers and non-commissioned officers of all ranks, was to be the same.

By it also the six regiments of light-horse were reunited to the cavalry, and every regulation for them was prescribed. And they were to retain the rank they then held among themselves, and with regard to the other regiments of cavalry.

The offensive arms of the cavalry are, the pistol, the carbine, the blunderbuss, the fusée and bayonet, the sword and the sabre.

The defensive arms of the cavalry are the calotte or leather cap, the casque, and the demi-cuirasse, or half cuirass.

As the Franks, before they conquered Gaul, had but very little cavalry, it is probable they employed in their armies by degrees the Gallic cavalry, which possessed much reputation, and for a long time had formed the most numerous part of the Roman cavalry. Clovis, at the battle of Tolbiac, fought at the head of his cavalry, and in 537 Theodebert carried some with him on his expedition into Italy. At the battle of Tours, in 732, we are told, that the French army consisted of 60,000 foot, and 12,000 horse, which last-mentioned body had neither boots nor defensive armour, and had no other offensive weapon than the lance or javelin.

Under Pepin, in 768, the number of their cavalry was augmented.

augmented. Under Charlemagne its number almost equalled that of their infantry. This probably was owing to the vast extent of his empire and the insurrections, that were constantly taking place in it, which required prompt and expeditious movements from one place to another. In his time the horsemen or cavaliers were armed with swords, and coats of mail made of small rings, inter-wrought or connected like links together.

Towards the end of the second race of French monarchs, and the beginning of the third, their armies were almost entirely composed of cavalry; a circumstance which arose out of the nature of their situation. Not willing to confide the defence of their country to the body of the people, who were then serfs or slaves, it was left in a great measure solely to the noblesse, who would not serve but on horseback. They, accordingly, formed a corps of cavalry or horse, to which the name of *gendarmes* was given. The gendarmes were armed with cuirasses, brassets, cuisses, greaves, gauntlets, helmets, with the lance, the sword, and the hatchet. Their horses were covered with plates of iron, or with thongs of leather. The infantry were employed in going after forage, raising up the wounded gendarmes, and in performing similar services.

The cavalry, that got the name of *light*, was composed of the vassals whom the seigniors or noblesse carried along with them. They had not all the arms of the gendarmes, and did not fight in the same line with them. They were furnished with very little defensive armour; they carried the hatchet, the club, and sword, and served nearly as hussars do.

Louis le Gros, having established communities, formed from that militia, in 1108, some light horse. But there was no regular formation or establishment of cavalry in France before the time of Charles VII., who made one under the name or appellation of *compagnies d'ordonnance*, and one of infantry, at the same time under that of *Frances archers*. Then the cavalry assumed a more regular form, and fought in squadrons; whereas, before that time they had not been accustomed to fight but in a single rank, because no one of the nobles that composed it chose to stand behind another.

The gendarmerie is the first corps of French cavalry next to that of the *Maison du Roi*, and has always been remarkably distinguished for its valour and intrepidity. Charles V. having applied to Francis I. in 1552, to lend him a sum of money, and that illustrious corps, to assist him in repelling the Turks, by whom he was at that time hard pressed, received for answer from the French monarch to the first of his demands, "that he was not a banker;" and to the second, "that his gendarmerie never fought but with their king at their head."

In 1445, Charles VII. observing the difficulties he experienced in assembling the noblesse, who then composed the French cavalry, the continual wars they were engaged in having exhausted their means of supporting the expence, and wishing, for various good reasons, to have a corps of cavalry that should be constantly engaged in his service, and which he could dispose of at all times, and on all occasions, as he might think proper, created or formed fifteen companies, to whom he gave the name of *hommes d'armes d'ordonnances du Roi*. These companies were composed of the bravest and most experienced men in military service then in the kingdom. Each of these companies consisted of 100 lancers, or *hommes d'armes*, and each *homme d'armes* had five followers or aids, viz. three archers, one cutler, and one page or valet. Each company then contained 600 men, all mounted on horseback; and the fifteen companies formed together a body of 9000 cavalry. This was the commencement of a

standing army in Europe. That sagacious king set the example to other monarchs, and pointed out to them the most effectual method of not only counterbalancing, but also of lowering, by degrees, the exorbitant power of their nobles.

The officers of these companies were all seigniors of the first distinction. The *hommes d'armes*, or *maîtres*, themselves were gentlemen, and their followers were obliged to wear the livery of the captain of the company to which they belonged. For this purpose they ornamented their coats with the colours that composed it.

This uniformity of dress in each company was established that they might be known in action, and when they were guilty of any irregularities; whence proceeded that uniformity in cloathing that has been since established among troops in every nation. These companies afterwards diminished, in regard to the number of men in each, but always retained their reputation for valour. This diminution was occasioned by the establishment of a considerable body of light horse or cavalry, in which several of the gendarmes accepted of employment; so that under the reign of Henry IV. the armour cap-a-pie having been abolished, the gendarmes ceased to be distinguished from the other cavalry but by their name and prerogatives. At last under the reign of Louis XIV. at the time of the peace of the Pyrenées, all these ancient companies were reduced to the four first, of which the king chose to be captain, and to some others that belonged to the princes of the blood. These last were suppressed as the princes died. The same king afterwards, however, augmented that corps to the number of sixteen companies, at which establishment it was continued.

The Scotch company of gendarmes du Roi was the only one that remained of the fifteen which Charles VII. established in 1445. It had the appellation of *cent lances*, or the hundred lances, and was unquestionably the oldest troop in the kingdom. It possessed some privileges superior to those of the Scotch body guards, though these held the first rank, and was always held in such high estimation, that, so long as it was composed of Scotchmen, it was commanded by Scotch noblemen of the first qualification, and even by several of the blood royal. The sons even of the kings chose to bear the title of captain of that company, which, of right, belonged to them, as appears from several treaties, and the example of the duke of York, afterwards king of England, under the title of James II.; who was captain of it in 1667. And it was not till after he resigned the command of it, that it was commanded by a French seigneur.

Under Henry IV. there were carabins, who did not form a separate corps, but were put by fifties into the companies of light horse, and had no other captains or cornets, than the captains and cornets of these companies. These carabins, under Louis XIII., formed regiments, and were disposed of in separate corps, in the same manner as the carabineers, who were distributed among the regiments of light cavalry, were, in the reign of Louis XIV., formed into regiments of carabineers. Since his time the French cavalry has consisted of different bodies. Some were in companies, others in corps or regiments. The body guards of the king, the gendarmes, the light horse, the musqueteers, have been on the footing of companies, and have not formed regiments. The rest of their cavalry have been distributed in regiments commanded by colonels, and gone under the general name of light cavalry, which, however, is distinct from the *compagnies des chevaux légers d'ordonnance*.

The Spanish cavalry is naturally good. And were it properly disciplined and taught to make the best use of its

force, there are hardly any troops that could stand its shock.

The Turks, the Tartars, the Arabs, and even the Moors themselves, or the people of the kingdoms of Fez and Morocco, have excellent horses for cavalry as well as the Spaniards. But their sabres, though of a good temper, are not so useful or so well calculated for doing execution, as the Spanish sword, or even the swords of the Germans. Besides the advantage of good and fleet horses, they sit so short on the stirrup, that they can stand up quite straight at a full gallop, and, supporting themselves with their stirrups, can make a better stroke than those who use long ones, and at a greater distance.

The Turkish cavalry owes its origin to the Scythians, a race of people, that were always fond of making war on horseback, and transmitted that passion to the Turks.

The Sultans so tyrannised over their new subjects, after conquering them, as even to deprive them of their lands, and appropriate them to the maintenance and support, not only of the *Serraculy* infantry, and the marine, but also to that of the cavalry. At the same time they left the conquered countries divided into and distinguished by the names of kingdoms, provinces, great and small departments; and issued for each of these districts precise and distinct orders, touching the prompt raising of the militia and the support of the cavalry.

Their cavalry is not all on the same footing in regard to pay. It is divided into the cavalry *capiculy*, the cavalry *topachly*, the cavalry *serraculy*, and the cavalry *de tribut*.

The cavalry *capiculy* or *spahis*, possess no lands, but are paid by the grand sultan, and serve as a guard to his person. Their number amounts to about 15,000, one half of whom are called *silbataris*, and are distinguished by a yellow standard or cornet, and the other half are called *spahis glanis*, or *spahaglaris*, who are distinguished by a red cornet or standard. Originally these last served the first. But having in an engagement given astonishing proofs of valour to the shame and disgrace of those, whose servants they had been, they were formed into a separate and distinct corps. Their offensive armour consists chiefly of the sabre and the lance, which they call *misrack*. They frequently also carry bows and arrows, and sometimes pistols and carbines. And they make use of the long dart or javelin, called *gerit*, which they handle with much address and dexterity, catching it up from the ground, when their horses are even at full speed, if they miss their aim in throwing it at the enemy. When the grand seignior takes the field in person, it is customary to make a present of 5000 aspres to each *spahi* to enable him to purchase bows and arrows.

When the *spahis* are on a march, they follow their standard without observing any certain order, advancing in a confused manner in small bodies, sometimes in the van of their own corps, and sometimes in the rear.

Besides these two bodies of *spahis*, there are four others, who are not called on to serve but when the urgent necessities of the state render their services absolutely necessary. The first of these are called *sag-ulefigi*, and carry a standard red and white; the second *sol-ulefigi*, and carry a standard white and yellow; the third *sag-gurcha*, with a green standard, and the fourth *sol-gurcha*, with a white one. All these *spahis* receive a daily pay, from 12 to 20 aspres, and are liable to perform every kind of service.

There are likewise *spahis* called *timariots*, who are obliged to serve at their own expence as soon as the *beiglerbeys* or governors of provinces command them, in consequence of the lands they possess, the revenues of which are appropri-

ated to this service. Of these there are two kinds, the one called *tezkerabirs* and the others *tezkeretis*.

The *Tezkerabirs* receive the grants of their *timars* from the court of the grand seignior. But the greatest revenue of one of them must not exceed 1999 aspres.

The *Tezkeretis* take their letters patent from the *beglerbey*; and the revenue of one of their *timars* is commonly from 3000 to 6000 aspres.

The *Chiaus* also form a branch of the cavalry *capiculy*. They are people of the court as well as of war, carrying, like aides-de-camp or adjutants, the orders of the sultan, the vizier, or other general, to the officers of the army, whether these be verbal or in writing. They escort the couriers dispatched on affairs of importance, and serve themselves when it is necessary. They are always within reach of the vizier, and affect to pass for inferior *agas*. Their chief, called *Chiaus-basay*, is immediately about the vizier.

The cavalry *topachly* or *topachly* is, properly speaking, that which the officers of the countries subject to the Ottoman empire support out of the revenues of the lands called *Maly-makata*. These officers not only pay this cavalry, but also furnish them with provisions under the name of *ufciur*, which exactly signifies tithes.

The cavalry *serraculy* is a militia destined to guard the frontiers. They are obliged to remain on the confines of the Ottoman empire, both to prevent incursions by the enemy and to act as escorts when wanted.

The horsemen of this corps, on the frontiers of Hungary between the Imperialists and the Turks, were the choicest and very bravest men. They are commanded by one or more officers called *alaybech*, who arrive at these commands by their valour and experience in war. They are, for the most part, natives of the environs of the frontiers, that, from their knowledge of them, they may be the more expert in guarding them against inroads or incursions. Besides the Turkish they speak the Hungarian and Slavonian languages.

The cavalry *de tribut*, or tribute cavalry, is so called from its being furnished by provinces, where the people are not only tributary to, but even slaves of the empire, as they can have no particular prince to govern them, but those only who are entirely subject, in all respects, to the will of the *porte*. The government can change them, depose them, and nominate them at pleasure. These princes are moreover obliged to acknowledge the sultan as their absolute sovereign, and to do homage to him as his vassals. Bessarabia, Moldavia, and Walachia, are of this number.

Of the advantage, use, and application of cavalry.

In open, plain, extensive, and level countries, or in those that are intersected with deserts, there always have been, and ever must be, a considerable proportion of cavalry employed on all enterprizes, and on operations, both of offence and defence, on account of their singular utility and the necessity of making use of them. They are singularly useful in protecting the wings and centre of an army; for engaging in an open plain; for furnishing detachments; for escorts; for forming blockades; for intercepting supplies intended for places besieged; for foraging; for scouring a country; for procuring intelligence; for the speedy conveyance of dispatches; for harassing and fatiguing an enemy's army; for covering a retreat; &c. &c. Cavalry, indeed, is so peculiarly useful and necessary for a great variety of operations, in countries where it can act successfully, and to advantage, that it has in all ages been held by the greatest generals in high estimation. The very successful services, which troops of this description have performed, the vast number of de-

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cifive advantages, that have been obtained by means of them, in the most important battles, of which history, ancient and modern, furnishes the details, the unanimous testimony in their favour of authors regarded as judges of military affairs, and masters in the art of war, prove beyond the possibility of contradiction, that cavalry is not only useful, but absolutely necessary in armies. The great Turenne used to say, that it was with good cavalry that one could so molest and harass an enemy's army, as to ruin it by degrees. It is, however, often attended with inconveniences to have a great number of cavalry, as you cannot take the field with a numerous body of them till there is grass or green forage for the horses. The Turks, whose military force consists greatly in cavalry, on this very account, open their campaigns later than other people, and retire from the field sooner. Besides a very great number of cavalry occasions such a prodigious consumption of forage as sometimes to compel a general to quit an advantageous camp or position contrary to his inclination, or sooner than he wishes, from other considerations.

It ought also to be remembered that open and level countries only are favourable for the operations of cavalry. And they cannot be maintained but at a great expence. Accordingly in mountainous countries, and states that were but small and at the same time not very fertile, rich, or wealthy, there have generally been but few cavalry. The military force of Switzerland has for the most part consisted chiefly of infantry. In the states of Greece, if we except Thessaly, a great part of which was level, rich, and fertile, their cavalry formed but an inconsiderable proportion of their forces.

The Thessalians were dextrous horsemen, and carried the discipline and arms both offensive and defensive of their cavalry to great perfection. The other parts of Greece imitated them. And from the Greeks the Romans borrowed the arms and armour for their cavalry, who, as Polybius expressly informs us in his sixth book, were in his time armed exactly as those of the Greeks. His words on this subject are the following.

“The manner in which these troops (the Roman cavalry), are armed, is at this time the same as that of the Greeks. But anciently it was very different. For, first, they wore no armour upon their bodies; but were covered in the time of action with only an under garment. In this method they were able indeed to descend from their horses, or leap up again upon them with greater quickness and facility. But as they were almost naked, they were too much exposed to danger in all close engagements. The spears also, that were in use among them in former times, were in a double respect very unfit for service. First, as they were of a slender make and always trembled in the hand, it not only was extremely difficult to direct them with exactness towards the destined mark, but very frequently even before their points had reached the enemy, the greatest part of them were shaken into pieces by the bare motion of the horses. Add to this, that these spears not being armed with iron at the lower end, were formed to strike only with the point, and when they were broken by this stroke were afterwards incapable of any farther use. Their buckler was made of the hide of an ox, and in form was not unlike to those globular dishes that are used in sacrifices. But this was also of too infirm a texture for defence. And as it was at first not very capable of service, it afterwards became wholly useless when the substance of it had been softened and relaxed by rain. The Romans therefore having observed these defects, soon changed their weapons for the armour of the Greeks. For the Grecian spear which is firm and stable, not only serves to make the first push or stroke with the point in just direction and with sure effect, but with the help of the iron at the opposite end,

may, when turned, be employed against the enemy with equal steadiness and force. In the same manner also the Grecian shields, being strong in texture and capable of being held in a fixed position, are alike serviceable both for attack and for defence. These advantages were soon perceived and the arms adopted by the cavalry. For the Romans above all other people are excellent in admitting foreign customs that are preferable to their own.” It was by using both ends of such a spear that Philipæmen killed Machanidas the tyrant of Sparta at the battle of Mantinea.

The same judicious historian in his remarks on the battle of Cannæ, in which the Romans left 70,000 men on the field, observes that the Carthaginians on that occasion, as well as in the other battles they fought under Hannibal with the Romans, were chiefly indebted for the victory to the numbers of their cavalry; and that hence succeeding ages would be able clearly to perceive, that in time of war it is far more advantageous to have a great superiority of cavalry, with no more than half the infantry, than an army that is in all its parts equal to that of the enemy. In that action the Romans had eighty thousand Foot and somewhat more than six thousand Horse; and the Carthaginians had somewhat more than forty thousand infantry, including the Gauls and Spaniards, and about ten thousand cavalry.

At the battle of Trebia, Hannibal had upwards of ten thousand cavalry, the Gauls included, whereas Tiberius had only about four thousand. On the other hand Hannibal had only about 20,000 infantry, whereas Tiberius had 36,000.

In the action near the Ticinus between the Roman and Carthaginian cavalry and light infantry, Hannibal had a superior number of horse. There is a circumstance, however, that ought not to be lost sight of, namely, that Polybius, in making these observations, supposes the armies to be acting in an open country or in one favourable for the operations of cavalry. For he expressly tells us, that Publius, after his defeat near the Ticinus as the country round him was all flat and open, and the Carthaginians superior in their cavalry, marched in haste through the plains, repassed the Po, and then went and encamped near Placentia, a colony of the Romans. He also informs us, that at the battle of Trebia, the ground that lay between the Roman and Carthaginian camps, was a smooth and naked plain; but that the banks of the river were considerably high and covered with close shrubs and bushes, which suggested to Hannibal the idea of an ambuscade. We likewise learn from him, that the country where the battle of Cannæ was fought, was all plain and open, and that on this very account, and the superiority of the Carthaginians in cavalry, the consul Æmilius thought it would be prudent to decline a general engagement till he could draw the enemy to some other ground where the infantry might bear the chief part in the action. For the same reason, the prudent and sagacious Fabius kept along the sides of the hills, observing the motions of the enemy, without descending into the open plains. The battle of Zama, too, was fought in an open and level country. And Scipio Africanus was chiefly indebted for the victory he there gained over Hannibal, which terminated the obstinate and long contested struggle between Rome and Carthage, for the sovereignty of the world, to his superiority in cavalry. It must therefore certainly be allowed, that a superior number of good cavalry is of prodigious moment in a country or in situations where it can act to advantage. But on the other hand it must also be allowed, that in a woody, mountainous, broken, abrupt, and uneven country, where it cannot act to advantage, it is very little useful, and least of all in an enclosed country like Great Britain, which in this respect is widely different

from the continent of Europe or indeed any other country. Any person acquainted with military manœuvres, or accustomed to reflect on them attentively, must be sensible that cavalry cannot be employed to advantage in either attacking or defending this country, and that therefore for the purposes of national defence, a very small proportion of them indeed is necessary. He must also be equally sensible, that neither the Prussian nor German tactics can be of any utility, or even be made use of in carrying on military operations in this country; and that therefore in defending it, that very constitutional, and at the same time very considerable part of our force, called the volunteers, as well as the militia, if properly employed and disposed of in the moment of invasion, should it ever arrive, will be equal, if not superior to our regular forces, particularly in their own counties. The same reasoning will extend to our numerous horse-artillery, which in most situations could, in case of invasion, be of little or no use in defending this very and singularly enclosed country, in which no operation, or even series of operations of an invading enemy can prove decisive, if we only adopt a proper mode of defence.

It was anciently the custom of the Romans to choose their cavalry as well as their infantry, and to add two hundred horsemen to every four thousand foot. But in the time of Polybius, the citizens from whom the cavalry was taken or selected were first enrolled, having been before appointed by the censors according to the rate of their revenue. And three hundred of them were assigned to every legion, which then consisted of 4200 foot. The number of the Roman cavalry then in his time bore but a small proportion to that of their infantry, being to it in the ratio of only 3 to 42 or 1 to 14, whilst the cavalry of the allies was to their infantry in the ratio of 1 to 7.

Scipio Africanus, after taking New Carthage in Spain by storm, paid great attention to his cavalry before he took the field with them, and even introduced among them a new system of evolutions, discipline, and exercise, which is described by Polybius in his tenth book, and is well deserving of the most serious attention of cavalry-officers even at this day.

The order of battle now generally adopted and practised in Europe, is to place the cavalry on the wings, and the infantry in the centre, each to be sustained or supported by itself alone, instead of arranging them in such a manner as to make them furnish mutual support and assistance to each other. The placing of the cavalry in a line with the infantry on its flanks certainly retards the motions of the whole, as no part of the line can advance unless the whole does.

Marshal Saxe in his order of battle therefore places small bodies of cavalry, not only behind his infantry in the centre of his first and second lines, but also in the reserve, at the distance of about thirty paces; and half way between his two lines of cavalry, on the wings, battalions armed with pikes and formed into squares with large intervals between them, for the free movements of the horse and for the facility of their rallying under cover of and behind these battalions in square, if broken or repulsed. He also places transversely between his two lines of infantry and nearly in the directions of right lines joining their extremities, battalions drawn up in the usual depth to flank those in square, and to cover the flanks of his infantry.

General Lloyd being decidedly of opinion, that cavalry should never appear till the moment it is brought into action, places none of it in the wings, but the whole of it in two lines behind the infantry. This last he forms in such a manner as to leave an interval of 150 yards between every two battalions. His first line of cavalry is placed in separate squadrons at a proper distance behind his infantry, and opposite to the intervals between the battalions. And his second

line of cavalry is, in like manner, placed in separate squadrons at a proper distance from and opposite to the intervals between those of the first. His flanks he covers with battalions in the rectangular form, armed with pikes, and at right angles to his line of infantry. In front of his army he has two lines of square redoubts with one angle of each towards the enemy; and in front of each of his battalions he has an epaulement, leaving however sufficient intervals for the whole to manœuvre on.

CAVAN, in *Geography*, an inland county of the province of Ulster, Ireland, situated midway between the Atlantic ocean, and the Irish sea, the extremities of the county being but 14 miles distant from either of these waters. It is bounded on the north by the county of Fermanagh; on the north-east and east by Monaghan, on the south by Meath, Westmeath, and Longford, and on the west by Leitrim. Its greatest length from east to west is 40 Irish miles (51 English); and its greatest breadth from north to south 22 miles (28 English). Its area is 470 square miles (755 English) or 301,000 acres (483,573 acres, English measure) of which about 28,000 may be ranked as mountain, bog, or water. The number of houses in 1791 was 18,139, from which we may estimate the population at about 90,000, which is 5 to a house, and much less in proportion to the number of acres than that of some other northern counties. The number of parishes, according to Dr. Beaufort, is 30, of which 26 with 24 churches are in the diocese of Kilmore, 3 in the diocese of Ardagh, and one in that of Meath. It sends only the two county members to the house of commons, the boroughs of Cavan and Belturbet having lost the privilege of being represented in consequence of the union. The face of the county is very irregular, being entirely hill and dale without any extent of level; in some places it is rocky, but excepting the mountains and water very little under actual waste. To the north and west the prospect is bleak, dreary, and much exposed, but in the other parts, especially on the banks of the Erne, it is not well sheltered and woody, but the scenery is highly picturesque and engaging. Numerous lakes of great extent and beauty adorn the interior, and, generally speaking, the features of the country are strikingly disposed for ornamental improvements. The barriers of the county on the north and west are highly marked by Sliebh-Ruffili, and the mountains of Ballynageeragh; and Bruce Hill is a striking feature in the southern extremity. The climate is cold, chilly and boisterous, but not unwholesome, and the inhabitants, inured to it, are a hardy race, remarkable for good health and longevity. The soil is not fertile, though considerably engaged in tillage; it is chiefly a stiff brown clay, over heavy yellow argillaceous substrata, and produces naturally a coarse rushy pasture. Wheat is very little cultivated, but there is great abundance of oats. The mountainous parts contain several minerals; in Quill mountain is a rich iron mine, and there are also found lead ore, manganese, coal, fullers' earth, pipe-clay, and other substances which may hereafter be turned to a good account. There are also some mineral waters, especially the sulphureous one at Swanling bar. See SWANLING-Bar.

The principal river is the Erne which crosses the county from south to north, and receives some small streams in its way to the celebrated lough of the same name in the county of Fermanagh. The lakes are numerous; some of them very extensive sheets of water, which cover several hundred acres. Many of them are dry in summer, and others considerably less than in winter, so that by proper management much land might be reclaimed, and the falls are such that a considerable supply of water might be conveyed to a canal that

that would connect Coote-hill and Cavan with Lough Erne. Such a canal, besides the conveyance of manufactures, would facilitate the carriage of lime-stone, which is much wanted for manure. The linen manufacture is carried on in this county, and the average sale of linen manufactured in it is valued at about 100,000*l*. The principal bleach-greens are in the neighbourhood of Coote hill, and Killeshandra. The average value of land is about 15*s*. the acre. This county was formerly called *East Breffney*, and also *O'Reily's* county, from the Irish family which possessed it. It was forfeited at the beginning of the reign of James I.; when it was divided amongst English and Scotch undertakers, servitors, and natives. Some changes were made by Oliver Cromwell, but many of the allotments are at present possessed by the descendants of James's settlers. The assizes are held, and other public business transacted at the town of Cavan. Coote's Stat. Acc. of Cavan, Beaufort's Memoir, Transactions of Dublin Society, &c.

CAVAN, the assize town of the preceding county, is a post and market town, but has no manufacture, nor is it in any way of importance. There is an endowed school with an income of eight hundred a year in lands, set in the same manner as bishops' lands, secured to it at the time of settling the county, and the presentation to which is with government. Until the act of union Cavan returned two members to parliament. Distance N.W. from Dublin 54 Irish miles. N. lat. 54°. W. long. 7° 16'.

CAVAN, a place in the county of Donegal, Ireland, near Lifford, where Mr. Maſon erected a temporary observatory by appointment of the Royal Society in 1769 for the purpose of observing the transit of Venus. From a number of observations made during a residence of near eight months, he determined the longitude of this place to be 7° 23' W.; and the latitude to be 54° 51' 41" N.; and thus afforded an important datum for the construction of future maps of the county, of which Dr. Beaufort has availed himself.

CAVANA, or CABANA, in *Ancient Geography*, a town of Arabia Felix, according to Ptolemy.

CAVARES, or CAVARI, in *Ancient Geography*, a people of Gallia Narbonensis, who inhabited the bank of the Rhodanus opposite to that occupied by the Volcæ. Ptolemy assigns them the colonies of Arausio and Cabellio, and some others. Strabo represents them as a very powerful people, who held in subjection several others. They possessed the districts of the towns of Orange, Avignon, Cavaillon, and Carpentras.

CAVATINA, *Ital.* cut off. This term in *Musical*, which in times of *Da Capo*, when almost every opera song had a second strain in a different key from the first, implied a short Air without a second part, is now seldom used as a section of an air, but as an entire air of short duration.

CAVATUM *Sal.* in the *Materia Medica*, a term used by some of the old Roman writers, as a name for the finest sort of *sal gemme*.

CAVAZATES, in *Geography*, a town of the island of Cuba; 120 miles E. of Havana.

CAVAZION, or CAVASION, called also CAVING, in *Architecture*, the underdigging, or hollowing of the earth, for the foundation of a building. Palladio says, it ought to be the sixth part of the height of the whole building. See *FOUNDATION*.

CAUB, in *Geography*, a town of Germany, in the palatinate of the Rhine; seated on the Rhine; 20 miles S. of Coblenz, and 28 W. of Mentz.

CAUCA, a river in the isthmus of Darien, which has its source in common with La Magdalena, in the lake Papos,

near the 8th degree of S. latitude, and which falls into this last river.

CAUCA, in *Ancient Geography*, Coca, a town of Hither Spain, S.W. of Rauda. Appian speaking of the treatment which this place received from Lucullus, against the faith of treaties, calls the glory which the Romans derived from it "hateful glory." The emperor Theodorus was a native of this city. The Itineraries place it on the route of Segovia. According to Appian, it seems to have been situated between the Tagus and Darius. The position of the modern Coca is that which has been above assigned to it.

CAUCADÆ, a people of Asiatic Sarmatia, placed by Pliny near the river Lagous.

CAUCALIS, in *Botany*, (*κνυκαλις*; Theoph.) Tourn. Class 7. §. 6. gen. 2. Linn. gen. 331. Schreb. 464. Willd. 528. Juss. p. 224. Vent. vol. iii. p. 31. Gært. 94. Class and order, *pentandria monogynia*. Nat. ord. *Umbellatæ*, Linn. *Umbelliferae*, Juss. Vent.

Gen. Ch. *Cal.* Umbel universal, unequal, with very few rays; umbel partial with more rays, the exterior ones larger. Involucre universal; leaflets generally the number of the rays, undivided, lanceolate, membranous at the edge, egg-shaped, short; sometimes none. *Inv.* partial, with similar leaflets, longer than the rays, often five. *Perianth* proper, five-toothed, protruded. *Cor.* universal irregular, radiate; florets of the disc generally abortive. *Cor. proper of the disc* male, small; petals five, inflexed-cordate, equal: of the ray, hermaphrodite; petals five, inflexed-cordate; unequal, outer one the largest, bifid. *Stam.* Filaments five, capillary; anthers small. *Pist.* Germ oblong, scabrous, inferior; styles two, awl-shaped; stigmas two, spreading; obtuse. *Peric.* Fruit ovate-oblong, longitudinally striated, hispid with rigid bristles. *Seeds* two, oblong, convex on one side, flat on the other.

Eff. Ch. Leaflets of the involucre undivided. *Corolla* radiate; flowers of the disc male. *Fruit* somewhat egg-shaped, striated, armed with rigid bristles.

Sp. 1. *C. grandiflora*, Linn. Sp. Pl. 1. Mart. 1. Lam. 1. Willd. 1. Gært. tab. 20. fig. 5. Lam. Illus. Pl. 192. fig. 1. Jacq. Aust. tab. 54. (*C. umbellis planis*; Hal. helv. 740. *C. arvensis echinata* magno flore; Bauh. pin. 152. Tourn. 323. Moris. hist. tab. 14. fig. 3. *Echinophora flore magno*; Riv. pent. 25. *E. pycnocarpus*; Column. Ecphr. 1. p. 91. tab. 94.) "Each involucre five-leaved; one leaf double the size of the rest." Linn. "Umbels flat; exterior petals very large; involucre of about five leaves." Lam. *Root* annual. *Stem* a foot high, channelled, branched. *Leaves* twice or thrice winged, finely cut, pale green, slightly villous. *Umbels* more than two inches in diameter, consisting of from five to eight rays. *Flowers* white; inner ones with very small petals; outer ones with a bifid petal four or five lines long; so as to make the general umbel, but not the partial ones, appear completely radiate. *Leaves of the involucre* membranous, and whitish at their edges. *Lam.* *Seeds* somewhat compressed, having four thick dorsal ribs, each of which is armed with rigid, ascending, pungent spines placed somewhat alternately or in pairs; and between these three elevated furrows, furnished with small, short, bristle-shaped prickles, divaricated and incurved upwards. Gært. A native of corn-fields in the south of Europe, flowering in July and August. 2. *C. daucoides*, Linn. Mant. p. 351. Syst. nat. 2. Smith Engl. Bot. 197. Jac. Aust. tab. 157. Gært. tab. 20. (*C. leptophylla*; Hudb. Flor. Ang. 1st Ed. but not of Linnæus. *C. parviflora*; Lam. Conium Royeni; Linn. Sp. Pl. 350. *Echinophora* tertia

tertia leptophyllon purpurea, tab. 97. fig. 2. Five-leaved bur-parley) small bur-parley. "General umbels trifid, without an involucre; partial ones with about three fertile flowers, and a three-leaved involucre. *Leaves* thrice compound." *Root* annual, spindle-shaped, small. *Stem* branched, zigzag, divaricated, leafy, angular, a little rough at the angles. *Leaves* alternate, triply winged; leaflets pinnatifid, smooth, prickly underneath, on the nerves. *Umbels* lateral and terminal; peduncles longer than the leaves, divaricated, furrowed; general one, of scarcely more than three rays; but sometimes with one or two more, which are smaller and barren; partial ones of about five, almost sessile flowers, of which three only perfect their seeds; petals sometimes quite white, but generally reddish, nearly equal. Dr. Smith. *Seeds* oblong, nearly semi-cylindrical, having four thick dorsal ribs which are armed with rather remote, rigid, spreading, prickles; the intervals between them slightly grooved, and sometimes beset with minute spines or hairs. Gært. A native of England and other parts of Europe, chiefly on a calcareous soil, flowering in June. 3. *C. latifolia*, Linn. Syst. Nat. 7. Mart. 3. Lam. 6. Willd. 3. Eng. Bot. tab. 198. Jacq. Hort. tab. 128. Gært. tab. 20. fig. 5. (*Tordylium latifolium*; Linn. Sp. Pl. Hudf. Flor. Ang. 1st Ed.) Great bur-parley. "General umbel trifid, involucred; partial ones with five fertile flowers; leaves pinnated, serrated." *Root* annual. *Stem* three feet high, erect, branched, angular, rough with extended or ascending bristles. *Leaves* alternate, unequally pinnated; pinnæ lanceolate, decurrent, opposite, acutely serrated, rather glaucous, scabrous. *Peduncles* opposite to the leaves or terminal, very long, scabrous; general rays rarely four, stout, angular, rough; leaves of the involucre three or four, egg-shaped, short, membranous at the edge; partial umbels of several nearly sessile flowers, flowers red, a little radiate; leaves of the partial involucre similar to those of the general one, sometimes muricated at the keel. *Fruit* egg-shaped, muricated with purple scabrous bristles. Dr. Smith. *Seeds* two, rather large, egg-shaped, gibbous on one side, and muricated with seven ribs; three broader and thicker, generally armed with a double series of rigid, pungent spines; the other four furnished with only a single series of spines; flattish on the other side, and marked in the middle with an elevated line, which is channelled near the base. Gært. A rather rare native of England, found in Hampshire, Cambridgeshire, Bedfordshire, and Derbyshire, flowering in July. 4. *C. mauritanica*, Linn. Sp. Pl. 3. Mart. 4. Lam. 9. Willd. 4. Mæhr. E.N.C. 1742, vol. vi. p. 401. Walth. Hort. 127. "General involucre one-leaved; partial one three-leaved." A native of the coast of Barbary. 5. *C. maritima*, Lam. 5. Poiret itin. 2. p. 16. β. Cav. ic. 2. tab. 101. (*C. pumila*; Willd. 5. Vahl. Symb. 2. p. 47. Gouan. Fl. monsp. 285. Bauh. pin. 153. Tourn. 323. *C. involucro universal-diphylo*; Ger. Prov. 237. tab. 10. Moris. tab. 14. fig. 7. *Lappula canaria*; Bauh. hist. 3. p. 1. *Daucus muricatus* β. Linn. Mant. 352.) "Stem low, pubescent; segments of the leaves rather obtuse; umbels involucred; fruit egg-shaped, thick, beset with unequal yellowish prickles." Lam. It varies in the number of the leaves of the general involucre, which has occasioned a discrepancy in authors with respect to this character. *Root* annual, simple, long, white, with few fibres. *Stems* from three to five inches long, a little cylindrical, pubescent, and almost soft to the touch. *Leaves* petioled, villous, yellowish green, rather thick, twice winged, with small, somewhat obtuse segments. *Peduncles* long, pubescent. *Umbels* bifid in the plants, described by Gouan, Gerard, and Morison; multifid, i. e. from three to five, or even seven-leaved, in those

of Vahl, Bauhin, and Tournefort. *Flowers* reddish. A native of the sea coast in the south of Europe and in Barbary. 6. *C. orientalis*, Linn. Sp. Pl. 5. Mart. 5. Lam. 10. Willd. 6. Pallas It. 3. p. 522. Bellon. It. tab. 200. *C. orientalis altissima*, folio ferulæ: Tour. Cor. 23. "Umbels spreading, partial leaflets thrice compound, lacinated; last divisions linear." Linn. Obs. Martyn, La Marck, and Willdenow, have all quoted this specific character without a comment; but the term *partial leaflets* is surely obscure, if not inaccurate, referring, not as may be thought at first sight, to the leaflets of the involucre, but to the proper leaves of the plant. *Root* biennial. *Stem* two or three feet high, cylindrical, a little branched. *Leaves* thrice winged, finely cut. *Umbels* terminal, loose, very large; consisting of from twelve to fifteen rays, two or three inches long; partial umbels very small, of nine or ten short rays. *General and partial involucre*s very short, many-leaved. *Seeds* rough with bristles terminated by a small viscid gland. A native of the East. 7. *C. capensis*, Lam. 12. (*C. africana*, Willd. 7. Thunb. prod. 49?) "Stem very low, rough; general and partial involucre generally five-leaved; fruit globular, muricate." Lam. "Umbel trifid; partial umbels five; leaves twice pinnatifid, hairy." Thunb. *Stem* two inches high, slender, angular, zigzag, with one or two branches. *Leaves* small, twice winged; segments linear, acute. *Umbels* terminal, of four or five rays, very rough. *Flowers* white, a little radiate. *Fruit* small, globular, beset with short points. La Marck, from a dried specimen communicated by Sonnerat. A native of the Cape of Good Hope. 8. *C. leptophylla*, Lam. 6. Willd. 8. Ger. Prov. 236. Hoff. germ. 93. (*Echinophora teria leptophyllon purpurea*; Col. i. p. 96, tab. 97) "Leaves thrice winged, very slender; umbels generally trifid, without an involucre; little umbels three-leaved, three-seeded." Lam. "General involucre almost always none; umbels bifid; partial involucre five-leaved." Willd. *Root* annual. *Stem* from eight inches to a foot high, branched, slightly angular, a little villous on its upper part. *Leaves* more finely cut than in any other species of the genus, triangular, thrice winged; segments short and fine. *Umbels* three, sometimes four and even five-rayed. *Seeds* large, rough with long points. La Marck, from a living plant. A native of the South of France. Dr. Smith observes (Eng. Bot. 197) that it is not certain what plant Linnæus originally intended by his *leptophylla*. 9. *C. platycarpus*, Lam. 7. Willd. 9. Gouan fl. monsp. 285. Roth. Beytr. 1. p. 122. (*C. monspeliaca echinato, magno fructu*, Bauh. pin. 153. Tourn. 323. Moris. hist. 3. tab. 14. fig. 2. *Echinophora altera asperior platycarpus*, Col. Ecphr. 1. tab. 94.) "Umbel trifid; general and partial umbels three-leaved." *Root* annual. *Stem* a foot and half high, a little branched, angular, beset with a few scattered hairs. *Leaves* large, green, twice winged. *Peduncles* very long. *Umbel* very short, rarely of four rays; one of the leaves of the involucre sometimes gashed; partial umbels with from seven to ten flowers, of which seldom more than two are fertile. *Fruit* large, oval, slightly compressed; rough, with long, unequal, purplish points. Lam. A native of Italy and the south of France. According to La Marck Linnæus confounded this plant with *Daucus muricatus*. 10. *C. infesta*, Curtis Flor. Lond. fasc. 6. tab. 23. Smith Flor. Brit. 4. Eng. Bot. pl. 1314. Relh. Flor. Cant. 108. (*C. arvensis*, Willd. 10. Hudson. Withering, Hull, Sibthorp, Abbot, Lightfoot. *C. helvetica*, Jacq. hort. Vind. vol. iii. tab. 16. *C. segetum minor*, Anthriscus hispido similis, Rai. Syn. 220. *Scandix infesta*, Linn. Syst. nat. ed. 12. Herb. Linn.) spreading hedge-parley. "Umbels of many close rays. General involucre almost always none.

one. Leaflets pinnatifid. Branches spreading." Smith. *Root* annual, tapering, white. *Stem* about a foot and a half high, erect, leafy, round, furrowed, rough, divided into numerous alternate, divaricating branches; terminal leaflet elongated. *Leaves* alternate, rough, pinnate, deeply cut, and sometimes almost bipinnate. *Umbels* terminal, erect; general umbel sometimes of one leaf; partial ones of several sharp rough leaves. *Flowers* somewhat radiate, white, or cream-coloured, rarely flesh-coloured; anthers yellow, sometimes purplish. *Fruit* rather large, ovate, rough, green or reddish, but not tipped with purple. A native of fields and way-sides in England, Germany, Switzerland and France; flowering in July. Nearly allied to the next species. 11. *C. anthriscus*, Mart. 8. Willd. 11. Curt. Lond. Fasc. 6. tab. 22. Fl. Dan. tab. 919. (*C. aspera*, Lam. 2. *Tordylium anthriscus*, Linn. Sp. Pl. Jacq. Aust. tab. 261.) Upright hedge-parley. "Umbels of many close rays. Involucre of many leaves. Leaflets pinnatifid. Branches rather erect." Smith. *Root* annual, tapering, yellowish. *Stem* almost three feet high, erect, leafy, furrowed, rough, with closely deflexed hair; branches alternate. *Leaves* alternate, scabrous; terminal leaflet elongated; common petiole dilated, channelled. *Umbels* terminal, erect; involucre of many awl-shaped, scabrous leaflets, much shorter than the ray; partial umbels clustered, flat; partial involucre about the length of the pedicels. *Flowers* white or reddish, small, but little radiate; anthers violet-coloured; styles divaricate, reflexed. *Fruit* egg-shaped, larger than that of the preceding species, armed with incurved bristles, violet at the tip. A native of England, and other parts of Europe, in hedges and waste places; flowering in July. 12. *C. japonica*, Willd. 12. "Involucre many-leaved: seeds egg-shaped; leaves twice compound; leaflets wedge-shaped, pinnatifid; stem hairy." A native of Japan. 13. *C. hispanica*, Lam. 11. Hebr. Isnard. & Vaill. MSS. "Umbels compound, sessile, lateral; leaves thrice-winged, finely divided, whorled at the flower-bearing knots." *Stem* scarcely a foot high. *Leaves* petioled, three together in a whorl, occupying the place of the general involucre. *Umbels* generally of five rays, two of which are so short that the partial umbels appear sessile; partial involucre two or three, generally simple, but sometimes resembling the leaves of the plant. 14. *C. nodosa*, Mart. 9. Willd. 13. Rai. syn. 220. Hudf. Fl. Ang. 114. Eng. Bot. tab. 199. (*C. nodiflora*, Lam. 3. *Tordylium nodosum*, Linn. Sp. Pl. Jacq. Aust. app. tab. 24.) Knotted stone or ballard parley. "Umbels lateral, simple, nearly sessile; stems prostrate." *Root* annual, small. *Stems* branched, leafy, striated, roughish with reflexed hairs. *Leaves* somewhat glaucous, twice-winged; pinnules pinnatifid and gashed. *Umbels* opposite the leaves, solitary. *Flowers* white, or reddish, small, clustered, on short peduncles, surrounded by the linear hairy leaflets of the involucre. *Seeds* small; outer ones mucicated with longish, straight, rigid hairs; inner ones rough with warty points. Whether the latter are abortive has not yet been determined. Dr. Smith. A native of England and the south of Europe on the borders of corn-fields, and on banks; flowering from May to August.

CAUCALIS carota, Roth. See *DAUCUS Carota*.

CAUCALIS major daucoides tingitana, Moris. Ray. See *DAUCUS muricatus*.

CAUCALIS fanicula, Crantz. Roth. See *SANICULA*.

CAUCALIS scandix, Scop. — *Scandicina*, Withering Flor. Dan. See *SCANDIX anthriscus*.

CAUCALIS peregrina, Bauh. pin. See *TORDYLIUM peregrinum*.

CAUCALIS maxima, Bauh. pin. See *TORDYLIUM maximum*.

CAUCANA, in *Ancient Geography*, a port of Sicily, mentioned by Ptolemy, and placed 200 stadia from Syracuse.

CAUCANTHUS, in *Botany*, Lam. Encyc. Bosc. Nouv. Diët. Forskal. Class and order, *decandria trigynia*.

Gen. Ch. *Cal.* one-leafed, bell-shaped, five-cleft. *Cor.* Petals five, six times larger than the calyx, ciliated and curled on one side. *Stam.* Filaments ten. *Pist.* Germ superior, oval, villous: stigma truncated.

There is only one known species. A shrub. *Leaves* clustered at the top of the branches, opposite, orbicular, entire. *Flowers* white, in terminal corymbs. A native of Arabia on the mountains.

CAUCASUS, in *Ancient Geography*, the name of the highest and most extensive range of mountains in the northern part of Asia; and which the ancients erroneously considered as a continuation of mount Taurus. See *TAURUS*. According to Strabo (tom. ii. p. 760) this mountain extended from the Euxine to the Caspian sea, including, as within a wall, the isthmus that separated these seas. It divided Albania and Iberia towards the south from the level country of the Sarmatæ on the north; and abounded with various kinds of trees, some of which were used in the construction of ships. According to Herodotus (lib. I. and III.) it commenced above the territory of Colchis, and bounded the northern part of the Caspian sea. Procopius says, that the eastern limit of this mountain had two defiles, one of which was called the "Caspian way," and the other the "Caucasian way." These defiles served as a passage to the Huns when they invaded the territories of the Persians and Romans. Pliny says, that Seleucus Nicator had formed a project of joining the Euxine and Caspian seas by a wall; and it is also said that Antiochus Soter or Antiochus Theus executed Nicator's project. This wall sunk into ruin after the fall of the Seleucidæ. Herodotus mentions the two passages in this mountain; and he says that the Scythians and Cimmerians made use of them in their incursions into Upper and Minor Asia. They are also mentioned by Pliny, Tacitus, and Lucan. The ancient mythologists report that Prometheus was bound on this mountain for having stolen fire from heaven, and that Hercules came hither to release him: and it is reported by some historians, among whom is Strabo, that the rivers of this mountain brought down gold sand, which was collected in sheep-skins. The inhabitants of this mountainous region were very numerous, and formed, as some say, 70, and according to others 300, different nations, who spoke various languages, and subsisted upon the flesh of wild beasts, fruit, and milk, having, on account of their uncultivated and savage manners, no intercourse with one another. The appellation of Caucasus is supposed to have been transmitted to the Greeks by their intercourse with the Persians, in whose language *cau* or *cob* signifies a mountain: whence, it is said, was formed *Cob-cas*, or the mountain of the Chafas, an ancient and formidable tribe, who inhabited this immense range from the eastern limits of India, to the confines of Persia, and probably as far as the Euxine and Mediterranean seas. Captain Wilford informs us (*Asiatic Researches*, vol. vi. p. 455) that the Chafas are often mentioned in the sacred books of the Hindoos. Their descendants still inhabit the same regions, and are called to this day by the same name. They belonged to the class of warriors, but they are now considered as the lowest of the four classes; having been thus degraded, according to the institutes of Menu, by their omission of the holy rites, and by seeing no Brahmins. Isidorus (Orig. l. 14. c. 28.) says, that Caucasus, in the eastern languages, signifies *white*; and that a mountain close to it is called *Casis* by the Scythians, in which language it signifies snow and whiteness.

The Caucasian mountains have been well delineated by Russian travellers, who represent them as forming a range from the mouth of the river Cuban in the north-west to the outlet of the river Kur, into the Caspian sea, in the south-east. A chain probably extends from Caucasus south-west to the vicinity of the bay of Scanderoon. This ridge seems to have been the Antitaurus of antiquity, various parts of which have been known by different names. At the other extremity of the Caucasus other chains branch out into Persia, which they pervade from north-west to south-east: but terminating in the deserts of the south-eastern part of Persia, or, at least, so imperfectly connected with the mountains of Hindoo-Koh, that it would be difficult to trace any continued chain. Much less can they be regarded as an extension of Mount Taurus, which terminates at the Euphrates and deserts of Algezira. The Caucasian mountains, as far as they have yet been explored on the Russian side, are an alpine range, extending between the Euxine and the Caspian, from west to east, in length about 350 English miles, and towards the north and south in a level country all around. As they approach both the seas, they very much decline. The whole range has a tract of about 5 miles in breadth, at the greatest elevation of the chain, which is covered with perpetual ice. Its breadth on the northern declivity extends at most to 50 miles, and runs along the prodigious northern plain, which, taken in the quadrature, measures one thousand English miles; being bounded on the east by the Siberian, and on the west by the Valakhian mountains. The Marshal Von Bieberstein, who remained in these regions a considerable time, and took pains in investigating them, states the extent of the Caucasus, in length, from its western extremity at Ghaekae to Targhu, 95 German miles, and in breadth, on the side adjoining the Caspian sea, 53; in the middle, (where the river Terek to the north and Arakui to the south form a division between the eastern and western half) 96; and in the western part, along the Porta Cumana, a celebrated narrow pass, 150 miles. The icy ridges of the Caucasus, as well as the others, at their highest points, consist usually of granite; the sides leaning towards the next mountains, of all kinds of slate, and the outward sides of lime-stone, &c. The alpine chain, formed by the highest side, covered with snow or ice, and exhibiting, in some open fissures bald rock without earth, plants, or trees, seemed to Guldenstädt not more than from 5 to 7 versts in breadth. The two sides which compose the main mountain, measured from south to north, or right across, on an average, 70 versts; and the north side is visibly steeper or higher than the southern, as it declines in a far narrower or smaller breadth, or rather only sinks down towards one part. The lime-stone mountain runs in a flat clayey field of 20 miles in breadth, gradually declining, till it ends in a promontory 10 miles broad, which consists almost wholly of sand-stone; and this again runs out afresh in a clayey plain about 8 miles broad, in which numerous sand-stone hills occur. In this plain common salt and natron abound; and in the promontory are iron-stone, sulphur-pyrites, vitriol, petroleum, and warm sulphureous springs: some petrifications are also found here, chiefly in flint. Specimens of lead and copper rarely occur in the promontory, but frequently in the higher mountains. The slate contains alum. As to what regards the quality of the superior regions of the Caucasian ridge, it is remarked that the river Hippus in Iberia bears gold; that the mountains in that region are very rich in minerals; and that the gold mines at Cumana were wrought by the Romans; that the mountains on the Kura, and especially in the district of Azghur, likewise contain very rich ores; that in the plains of that river are found fine marble, coal, and warm springs;

that in the mountains by the Terek, as far as the village Stephantz-minda, there is lead, silver, and iron ore; in the Georgian province Somghetia, rich silver and iron ore, marble, and jasper; in the circle of Quoetsh, copper-ore; in the principality of Tamblut, rich lead, silver, and gold mines; in the principality of Lori, considerable copper-mines, and good mill-stones; in the principality of Unfular, rich copper-mines; in the parts about Akdale, gold, silver, and copper; and in the province of Albania, marble and alabaster, iron, warm baths, petroleum, and rock salt. From this detail it appears, that the Caucasian chain of mountains is, in its highest points, covered with ice-mounts; that it has its highest, high, middle, and fore-mountains or promontories, the risings nearest to the level of the plain; that its sides are very rich in minerals; and, probably, in those parts which are now added to the Russian empire, contain a treasure of the precious metals. Its eminence, on the whole, is considerable, and many of the rocky parts very steep and prominent. In many of its extremely fertile vales, it is furnished with valuable woods, consisting of excellent forest trees of various kinds. On the Russian side of these mountains the rivers Terek, Cuban, Kumma, and a number of smaller streams take their rise. We may therefore conclude, says Guldenstädt, that mining might be begun and carried on in the northern Caucasus to great advantage, especially for Russia; provided that care be first taken to establish strong and well-garrisoned forts for the protection of the miners against the ravages of the thievish tribes that inhabit the mountains, till they have attained to a greater degree of civilization, and till they themselves manifest an inclination for mining.

These mountainous regions have been, from time immemorial, and still are, the habitation of bold and valiant warriors, who have with determined resolution resisted the reiterated attacks of the Mongols, Arabs, Persians, Tartars, and Russians, and maintained, in a considerable degree, their freedom and independence. On the ridge of Caucasus, and in the elevated and almost inaccessible vallies, there is found a most singular mixture of small people of various denominations, whose origin and different languages it is extremely difficult to explore. Their distinct and appropriate languages are very numerous, and branch out into an incredible diversity of dialects; some of which deviate so entirely from the known languages of Asia and Europe, that they admit of no comparison with them; others again are known languages without any foreign admixture; and others are a mixture of several known ancient languages, to which class belong the old Georgian, Mongolian, Persian, Arabic, and Tartarian languages.

The various tribes of mount Caucasus consist of a motley mixture of the original inhabitants with colonies of their conquerors, the Mongols and Tartars, particularly the latter: and on account of the difficulty of reducing them to their primitive stocks, they are usually all comprised, the Georgians excepted, under the denomination of "Mountain-Tartars." Several of these tribes are properly Russian subjects; others are vassals; and others again are protected by Persia and the Porte, or have hitherto maintained their independence. Among the inhabitants of the northern half of Caucasus, we find, besides the Nogayans and Truchmienians, who are genuine Tartars, three particularly numerous and nearly related tribes, composing the ground plot of most of the Caucasian nations; viz. the "Tischer-keffians" (see CIRCASSIANS), "Auchasians" (see AUCHASES), and "Zichians" or Tschekians, called by the Russians Yasi, and principally inhabiting the isle of Taman, which see. Under the former appellation of Tischerkeffians are often comprised not only the other two stems just mentioned, but even several

petty tribes of Caucasus, as the Tschetschengians, the Kistenziens, &c. The people properly bearing this name inhabit that part of Caucasus which is called the Great and the Little Kabardia, the islands of the lower Kuban or Cuban, and the southern bank of that river. They denominate themselves Adige, i. e. islanders; by the Russians they are called Tscherkessi, and by the rest of Europe Circassians. The other two tribes are, properly speaking, only one collateral branch of the former, and have belonged to the Russian empire, as inhabitants of the Cuban or Caucasus, since the year 1783. The following tribes are as yet only vassals to Russia; viz. the "Kumyks," who inhabit the plain bordering on the rivers Sunsha and Terek, and in whose territory are the famous hot-baths of Kitzliar. See KUMUK.—The "Tschetschengians" or Mikschessians, who live in the eastern part of the Great Kabardia, and in time of war can raise 5000 horsemen.—The "Kistenziens," who inhabit the Little Kabardia and whose force is nearly equal to that of the preceding people.—The "Ofsetinziens" or Ofses, probably sprung from the ancient Uzes or Polovtzes, and found in the middle part of the Caucasian mountains. They consist of several small stems, who are either governed by myrzas, or live under one common prince, who is a vassal of the Russian empire. The other Caucasian tribes have little or no connection with Russia; and the most remarkable are the "Leshghians," who inhabit the province of Leshghistan in the eastern Caucasus, between Kakhetty and Daghestan. They are divided into 27 stems, and are totally independent.—The "Taulintziens," who occupy the summits of the mountains, consist of several petty tribes, and acknowledge the protection of Persia.—The "Amberlinians" dwell in the vallies formed by the mountains of Ghilan, and often change their patron-sovereign, but are at present under the Persian monarch.—The "Georgians" or Grusiniens are the most numerous and powerful body of the mountaineers of Caucasus. See GEORGIA. Tooke's View of the Russian Empire, vol. i.

CAUCASUS, in *Ancient Geography*, a sea-port of the island of Chios, mentioned by Herodotus, lib. v. c. 33.

CAUCASUS, province of, in *Geography*, one of the governments of Russia, in the southern region, which comprises the Cuban, and all that district to the east and south now in the possession of Russia, between the rivers Don and Cuban, and between the Caspian and Euxine, extending as far as the confines of Georgia, and continually augmenting by the reduction and submission of the wandering hordes of mount Caucasus. By the treaty concluded between Catharine II. of Russia and the Ottoman Porte, June 21, 1783, authenticated by the seal of government, Jan. 9th, 1784, the provinces of the Crimea and the Cuban, to which the empress gave the ancient names of Taurida and Caucasus, were annexed to the Russian dominions.

CAUCHABENE, in *Ancient Geography*, a people of Arabia Deserta, according to Ptolemy.

CAUCHUMILI, in *Geography*, a small island belonging to the Turks, in the Mediterranean; 20 miles S.W. of Stanchio. N. lat. $36^{\circ} 30'$. E. long. $26^{\circ} 24'$.

CAUCI, in *Ancient Geography*. See CHAUCI. An ancient people of Ireland under this denomination, according to Ptolemy, are supposed by Camden to have inhabited the present county of Wicklow; and they are said by Mr. Ledwich to have come, with the Menapii, direct from Germany to Ireland.

CAUCII Nummi, a base sort of coin, current under the lower empire; thus called because concave, like a little cup, from the barbarous Latin, *caucus*, a cup. Haloander and Meursius are mistaken in saying this coin was so called from

having the figure of a cup on it. Du-Cange. The caucii are the same with what are popularly called among the Italians, *medaglie di S. Elena*, sometimes superstitiously worn by the women.

CAUCOLIBERUM, in *Ancient Geography*, a name given about the 7th century to a town of Gaul, now Collioure.

CAUCON, in *Botany*, a name used by Pliny, and some other authors, for the *equisetum*, or horse-tail.

CAUCON, in *Ancient Geography*, a river of Greece in the Peloponnesus, which passed by Dyma, and discharged itself into the Teutheas, according to Strabo.—Also, a maritime place of Sicily, 200 stadia from Syracuse; called Caucana by Ptolemy.

CAUCONES, an ancient people of Paphlagonia, who inhabited the coast of the Euxine Sea from the Mariandynians to the river Parthenius, according to Strabo; but in other times this space was comprised in Bithynia. Some authors pretend that they were driven from Arcadia together with the Pelasgi, and that they had been wanderers like them. Others say, that they were Scythians; and others say, that they were Macedonians. One part of this nation settled in Greece near Dyma, in the district of Buprasium and the Lower Elide. Another part occupied the territory of the Lepreates and Cyparissians, and the town of Macista in Triphylia. Herodotus speaks of these last; (lib. i. c. 147.) and gives them the name of Pyliaens to distinguish them from those of the Lower Elide near Dyma. Homer mentions the Caucones; who were Paphlagonians, and who came to the succour of Troy.

CAUCUS, in *Ichthyology*, a species of carp about eighteen inches in length, that inhabits the fresh waters of Chili. Molina describes it in his natural history of that country, as having thirteen rays in the anal fin; the body tuberoso, and slightly tinged with silvery. See CYPRINUS CAUCUS.

CAUDA, in a general sense. See TAIL.

CAUDA is sometimes also used in *Anatomy* to denote the CLITORIS.

CAUDA Bovis, in *Ancient Geography*, a promontory of the island of Cyprus, so called by Ptolemy, and placed by M. d'Anville at Boos Ura to the south west.

CAUDA Capricorni, in *Astronomy*, a fixed star of the fourth magnitude, in the tail of Capricorn, called also by the Arabs, *Dineb Algedi*; marked γ by Bayer.

CAUDA Ceti, a fixed star of the third magnitude; called also by the Arabs, *Dineb Kaetos*; marked β by Bayer.

CAUDA Cygni, a fixed star of the second magnitude in the Swan's tail; called by the Arabs, *Dineb Adigege*, or *Eldegiagich*, marked α by Bayer.

CAUDA Delphini, a fixed star of the third magnitude in the tail of the Dolphin; marked ϵ by Bayer.

CAUDA Draconis, the Dragon's tail, the name of the moon's southern or descending NODE.

CAUDA Equina, in *Anatomy*, a name applied to that portion of the medulla spinalis, which is contained in the lumbar vertebrae, and the canal of the sacrum. For a description of this, with the rest of the spinal marrow, see BRAIN.

CAUDA Equina also denotes a medicinal herb, whose leaves are reputed to have a strengthening virtue. This, in English, is called the *horse-tail*. The official kind is more particularly called by botanists *EQUISETUM majus*, in English, the great marsh-horse-tail.

CAUDA Leonis, in *Astronomy*, a fixed star of the first magnitude in the Lion's tail; called also by the Arabs, *Dineb Elceed*, and marked β by Bayer. It is called also *Lucida Cauda*.

CAUDA Urse Majoris, a fixed star of the third magnitude,

in the extreme part of the tail of the Great Bear; called also by the Arabs, *Alaioth* and *Benenath*, and marked η by Bayer.

CAUDA *Urse Minoris*, a fixed star of the third magnitude, in the extreme part of the tail of the Lesser Bear; called also the polar star, and by the Arabs, *Alrukabab*, marked α by Bayer.

CAUDAMATRIS, in *Geography*, a town of the island of Ceylon; 64 miles N.W. of Candy.

CAUDAR, a river of Spain, which runs into the Xucar a little above Cuenca.

CAUDATUM, in *Conchology*, a species of *Buccinum* with an ovate shell-furrowed with roundish ribs; the beaks a little prominent. Knorr, &c.

This shell is fuscous, umbilicated, with a large aperture, the lip of which is plaited and toothed within; spire with six short inflated whorls. The length is three fourths of an inch; very thin, of a straw colour, brownish in the ribs, with five horizontal lines in the whorls of the spire.

CAUDATUS, *Lat.* in *Music*, a musical note with a tail to it; as a minim to distinguish it from a semibreve, which is round. In the early period of counterpoint, a tail added to a note made it of double its natural length; as a tail to a *breve* made it a *long* \square η . See the ancient time table.

CAUDEBEC, in *Geography*, a town of France, in the department of the Lower Seine, and chief place of a canton in the district of Yvetot; seated on the Seine, surrounded with walls flanked with towers; a town, though not large, populous and commercial; 5 leagues W. of Rouen, and 8 E. of Havre. The place contains 2800 and the canton 13,694 inhabitants; the territory comprehends 210 kilometres and 18 communes. N. lat. $49^{\circ} 33'$. E. long. $0^{\circ} 37'$.

CAUDEBEC, in *Manufactures and Commerce*, a sort of hats, thus called from the town of Candebece above mentioned, where they manufacture a great number of them. They are made of lamb's wool, of the hair or down of ostriches, or of camel's hair.

CAUDEC, in *Ornithology*, the name given by Buffon in his natural history of birds to the Gmelinian *muscipapa audax*, and yellow crowned fly-catcher of Latham. Buffon in another work, *Pl. enl.*, calls it gobemouche tacheté de Cayenne.

CAUDECOSTE, in *Geography*, a town of France, in the department of the Lot and Garonne, and district of Agen; $2\frac{1}{2}$ leagues S.E. of Agen.

CAUDELLENSES, in *Ancient Geography*, a people of Gallia Narbonnensis, S. of the Vulgientes. They were the ancient inhabitants of Cadenet, where has been found an inscription that adorned the front of a small temple or sacellum, built near the place and dedicated to the goddess Dexiva. Many medals of silver, and other curiosities, have been dug up at the same place.

CAUDEX, in *Botany*, is considered by Linnæus as one part of the root of plants, of which the radicle is the other. It is divided by him into the caudex descendens, and the caudex ascendens. The caudex descendens is the stock or main body of the root, gradually striking downwards into the ground, and producing the radicles which extract the nourishment from the earth, and are the only essential part of the root; for annual plants have most frequently no descending caudex. The caudex ascendens is a continuation of the same stock gradually rising above the ground, and producing the proper herb of the plant, or the branches and leaves with their various appendages. There are many

plants, both annual and biennial, in which it is not found. In trees it is usually filed the trunk; in shrubs the caulis or stem; and as it has never been admitted into the popular idea of a root, it is nearly fallen into disuse. Indeed it was never much employed by Linnæus himself in his practical works.

CAUDEX, in *Gardening*, a term, which, by some early writers on vegetation, signifies the stem or trunk of a tree; but according to the later ones the stock or body of the root, part of which ascends and part descends. It has been observed by Dr. Darwin on the authority of Linnæus, that the part which joins together the plumula, or leaf, and the radicle, or root-fibres, is called the caudex, when applied to entire plants; and may, therefore, be termed *caudex gemma*, when applied to buds. In herbaceous plants, the caudex is generally a broad, flat, circular plate, from which the leaf-stem ascends into the air, and the radicles or root-fibres descend into the earth. Thus the caudex of a plant of wheat lies between the stem and the radicles, at the basis of the lowermost leaf, and occasionally produces new stems and new radicles from its sides. Thus the caudex of the tulip lies beneath the principal bulb, and generates new smaller bulbs in the bosom of each bulb-leaf, besides one principal or central bulb; the caudex of orchis, and of some ranunculuses lies above their bulbous roots; whereas the caudexes of the buds of trees constitute the longitudinal filaments of the bark, reaching from the plumula or apex of the bud on the branch to the base of it, or its root-fibres beneath the soil. Nor, continues he, is this elongation of the caudexes of the buds of trees unanalogous to what happens to some herbaceous plants; as in wheat, where the grain is buried two or three inches beneath the soil, an elongation of the caudex occurs almost up to the surface, where another set of fibrous roots is protruded, and the upright stem commences. The same happens to tulip-roots when planted too deep in the earth, as he has witnessed, and, as he supposes, to those of many other vegetables.

He is also of opinion, that the caudex of the buds of trees not only descends, as above described, but also ascends from each bud to that above it; as on the long shoots of vines, willows, and briers, in this respect resembling the wires of strawberries and other creeping plants. Thus the caudex of perennial herbaceous plants consists of a broad plate, buried beneath the soil to protect it from the frost; while the caudex of buds of trees consists of a long vascular cord, extending from the bud on the branch to the radicle beneath the earth, and endures the winter frosts without injury. The long caudexes of the individual buds of trees, which constitute their bark, are, he says, well seen in the cloth made from the mulberry bark brought from Otaheite. On inspecting this cloth the long fibres are seen in some places to adhere, where it is probable they occasionally inosculate, like some of the vessels in animal bodies; because, when some buds are cut off, the neighbouring ones flourish with greater vigour, being supplied with more of the nutritious juices. This informs us, he says, why the upper bark of a tree grows downwards with so much greater expedition than the under one grows upwards to meet it; as the descending caudexes of the individual buds are supplied directly with nutriment from the vegetable arteries, after the oxygenation of the blood (sap) in their leaves; whereas the under lip of the wound is nourished only by the lateral or inosculating vessels; which, he thinks, supplies us with an argument against the individuality of trees, and in favour of that of buds. See BUD.

CAUDI-CAPONÆ, in *Ancient Geography*, a place of Italy, mentioned by Horace.

CAUDIES,

CAUDIES, in *Geography*, a town of France, in the department of the East Pyrenees, and district of Perpignan; 9 leagues W.N.W. of Perpignan.

CAUDIMANE, in *Zoology*. Some French naturalists discriminate by this name those animals which have the tail flexible, muscular, and prehensile, such as the Sapajou tribe of monkeys, &c.

CAUDINÆ fauces, or *furcula*, in *Ancient Geography*, a defile by which the Romans, after a defeat, were obliged to pass from Campania into Samnium, in 432, and where they preserved their lives under the humiliating condition of passing under the jugum or yoke.

CAUDISONA *Vipera*, in *Zoology*, a name by which authors call the RATTLE SNAKE.

CAUDIVERBERA *Peruviana*, the name given by Laurenti to the Gmelinian *LACERTA caudiverbera*, which see.

CAUDIVERBERA *Egyptiaca*, Laur. is variety β of the same species.

CAUDIUM, in *Ancient Geography*, a small town of Italy, in Samnium, belonging to the Hirpini, on the route from Capua to Benevento.

CAUDO, an island of the Mediterranean, in the neighbourhood of that of Crete. Suidas.

CAUDROT, in *Geography*, a town of France, in the department of the Gironde, and district of La Reole, seated on the Garonne; 5 miles W. of La Reole.

CAVE, a subterraneous hollow place of a certain extent. Some authors distinguish between a *cave* and a *cavern*, making the first the effect of art, and the latter of nature. Caves were doubtless the primitive habitations; before men brought themselves to erect edifices above ground, they took shelter under it. The primitive manner of BURIAL, was also to repose bodies in *caves*, which appears to have been the origin of the catacombs. Phil. Trans. N^o 244. p. 344.

Badmington cave, in Wiltshire, consists of a series or row of uniform holes, wherein pieces of armour are said to have been found, whence they are by many supposed to have been tombs of ancient warriors.

Caves long continued the proper habitations of shepherds. Among the Romans, *caves*, *antra*, used to be consecrated to the nymphs, who were worshipped in caves, as other gods in the temples.

The Persians also worshipped their god Mithras in a natural cave, consecrated for the purpose by Zoroaster.

Kircher, after Gassarellus, enumerates divers species of caves, divine, human, brutal, natural, and artificial.

Of natural caves, some are possessed of a medicinal virtue, as the *Grotto de Serpente*; others are poisonous or medicinal; others are replete with metalline exhalations, and others with waters.

Divers oracular caves occur among the ancients, the fumes of which intoxicated the head, and produced a sort of furor or madness, which was interpreted inspiration, prophecy, and divination. Such were the sacred caverns at Delphi, which inspired the Pythia. Such also was the Sybil's cave at Cumæ in Campania, still shewn near the lake Avernus: though Borrichius takes this to be of modern date, and not the true *Antrum Sibyllæ*, so finely described by Virgil. Homer likewise gives a description of *Ἀντρον Νυμφῶν*, the *Cave of the Nymphs*, on which Porphyry has a treatise still extant, containing many of the secrets of the heathen theology, both natural and symbolical. Virg. *Æn.* lib. vi. Hom. *Odyss.* lib. xiii.

The cave of the nymph Egeria, where Numa held nightly conversations with that deity, is still shewn at Rome.

The cave of Trophonius, originally the mansion of that celebrated Bæotian, became afterwards famous for the ora-

cles which Apollo delivered in it. Pausanias, who visited it, gives a large description of the ceremonies observed by those who entered the cave to consult that god. Vide Potter *Arch. lib. ii. cap. 10. p. 290, &c.*

CAVE, in *Agriculture*, is a term provincially employed to signify the raking off any coarse material, such as the short straws and ears of grain, from the corn in chaff on the barn-floor during the time of threshing, &c.

CAVE, **CARVE**, or **COLT**, is a term used for earth that slips down from the banks of canals, &c.

CAVE, *dead, live*, in *Mining*. See *LIVE cave*.

CAVE-Hill, in *Geography*, one of the hills in the county of Antrim, Ireland, near the town of Belfast. It is found to be 1195 feet high.

CAVEA, the place in the ancient theatres where the spectators were seated. The *cavea*, called by the Greeks *κοίλον*, stands contradistinguished from the *scena*, *σκηνα*, which was the place for the actors. The *cavea* was divided by partitions into three equal parts, rising one over another: *ima cavea*, appointed for the people of quality, and magistrates; the middlemost, *media cavea*, for the commonalty; and the uppermost, *summa cavea*, for the women.

As the theatres were open at top porticos were erected behind the *cavea*, where the audience might retire for shelter in case of rain.

CAVEA also denoted the middle part in amphitheatres, otherwise called **ARENA**.

CAVEA was also used for the cage or den of a wild beast, kept for the amphitheatrical shews. See **CAGE**.

CAVEAR, **CAVIAR**, or **KAVIAR**, a kind of food or pickle, in great use, and repute throughout Russia: and also introduced upon the English table.

It is formed from the Italian *caviare*, or barbarous Greek *καβίρι*, which signifies the same.

The *cavear* or *caviar*, called by the Russians *ikra*, is an article of great importance in its reference to the industry and commerce, as well as to the palates of the Russians, who derive great advantages from it, not merely as an article of trade, but also of diet, particularly during the three lents which they observe with great strictness. It is prepared in the parts about the Volga, the Ural, and the Caspian, of the roes of sturgeons, sterlets, sevrugas, and sitrinæ. The lump of roe is the first thing taken out after cutting up the fish. A large beluga will yield above 5 pood of roe; but this, on account of the quantity of viscous matter that is mixed with it, is not much esteemed. From a sturgeon never more than 30 pounds has been taken, and from the sevruga only 10 or 12. As of the beluga roe five eggs weigh a grain, so a large beluga has 6 or 7 millions of eggs. The different treatment of the roe determines the different quality of the *cavear*. The worst sort is the common "pressed *cavear*," "payusnaia *ikra*." In the preparation of this the roes are cleansed from the coarsest strings and fibres, then salted with about two pounds of salt to the pood, and spread out upon mats in the sun to dry, which in fair weather requires about six hours, and in cloudy weather, at most, a day. It is afterwards trodden with the feet, the person who treads it having leathern stockings. It is then put into tubs. To make this sort for sale, it is common to take the spoiled roes of dead fish thrown upon the shore, or such as are too greasy for other sorts, and even the fragments and offals that would not pass through the sieve of the finer kind, salt it in boxes, and then tread it down in tight tubs. Such *cavear* costs in Astrakhan half a ruble per pood. A better sort is that called the "grained or seasoned *cavear*," "Sernistaia *ikra*," but this is too salt to suit every palate. When the roe is cleansed from the coarser particles, it is shaken into long troughs, salted with 8 or 10 pounds to the pood;

pood, and by shovelling it over and over, well mixed. It is now brought to the sieve or stretched net-work, through which it is squeezed in order completely to separate the remaining fibrous parts; then, like the former, it is pressed in tubs. The pood costs between one and two rubles; and this sort is the usual food of the common people during the lents and fasts enjoined by the religion of the country; but it is too salt for every one's taste. The cleanest and best sort is the "sack-cavear," which, to appearance, consists entirely of the eggs of the roes, and does not easily become fetid; it is denominated from its preparation "meschefsnaia ikra." After being cleansed, it is steeped in strong brine, till the grains are quite soft. It is then hung up in long narrow pointed bags of strong linen, resembling jelly bags, which are half filled, about half a pood in each, with fresh roes, and filled to the top by pouring in the brine. When the brine has oozed through, the bags, hanging on transverse poles, are powerfully wrung with the hands one after another till the moisture is wholly discharged: and after the roes have been set to dry for 10 or 12 hours in the bags, they are put into small casks or tubs, and trodden down by a labourer in leathern stockings. This sort requires the roe to be quite fresh, and is the dearest, costing two rubles per pood, and upwards. In winter the roe is eaten fresh, and deemed a great dainty. In general, the standard for good cavear is, the less salt the better; but of course it will keep the less time. In winter large quantities of unsalted cavear are sent from the Volga to all parts. The method here used in salting the roes is by putting them, after being well cleansed and salted, into cisterns with a number of holes in the bottom; through which they are set to drain by weights laid at top, or are wrung in linen bags, then pressed in casks, with fish-fat poured over the surface, in order to keep it as much as possible from corruption. The cavear is prepared in like manner, in the other parts of the empire, where they have fish proper for the purpose. Among these are reckoned the white salmon and the pike, from the roes of which a reddish kind of cavear, "krassnaia ikra," is prepared. The best cavear, as well as the best singlafs, is obtained from the river Ural, where the Cossacks have the best method of preparing them. Formerly the trade in cavear was a monopoly of the crown; and in the time of Peter I. the contract brought him 80,000 rubles; and in the middle of the last century 100,000. At present it is free. In 1764 the quantity exported amounted to 48,000 rubles; and in 1768 to 41,000. In later years the quantity exported has been more various than that of singlafs. In 1783 it amounted to 10,706 pood; in 1786, to 2476 pood; and in 1788, to 1544 pood. Cavear is exported mostly to Italy (pressed of course, because of the voyage), where it is eaten by the rich in fast-time. In Germany, also, with the increase of luxury, it is much more in request than it was about 40 years ago, when a physician in a publication called it a delicacy almost unknown. The English also, partly for their own use, but principally for exportation to Italy, &c. import considerable quantities of cavear. To be good, it should be of a reddish brown colour, and very dry. It is eaten with oil and lemon; sometimes with vinegar; some eat it alone with bread; and others only as a sauce or pickle, like anchovies. A kind of cavear is made from the spawn of a sort of mullet on the coast of the Mediterranean, which is called *Botargo*, which see.

CAVEAT, in *Law*, a bill entered in the ecclesiastical court to stop the proceeding of one who would prove a will, or obtain letters of administration, to the prejudice of another. See PROBATE.

It is also used to stop the institution of a clerk to a benefice. An institution, after a caveat entered, is void by the

ecclesiastical law; but this the temporal courts pay no regard to, and look upon a caveat as a mere nullity. Blackitt. Com. vol. iii. p. 246.

CAVEATING, in *Fencing*, the act or art of disengaging, or shifting the sword from one side of the adversary's sword to the other.

Caveating is a motion whereby a man brings in an instant his sword, which was presented, on any side of his adversary's, generally beneath its hilt, to the opposite side; either from within, or without, or *vice versa*; or from having its point high, to be low, or the reverse; and either on the same side it is presented in, or the opposite side.

Caveating is so necessary a motion in fencing, that without it there could be scarcely any offensive part, or pursuit. It is withal so easily performed against the ordinary tierce and quart guards, that it gives a constant opportunity to make a variety of quick subtle feints against them, which by reason of the small crosses made by the weapons on these guards, makes the pursuit very easy, and the parade of defence very difficult.

The consideration of this put sir William Hope on the search of a new method of guard, which, by reason of its greater crosses on the adversary's sword, renders the caveating and making feints more slow, and consequently the parade more certain.

CAVEDO, in *Commerce*, a long measure used in Portugal, and equal to 27 $\frac{4835}{10000}$ English inches.

CAVEDONE, JACOPO, in *Biography*, an historical painter, was born at Sassuolo near Modena, in 1580, and educated in the Academy of the Caracci, where he learned design; attending also frequently the schools of Baldi and Passerotte, to study after the naked. In order to acquire a proper knowledge of colouring, he visited Venice, and attentively examined the perfections of Titian; so that upon his return to his own country, his performances were much admired; and adjudged to possess an agreeable mixture of the style of the Caracci with the tints of Titian. For some time at Bologna, the works of Cavedone were esteemed equal to the compositions of Annibal. His best manner was strong and free, and the tints of his colouring were natural and beautiful. But at three different periods of his life, this painter is said to have had three different manners: his first excellent, his second indifferent, and his last feeble and very bad; which degradation has been ascribed to the effect of poverty, sickness, and bodily injury, and also of domestic affliction. In the church of St. Salvatore, at Bologna, there are several very capital performances of Cavedone; but one of his best performances is in the church of the Mendicants at Bologna, in which he represents Petronius and another saint on their knees, in the lower part of the picture, and the Virgin and child in the clouds attended by angels. This master died in 1660, aged 30. Pilkington.

CAVELIN, or rather KAVELING; thus they call at Amsterdam, what we and the French style a lot of merchandise.

CAVENDISH, or CANDISH, THOMAS, in *Biography*, an eminent navigator and naval adventurer in the reign of queen Elizabeth, was the son of William Cavendish, esq. of Trimley St. Martin, in Suffolk, where he was born, and whose estate he inherited. But having consumed his property by early extravagance in his attendance on the court, he determined to retrieve his affairs by a predatory voyage against the settlements of the Spaniards. The fleet which he fitted out for this purpose consisted only of three vessels of 120, 60, and 40 tons, manned with 123 persons of various qualities. Having equipped this small squadron for a voyage of two years, be

he took the command, and sailed from Plymouth July 21, 1586. After touching at Sierra Leona in Africa, he stretched over to the coast of South America, and ran along it as far as the mouth of the straits of Magellan. Here he found, at a place named by him Port Famine, the wretched remains of a Spanish colony which had two years before been dispatched in order to form a settlement in that inhospitable clime. Having reached the South sea, he directed his course northwards, and notwithstanding various encounters with the Spaniards, which gave him an opportunity of displaying with his small number of men very distinguished valour, he succeeded in burning Paita, Acapulco, and some other settlements, in taking and destroying several ships, and ravaging the coasts of Chili, Peru, and New Spain. At length, being off California in November 1587, he performed the extraordinary exploit of capturing, with a force much reduced, the Spanish admiral's ship of 700 tons, well manned and richly laden. Resolved on coming home with his booty, he crossed the South Sea with one of his two small vessels, the other being destroyed, to the Ladrones in 45 days. Thence proceeding through the Indian Archipelago, he passed the straits of Java, and having touched at the cape of Good Hope, arrived at Plymouth, after having circumnavigated the globe in 2 years, 1 month, and 19 days, the shortest period in which it had then been effected. In 1591, he planned another expedition, and set sail August 26th with three tall ships, and two barks, suitably equipped. This adventure was attended with various disasters, which disconcerted and defeated his projects; so that his principal success was the capture of the town of Santos in Brazil. With part of his squadron, he entered the straits of Magellan in April, 1592; and being forced by the inclemency of the season into a small bay, his men endured many hardships from the severity of the cold, and want of provisions. Having lost many of his crew, he relinquished his purpose of traversing the South Sea, and proposed to proceed to China by the Cape of Good Hope; but first returning to the coast of Brazil, he suffered many losses by some rash attempts to pillage towns which were prepared to resist him; and deserted by several of his men, and controlled in his schemes by the mutiny of others, he was prevented from accomplishing his purpose of returning to the strait of Magellan, and sailing to the South Sea. Sickness and chagrin at length terminated his life, probably whilst he was at sea in his way to England. "From the relations we have of this navigator, he seems to have possessed great perseverance, with a true enterprising spirit, but not sufficiently under the control of prudence." *Biog. Brit.*

CAVENDISH, WILLIAM, duke of Newcastle, a distinguished leader of the king's party in the civil wars of Charles I. was the son of sir Charles Cavendish, younger brother of the first earl of Devonshire. He was born in 1592, and educated by his father, who directed his attention to that polite and solid literature, which in that age was thought a proper accompaniment to high birth and rank. James I. made him, when very young, a knight of the bath, and when the death of his father devolved upon him a large estate, he was raised in 1620, to the peerage, by the title of baron Ogle, and viscount Mansfield. By Charles I., who honoured him with his favour, he was advanced to the higher title of earl of Newcastle-upon-Tyne. His attendance at court involved him in expences beyond his income; but he received some recompence by the honourable trust, committed to him in 1638, of the tutelage of the prince of Wales, afterward Charles II. Some court disgust induced him to resign this honour in 1640. His attachment to the royal

cause, however, was unabated; and on the approach of open hostilities between the crown and parliament, he offered his services for securing the important post and town of Hull, which were then thought premature. In 1642 he took upon himself, in consequence of the king's order, the care of the town of Newcastle and the four adjacent counties; and was soon after invested with a commission, constituting him general of all his majesty's forces raised north of Trent, with very ample powers. With great exertions and expence supplied by his private fortune, he levied a considerable army, with which, for some time, he maintained the superiority of the king's cause in the north. In military matters he chiefly depended upon the professional skill of lieutenant-general King, a Scots officer of merit; whilst he himself indulged in the courtly pleasures and literary society to which he was attached. In bestowing commissions he was charged with a blameable profusion; and his appointment of sir W. Davenant, the poet, to the post of lieutenant-general of the ordnance, redounded more to his honour as a patron of literature than as a soldier. One of his most splendid actions was a complete victory obtained over Ferdinando lord Fairfax on Adderton-heath near Bradford, which, however, he is said not to have improved to the best advantage. On the advance of the Scots army into England, and its junction with those of Fairfax and Manchester, the marquis of Newcastle, for that was the rank to which he had been promoted, threw himself into York, which was soon invested by the three armies. After a siege of three months, he was relieved by prince Rupert; but this prince resolving upon engaging the enemy, and pleading the king's positive orders for this purpose, the marquis opposed his intention; and the fatal battle of Marstonmoor, fought July 2d, 1644, began without his being previously apprized of it. Nevertheless he took part in it with his usual valour, and his infantry was almost totally destroyed. Mortified by this defeat, and despairing of the royal cause, he took shipping at Scarborough, and immediately left the kingdom, to which he did not return till the restoration. Antwerp was the place of his residence, where he suffered with equanimity and resolution much pecuniary distress; though he was treated with great respect by the governing powers of the country and occasionally visited by the exiled king. After an absence of 18 years, he returned with his royal master, who, in 1664, conferred upon him the dignity of a dukedom. From this time he lived for the most part in retirement, prosecuting his favourite studies and endeavouring to repair his shattered fortunes. He died December the 25th, 1676, in his 84th year, and was buried together with his duchess, in Westminster Abbey, where a very sumptuous monument is erected to their memories. He left one son, in whom the title of Newcastle, in the Cavendish family, became extinct. His daughters formed connections by marriage with some of the principal families of the kingdom. The duke of Newcastle ranks among the noble authors of this country. His great work is a book of horsemanship, first published in French at Antwerp in 1658, and afterwards in a somewhat different form, in English, Lond. 1667, fol. This last has been reprinted, and it has been much commended by the judges of that art, and has been rendered peculiarly valuable by the fine figures of Diepenbeck. The duke also wrote some comedies, applauded at the time of their first exhibition, but since sunk into oblivion. *Biog. Brit.*

CAVENDISH, MARGARET, duchess of Newcastle, wife of the preceding, was the daughter of sir Charles Lucas of Essex, and in her time much celebrated for literature. Distinguishing herself, under the care of her mother, by her attachment to study, and visiting Oxford, where the court resided,

sided, in 1643, she was appointed one of the maids of honour to queen Henrietta Maria. She accompanied her majesty to France, and at Paris first saw the marquis of Newcastle, then a widower, who married her in 1645. With him she lived in retirement during his exile; endearing herself to him by the charms of her conversation and the productions of her pen. Upon his reinstatement in his fortunes and honours, she principally devoted herself to the composition of plays, poems, letters, philosophical discourses, orations, &c. in which she became a very voluminous writer; her works at length amounting to 13 folios, 10 of which are in print. She was more distinguished by her disposition to commit to paper any thoughts that occurred to her, however crude or trivial, than by her taste and judgment. So important in her own estimation were these thoughts, that she kept within call a number of young ladies, who rose at any hour in the night when she summoned them, in order to pen down her meditations, lest she should forget them before morning. She seldom bestowed the trouble of revising on her works, "lest," as she said, "it should disturb her following conceptions." From the mercenary pedants of the age this folly obtained the most extravagant applause; and both at Oxford and Cambridge the poetry and philosophy of the duchess of Newcastle were applauded with boundless adulation. Her writings have long since been consigned to oblivion, and scarcely a fragment of them is sought after by the English scholar, except a few lines descriptive of melancholy, quoted in the *Connoisseur*, N° 69, and praised beyond their desert. The duchess had derived much greater honour from her strict attention to domestic duties than from her writings. She died in January, 1673-4. *Biog. Brit.*

CAVENDISH, WILLIAM, first duke of Devonshire, eminent for his patriotism, was the eldest son of William, third earl of Devonshire. He was born in 1640, educated with great care in classical literature, and brought into public life as knight of the shire for the county of Derby as soon as he was of age. On various occasions, public and private, he distinguished himself by his spirit and personal valour; and in 1677 commenced that steady opposition to the arbitrary measures of the ministers of Charles II., which caused him to be regarded as one of the most determined friends to the liberties of his country. Intimately connected with the patriotic lord Russell, he joined him in all constitutional proceedings for the security of free government and the protestant religion; but as soon as he found a tendency in some of the opposition party to the adoption of illegal and dangerous measures, he withdrew from their meetings. Nevertheless he remained attached to lord Russell with an unabated friendship; on his trial he appeared as a witness in his favour; and he even made the generous proposal of promoting his escape when under sentence of death, by changing clothes with him in prison; which lord Russell declined accepting. After the execution of that nobleman, lord Cavendish testified respect for his memory by marrying his eldest son to the daughter of his friend. In 1684, he succeeded to his father's title; and being regarded as one of the most formidable opponents of king James's arbitrary designs, attempts were made to intimidate him, but they were ineffectual. Having rashly struck a gentleman who had offended him within the verge of the court, he was fined in the exorbitant sum of 30,000*l.*, and being obliged to give a bond for the payment of it, this was held as a pledge against him. He then retired into the country, and employed himself in improving his magnificent house at Chatsworth, where he displayed his taste in architecture and decoration. In this retirement, however, he was not inattentive to public events; and when he observed evident indications of a set-

tled design for subverting the religion and liberty of his country, he held conferences at Whittington, a village in his neighbourhood, with lords Danby and Delamere, and others, for the purpose of effecting the revolution. On the landing of the prince of Orange, the earl of Devonshire was one of the first who declared for him. He secured the town of Derby, and at Nottingham received the princess (afterwards queen) Anne, whom he conducted to her consort at Oxford. He strenuously supported all the measures which led to the transferring of the crown to king William and queen Mary, and officiated as lord-high-steward at their coronation. In consequence of his zealous attachment to the royal pair, honours and dignities of various kinds were conferred upon him; and, in 1694, he was advanced to the titles of marquis of Hartington and duke of Devonshire. Uncorrupted by these distinctions, he maintained a parliamentary conduct, that was free and independent; and whilst he firmly supported the throne, he occasionally resisted projects which he thought to be unjust. Under queen Anne he retained all his posts; and was appointed one of the commissioners for treating on the union with Scotland. He died in August, 1707, in the 67th year of his age; and the following inscription was, by his own direction, placed upon his monument:

WILHELMUS DUX DEVON. BONORUM PRINCIPUM
FIDELIS SUBDITUS, INIMICUS ET INVISUS TYRANNIS.

*William duke of Devonshire, a faithful subject to good
princes, hating and hated by tyrants.*

In love and fighting the duke of Devonshire had a strong tincture of the gallantry of the age. His manner was dignified; his spirit bold and free. He was well accomplished in polite arts and studies; and occasionally amused himself in poetical composition, of which two pieces were published; "An ode on the death of queen Mary," and "An allusion to the bishop of Cambray's supplement to Homer." *Biog. Brit. Gen. Biog.*

CAVERIPATAM, in *Geography*, a town of Hindoostan, in the country of Mysore; 90 miles E. of Seringapatam, and 130 W.S.W. of Madras.

CAVERN. Caverns are, in a great measure, peculiar to mountains; and are seldom or never found in plains. They frequently occur in the Archipelago, and other islands; because islands generally consist of the summits of mountains. Like precipices, they are formed by the sinking or mouldering of rocks, or like abysses, by the action of fire. Caverns may be produced by the same causes which occasion gulfs, apertures, or sinkings of the earth; and these causes are explosions of volcanoes, the action of subterraneous vapours, and earthquakes, which create such commotions in the earth, as must necessarily produce caverns, fissures, and hollows of every kind. The cavern of St. Patrick in Ireland is not so considerable as it is famous; and the same observation will apply to the grotto del Cane in Italy, and to that of mount Beni-guazeval, in the kingdom of Fez, which throws out fire. In the county of Derby in England there is a very large cavern, which is much more capacious than the celebrated one of Bournan, near the Black Forest of Brunswick. The entrance to this cavern, called the "Devil's hole," is larger than the door of any church; a small river runs through it; and after advancing in it some way, the vault of the cavern sinks so low that in order to proceed farther, it is necessary to lie flat in a boat, and to be pushed through the narrow passage by people employed for the purpose; and after getting through this avenue, the roof, or arch, of the cavern rises to a great height; and

after walking a considerable way on the side of the river, the arch sinks again so low, as to touch the surface of the water. Here the cavern terminates. The river, which seems to have its source in this part of the cavern, swells occasionally, and transports heaps of sand, which, by accumulation, form a kind of blind alley, the direction of which is different from that of the principal cavern. See **PEAK, CASTLETON, and BUXTON.** Other remarkable caverns are found in the northern ridge of English mountains. In the vale of Kingsdale, on the western extremity of Yorkshire, is Yordas cave, which presents a subterraneous cascade; this cave is about 50 yards in length. But the most noted is Wethercote cave, not far from Ingelton. It is surrounded with trees and shrubs, in form resembling a lozenge, divided by an arch of limestone; in passing under which, you behold a large cascade, falling from a height of more than 20 yards; the length of this cave is about 60 yards, and the breadth 30. Among other curiosities of a similar kind, we may mention Hurtle-pot, in Yorkshire, which is a round deep cavity, near 40 yards in diameter, almost surrounded with rocks about 30 feet perpendicular above its black waters, while the overbranching trees increase the horrors of the scene. The river Ribble near its origin sinks into a deep cavern; and silently pervades the mountains for about three miles. In Carniola, near Potpechio, there is a large cavern, in which is a considerable lake. Near Adelsperg we meet with a cavern, in which a person may travel two German miles, and which contains several deep and tremendous precipices. The Mendip Hills in Somersetshire present extensive caverns, and very fine grottoes, near which are found veins of lead, and sometimes large oak trees, buried 15 fathoms deep. Wookey-hole in these hills, near Wells, is a stalactitic cavern of about 600 feet in length, divided by low passages into various apartments; one of which, called the hall, somewhat resembles a Gothic chapel, and is said to be 80 feet high; while the farthest, denominated the parlour, is of moderate height, but extensive diameter. On the north-west side of the Mendip hills is a more remarkable curiosity, which is a considerable cavern, at the bottom of a deep ravine, near the little village of Berrington or Burrington. Here are found human bones gradually incorporating with the lime-stone rock; a constant dripping from the roof and sides depositing a stalactitic sediment on the bones. Several nodules contain perfect human skulls. At the further end, where the height is about 15 feet, there is a large conic stalactite, which nearly meets a pillar rising from the floor. This cave was very lately discovered; and as the matter increases so rapidly, it is conjectured that it would soon have been closed up. Hence it is probable that these bones are of no remote antiquity, and may, perhaps, be the remains of some wretches who had taken shelter here from the cruelty of Jefferies, after the insurrection of Monmouth. In the county of Gloucester, about five miles north of Bristol, there is a large cavern called "Pen-park-hole," supposed to have been an ancient mine, at the bottom of which are thirty-two fathoms of water. M. Buffon observes, that the Devil's hole, and other caverns, from which large springs or brooks issue, have been gradually formed by the operation of the water, and that their origin cannot be ascribed to earthquakes or volcanoes. One of the largest and most singular caverns with which we are acquainted is that of Antiparos, described by Mr. Tournefort. See **ANTIPAROS.** The large cave in a mountain of Livadia, formerly famous for the oracles of Trophonius, is situated between the lakes of Livadia and the sea, from which, at the nearest part, it is distant about 4 miles; and it has no less than 40 subterraneous passages, through which the waters run under the mountains.

See **CAVE and GROTTO.** In all countries, which are subject to earthquakes or volcanoes, caverns are frequent. The structure of most of the islands of the Archipelago is exceedingly cavernous. The islands in the Indian ocean, and particularly the Moluccas, appear to be chiefly supported upon vaults. The land of the Azores, and the Canaries of the Cape de Verd islands, and, in general, of almost all small islands, is, in many places, hollow and full of caverns; because these islands, as we have already remarked, are the tops of mountains which have suffered great convulsions either from volcanoes, or by the action of the waters, of the frosts, and of other injuries of the weather. In the Cordeliers, where volcanoes and earthquakes are frequent, there are many caverns, precipices, and abysses. The famous labyrinth in the island of Crete is not the work of nature alone. M. Tournefort assures us, that in many parts it exhibits traces of the operation of men; and it is probable that this is not the only cavern which has been enlarged by art. Mines and quarries are constantly dug, and after these have been long deserted, it is not easy to determine whether such excavations have been the effects of nature or of art. Some quarries are very extensive. That of Mackricht, for instance, is sufficient to shelter 50,000 men, and is supported by more than 1000 pillars, 20 feet high; and the earth and rock above are 25 fathoms thick. The salt-mines of Poland exhibit excavations still more extensive. See **SALT.**

CAVERNOSA corpora clitoridis, in *Anatomy*, two small bodies, resembling in structure, on a small scale, the cavernosa corpora of the male penis. See **GENERATION, Organs of.**

CAVERNOSA corpora penis, two strong ligamentous tubes, filled with cellular substance, and forming the chief bulk of the male penis. See **GENERATION, organs of.**

CAVERNOSUM corpus urethrae, or more properly *corpus spongiosum urethrae*, a peculiar vascular substance surrounding the greater part of the urethra in the male subject. See **GENERATION, Organs of.**

CAVERS, in the *Language of Miners*, are any poor people that go about the mines in Derbyshire, to beg or steal ore from the miners. They are punishable in the bergmote or minery court.

CAVERY, or CAUVERY, in *Geography*, a river of Hindoostan, which rises in the Bednore country, passes by Seringapatam, Trichinopoly, &c. and discharges itself by three branches into the bay of Bengal.

CAVESAS, in *Geography*, a cluster of small islands in the Spanish main, a little to the east of Cape St. Blas. N. lat. 9° 30' to 9° 40'. W. long. 78° 20' to 78° 40'.

CAVEON, CAVEON, or CAVEZON, in *Horsemanship*, is an instrument of iron or other matter which is applied to the nose of a horse in order to tame him, by pressing hard on his nostrils and squeezing them.

The word is derived from the Spanish *Caveça*, or *Cabeça*, head.

The cavecons for breaking young horses are usually of iron, made semicircularly, of two or three pieces turning on joints; others are twisted, others are flat, others hollow in the middle, and indented like saws, called *mordants*: which last are now banished the academies. The rope and leathern cavecons serve for passing the horse between two pillars.

An iron cavecon spares a young horse's mouth in the breaking, since by means hereof he is accustomed to obey the hand, and bend the neck and shoulders, without injuring his mouth. All iron cavecons are mounted with a head stall and a throat-band, and two straps or reins, with three rings: through the middle ring, one rein is passed to make a horse work round a pillar, and through the two side rings the other two reins are passed, which the rider holds in his

hand, or fastens to his saddle to keep the horse's head in subjection.

This kind of instrument has been employed and considered from the earliest days of modern horsemanship, even to the present time, as the most effectual, and almost the only means of breaking and reducing a horse to suppleness and obedience. Cavefons are variously constructed; but they differ from each other in no essential point, except in being of different degrees of mildness or severity: and, indeed, it is astonishing to what an excess of cruelty they were carried in order to answer the latter purpose. Being tied over the nose, made of iron, and armed with sharp teeth, they harrowed and tore the poor animal in a shocking manner. Nevertheless, it was a sort of proverbial boast among the old horsemen, that a "bloody nose" made a "good mouth;" their chief intention being to restrain and bend the horse by the cavefon, and to save the mouth at the expence of the nose: at the same time encumbering the horse with both, without considering that while they thought of saving the mouth, by not making it acquainted with the bitt, it could never, till it had been properly worked and formed, be true and faithful to the hand; and that in order to be made, it must first be prepared and seasoned: and although a raw and ignorant mouth may be spoiled by a rough and injudicious hand, yet there is no natural mouth, however good, that does not require to be moulded, and wrought upon by the bitt, before it can be brought to such a temper and feeling as to act in a close and delicate correspondence with the hand which is to govern it. Upon this principle and mode of reasoning, it must follow, that if a horse is to be worked only by means of the cavefon, and the bitt is to be inactive, or slightly employed, let him be ever so well dressed to the cavefon, yet, when he comes to be rode with the bitt alone, as he ought sometimes to be, his mouth, for want of practice, will be awkward and unformed, though years may have been spent to make him otherwise complete. The cavefon, therefore, considered in the most important view of it, and allowing it the most extensive merit, should never be used but as preparatory to the bitt, and as an engine to bend and supple the horse. In this latter office, it certainly can boast a power much superior to that of the bitt, and such as must entitle it to the greatest applause, if it were not attended by one humbling circumstance, that, while it bends, it pulls down the head, and puts the horse upon his shoulders. Notwithstanding this inconvenience, it is certain, that if the services of the snaffle were not known, the cavefon would deserve much praise; and as it is very efficacious in bending and suppling the horse, it may at least dispute precedence with the bitt; but the snaffle combines both these advantages. Berenger's Hist. and Art of Horsemanship, vol. ii. ch. ii. See BITT and SNAFFLE.

CAVETTO, in *Architecture*, a hollow member or moulding containing a quadrant of a circle. It is frequently used in cornices, see *Plate XXI. Architecture*. The word is Italian, and is no more than a diminutive of *cavus*, hollow.

CAUHQ-ROY, in *Natural History*, a name given by the natives of the East Indies to a sort of fossil which they calcine, and afterwards give in large doses in the hiccough and many other complaints. It is also used in dyeing. The Indians boil it in water, and dye or stain their cloths with it, to make them appear different from others: it is a kind of ochre, or clayey iron ore, and is found in great abundance in the hills, and iron is sometimes extracted from it.

CAVIA, in *Zoology*, a genus of quadrupeds that appears to form an intermediate link between the murine, and rabbit tribes. The animals of the cavia genus have generally a slow and sometimes leaping pace, and are observed to never

climb. They live like the rest of the glires on vegetable substances, and in their natural state inhabit excavations in old trees, or burrows which they dig in the earth. The fore teeth of the cavia, which are two in number, are cuneated; the grinders eight: toes on the fore feet, from three to five; on the posterior feet, from four to five: tail either very short, or none: clavicles, or collar bones, none.

Erxleben, Buffon, Gmelin, and other authors, describe the following species of the cavia genus: *C. Paca*, Acufchy, Aguti, Laporina, Americana, Aperea, Cobaya, Patachonica, or Magellanica, and Capybara.

CAVIA *Paca*, the spotted cavy, is tailed; the feet five-toed; and the sides lined with yellowish. Erxleben.—*Mus Paca*, Linn.—*Cuniculus Paca*, Briss.—*Paca*, Marcgrave.—*Laubba*, Bancroft.

This species is near two feet in length: the form thick and clumsy, and bearing some resemblance to that of a pig, for which reason it has been sometimes called the hog-rabbit. The name *paca* is of Brazilian origin, being pronounced *Pag* by the natives of that part of South America: the French settlers in Surinam call it *lievre aquatique*, or the water hare. The head is round; the muzzle short and black; the upper jaw longer than the lower; and the lip divided like that of the hare: the nostrils are large; the whiskers long; the eyes large and prominent, and of a brown colour; the ears short, moderately large, round, and naked; the neck thick; the body very plump, larger behind than before, and covered with coarse, short, thinly scattered hair, of a dusk brown colour, deepest on the back: the throat, breast, insides of the limbs and belly, dingy white; and on each side of the body are five longitudinal series of roundish, or slightly angular spots, situated contiguous to each other. The legs are short, and the feet have five toes, four of which are armed with strong and sharp claws; that on the fifth toe being very small. The tail consists merely of a small conic projection not more than half an inch in length.

The spotted cavy inhabits Guiana, Brasil, Paraguay, and other parts of South America, and appears to be common throughout those countries, with the exception of Paraguay, where, according to M. D'Azara, this animal is very rare. It lives principally in burrows which it forms in the banks of rivers, residing in its hole during almost the whole day, and venturing out in quest of food in the night. The flesh of the *paca* is of a good flavour, and is held in esteem in South America as an article of food, but is very fat. It is easily domesticated, and in this state readily feeds on almost every kind of vegetables. The female is said to produce but one young at a birth. A variety of the *paca* entirely white has been found near the river St. Francis.

CAVIA *Acufchy*, olive cavy. Tailed, with olive-coloured body. Erxleben and Schreber.—*Acouchy*, Buffon.—*Olive Cavy*, Pennant.

This species, which is about half the size of a full grown rabbit, inhabits the woods of Guiana. By some writers the *acouchy* is considered as a variety of the *aguti*, from which it differs in being somewhat smaller, rather thinner, and entirely of an olive colour, paler, or more inclining to whitish beneath: the tail also is rather longer than in the *aguti*. Both animals are natives of the same parts of South America, and their manners are similar, except that, according to M. de Borde, it does not attempt the water like the *aguti*. M. de Borde observes that the *acouchy* produces but one young at a birth. Its voice resembles that of *Cavia cobaya*, or guinea-pig. This kind is easily tamed, and the flesh is eatable. See AKOUSCHY.

CAVIA *Aguti*, long-nosed cavy. Tailed; body tawny brown; belly yellowish; Erxleben and Schreber.—*Mus Aguti*,

Aguti, Linn.—*Caniculus agouti*, Briff.—*Agouti*, Buffon.—*Long-nosed Cavy*, Pennant.

The agouti is an inhabitant of South America, and the West Indies. It is the size of a rabbit; the body plump, and thicker behind than before; the head rather small and somewhat compressed laterally; snout long and rather sharp; nose divided at the tip, and the upper jaw longer than the lower; ears short, broad, naked, and rounded; neck rather long, but thick; legs thin, almost naked and blackish; the hind legs longer than the anterior ones, and furnished with only three toes; tail extremely short, naked, and sometimes scarcely visible; the whole of the animal covered with hard, strong, and shining hair, in general of a rufous brown colour with blackish freckles; rump orange-coloured.

Buffon observes that the agouti has the hair, grunting, and voracious appetite of the hog; and when fully satiated hides the remainder of its food, like the fox, in different places. It takes delight in gnawing and spoiling whatever it comes near. When irritated, it bites fiercely; its hair stands erect along the back, and it strikes the ground violently with its hind feet. It does not, he remarks, dig holes like the rabbit, but lives in the hollows of trees. Roots, potatoes, yams, and fruits are its principal food. It uses its fore paws, like the squirrel, in carrying food to its mouth; runs swiftly up hill, or on even ground, but its fore-paws being shorter than its hinder ones, it is in danger of falling upon a declivity. The flesh of the agouti being nearly as good as that of the rabbit, and the skin of such a durable quality, as to form an excellent upper leather for shoes, the hunting of these animals is an object of attention among the Indians and negroes. They commonly go in search of them with dogs, or take them in traps; the natives know also how to allure them by whistling or imitating their cries, and kill as many as they please. When they go among the sugar-canes they are easily taken, for sinking at every step in the straw and leaves which cover the ground, a man may easily overtake and kill them with a stick. When in the open country, it runs with great swiftness before the dogs; and having gained his retreat nothing can force him to come out but smoke; for which purpose the hunters burn faggots and straw before the mouth of the hole, but the animal seldom quits the place of his concealment till the last extremity. The young agouti is easily tamed. When in a wild state they generally dwell in the woods, where the female chooses the most obscure parts, and there prepares a bed of leaves and grass for her young. She usually brings forth two or three at a time, and in a day or two afterwards, she carries them in her mouth like a cat, into the hollow of some tree, where she suckles them for a short space of time, for they are soon in a condition to run about and provide for themselves. They multiply as fast as rabbits, producing three, four, and sometimes five young ones, during every season of the year. When in a domestic state they never remove to any great distance, and always return to the house; but constantly retain somewhat of their wild disposition. In general they remain in their holes during the night, unless the moon shines bright, but run about most part of the day. See AGUTI.

CAVIA leporina, β of Gmelin, a supposed variety of the aguti, is described by Erxleben as having a tail, and the body of a rufous colour above, beneath white.—*Mus leporinus*, *cauda abbreviata*, *palmis tetradaçylis* *abdomine albo*. Linn. Syst. Nat. 12.—*Cuniculus javensis*, &c. Briffon.—*Java hare*, Catesby.—*Javan cavy*, Pennant.

This differs from the aguti chiefly in being of a reddish colour above, with the breast and belly white; the legs are long; the posterior part large, and the tail very short. It

is the size of a hare, and is a native of Surinam and other parts of South America. Dr. Shaw observes that this is altogether an American animal, and notwithstanding its common title of the Java hare, is not found either in that island, or in Sumatra as erroneously supposed by some. See AGUTI.

CAVIA Americana, γ of Gmelin.—*Cuniculus Americanus*, Seba.—*Cuniculus*, &c. Briffon. A variety of the aguti very closely allied to the preceding, and perhaps not distinct from it. Marcgrave, and other authors after him, speak of the aguti having six toes on each of the posterior feet instead of three. A variety is also spoken of with a yellowish belly, with four toes on each of the anterior feet, and three on those behind. See AGUTI.

CAVIA Aperea, rock cavy. Tailless; body above tawny ash, coloured beneath, white.—*Cavia Aperea*, Erxleben.—*Cuniculus Brasiliensis*, *Aperea dictus*, Marcgrave.—*Rock cavy*, Pennant.

This animal is a native of Brasil. The length is one foot; its circumference, seven inches. The general colour is the same with that of our hares, and its belly is white; its upper lip is divided in the same manner, and it has the same large cutting teeth, and whiskers round the mouth, and on the sides of the eyes, but its ears are rounded like those of the rat, and so short as not to exceed a finger's breadth in height; the fore legs are about three inches in length, and the hind legs a little longer; on the fore feet are four toes covered with a black skin, and armed with small short claws; the hind feet have only three toes, the middle one of which is longest; the head is somewhat longer than that of a hare, and its flesh like that of the rabbit, which animal it resembles in its manners of living. This kind retires into holes and clefts in the rocks, whence its name of rock cavy. A variety of this species is described of a black colour spotted with tawny: other varieties differing only in colour are likewise mentioned by authors.

CAVIA Patagonica. Tail short and naked: nose with tufts of curly hair; body ferruginous-grey above; beneath, and patch on each thigh, white; rump black.—*Cavia Patagonica*, Shaw Zool.—*Cavia Magellanica*, Turt. Gmel. Syst. Patagonian cavy, Penn.—*Hare*, Narborough's Voy. to Magell. p. 33.

Sir John Narborough appears to have been the first discoverer of this species. He calls it a hare, and informs us it inhabits Patagonia, where it is by no means scarce. In size this curious animal exceeds the common hare; Mr. Pennant relates in his Hist. Quad. that it has been known to weigh more than twenty-six pounds. Its colour above resembles that of a hare; the under parts whitish; breast and sides tinged with ferruginous; on each thigh is a large oval white patch, and the rump or region round the tail is black: the ears are long, rather broad, and sharp-pointed. On each side of the nose is a tuft of short soft hair, exclusive of the vibrissæ, or whiskers. The legs are long; the claws long, straight, sharp, and of a black colour; they are four in number on the fore feet, and three on the posterior ones. Tail as in the aguti, a naked stump. The flesh is white and delicate, and is considered as an excellent food. This curious species of cavy is described from a fine specimen in the late Leverian Museum.

CAVIA Cobaya, Guinea cavy. Variegated cavy. Guinea pig. Tailless, variegated with white, rufous, and black, Schreber.—*Mus Porcellus*, *cauda nulla*, *palmis tetradaçylis*, *plantis tridaçylis*, Linn.—*Cuniculus indicus*, Nieremb. Briff. &c.—*Cavia cobaya*, Marcgr. bras.—*Cochon d'Inde*, Buff.—*Guinea pig*, Edwards.—*Refless cavy*, Penn.

Though a native of South America, the Guinea cavy lives and breeds in temperate, and even in cold countries,

provided it be taken care of, and sheltered from the inclemency of the weather. This animal is frequently reared in Europe, and though very prolific, the attention they require is but poorly rewarded by the profits derived from them. The skin is of little or no value, and their flesh, which is indeed eaten by some people, is notwithstanding very indifferent. Buffon conceives this objection might be removed by rearing them in warrens, where they might have air, space to range in, and an agreeable choice of herbs. Those kept in houses have the same kind of bad taste with the house rabbit, while the flesh of those kept in gardens during summer is less disagreeable though still insipid. They willingly feed on a great variety of vegetable substances, and may be successfully reared on parsley, cabbage, and fow-thistles. In winter they may be fed with bread, carrots, and various kinds of grain.

The guinea pig is an animal of very warm disposition, being in heat so early as five or six weeks old; their growth, however, is not completed before the end of eight or nine months. The females go with young three weeks, and they have been known to bring forth at the age of two months. The first litter consists only of four or five, the second of five or six, and afterwards they will sometimes have eleven or twelve. The female does not suckle her young more than twelve days, and when the male returns to her, which he never fails to do three weeks after she has littered, she drives them from her, and if they persist in following she often kills them. Thus these animals bring forth at least every two months, and as their young produce in the same period their multiplication is astonishing. In one year, says Buffon, a thousand might be produced from a single couple, but their consequent increase is checked by various means of destruction. They have no distinct sentiment but that of love, and when disputing for a particular female, they will shew themselves susceptible of anger, fight bitterly, and are sometimes killed in the contest before they will yield. In their quarrels they not only bite, but kick each other like horses with their hind feet. They pass their lives in eating, sleeping, and love: their sleep is short but frequent, they eat every hour, night and day, and indulge in their amours almost as often as they eat. It has been observed that the male and female seldom sleep at the same time; but seem alternately to watch each other, one sleeping while the other is feeding. They subsist on all kinds of herbs, especially parsley, which they prefer to either grain or bread; and they are also fond of apples and other kinds of fruit. Like the rabbit they eat little at a time, but precipitately and very often. They grunt like a pig; make a chirping noise when pleased with their females, and have a sharp loud cry when hurt, or irritated. They are very delicate in their constitution, and so chilly that it is difficult to preserve them through the winter, the place where they are kept during that season must be therefore warm and dry. When they feel cold, they assemble and press close together, and in this situation are sometimes found dead. They are naturally of a mild disposition, and in their manners are remarkably neat: they are frequently observed in the act of smoothing and dressing their fur in the same manner as a cat. This little animal is very easily rendered tame, but is seldom observed to shew any very lively attachment to its benefactors; neither is it distinguished by any remarkable degree of docility.

CAVIA Capybara, river cavy. Tailless; anterior feet three-toed and palmated, Schreber.—*Sus Hydrochæris*, Linn.—*Hydrochoerus*, Briss.—*Cavia capybara*, Pallas.—*Cabiai*, Buffon.—*Thick-nosed tapir*, Penn.

The capybara inhabits the eastern parts of South Ame-

rica, but is said to be more common in Brasil than in any other regions. This animal grows to the length of two feet and a half, and weighs sometimes one hundred pounds. It feeds not only on various vegetables, and particularly on sugar canes, but also on fish, in which particular it differs from most animals of the *Glires* tribe. The habits of the capybara are adapted to its mode of life; it frequents fenny woods near large rivers, swimming with the same facility as the otter, and, like that animal, dragging its prey out of the water and eating it on the bank. Its excursions in quest of prey are made principally during the night.

In general, the capybara is considered as an animal of a gentle disposition, and is readily tamed and made familiar. The female produces but one young at a birth. These animals are said to go in pairs, and are naturally shy and timid. Their voice resembles the braying of an ass. The capybara runs but indifferently, on account of the length of the feet, and therefore commonly makes its escape by plunging into the water and swimming to a great distance. Buffon supposes from the number of its teats this to be a prolific animal; but this is contradicted, and it is asserted to produce but one at a birth. The flesh has a rank and fishy taste, which renders it but an indifferent article of food.

The capybara has a large head, and a thick divided nose, with strong and large whiskers on each side; the ears are small and rounded; the eyes large and black; the upper jaw longer than the lower; in each jaw are two very large and strong cutting teeth; and the grinders, which are eight in each jaw, are divided into three flat surfaces on the upper part; the neck is very short; the body short and thick, and covered with coarse brown hair; the legs short; feet long, the foremost divided into four toes, connected to each other by means of a small web at the base, and tipped with thick claws or rather hoofs at the extremities; the hind feet are formed in a similar manner, but are divided only into three toes. This animal sometimes, while feeding, sits up, in the manner of a squirrel, holding its food between its paws. It is said to commit considerable devastation in gardens during the night time, especially among the esculent vegetables.

CAVIA Hudsonis of Klein, is the quadruped called *HYSTRIX dorsata*, by Gmelin, Schreber, and other late authors.

CAVIA Capensis of the twelfth edition of the Linnæan Syst. Nat. and of Pallas, is *HYRAX capensis* of Gmelin, and Schreber.

CAVIANA, in *Geography*, an island of the North Atlantic Ocean, under the equinoctial line, formed by the two mouths of the river Amazons, which surround it. W. long. 50° 30'.

CAVIANO, a town of Naples, in the province of Lavoro; 7 miles N. of Naples.

CAVIDOS, or *CABIDOS*, in *Commerce*, a Portuguese long measure, used in the mensuration of cloth, linen, and the like, equivalent to two feet eleven lines, Paris measure.

CAVIL, *cavillatio*, is defined by some a fallacious kind of reason, carrying some resemblance of truth, which a person, knowing its falsehood, advances in dispute for the sake of victory.

The art of framing sophisms or fallacies is called by Boethius, *cavillatoria*.

CAVILLARGUES, in *Geography*, a town of France, in the department of the Gard, and district of Uzès; 8 miles N.E. of Uzès.

CAVIN, in *Military Language*, a hollow place or spot of ground fit for covering a body of troops or favouring the approaches to a place. Cavins near a place besieged are of great advantage

advantage to the besiegers, as by means of them they can open the trenches nearer to it, construct places of arms, and station parties of cavalry for the protection of the workmen under cover from the fire of the place. A commandant or governor of a place, who attends to his duty and understands it properly, will know how to turn cavins to the disadvantage of the enemy, from the moment he perceives that the place he commands is menaced or in danger of being attacked.

CAVING. See CAVAZION.

CAVINGS, in *Agriculture*, a term provincially applied to the rakings or coarse materials, as short straws, ears of grain, &c. collected from the corn in chaff, while thrashing.

CAVING CHAFF, the coarse chaffy straw or other similar material raked off from the grain after the operation of thrashing.

CAVING RAKE, the tool or implement employed in the above operation, and which is a sort of barn floor rake with a short head and teeth of considerable length.

CAVITA, in *Geography*, a port town of the island of Luçon, or Luconia, 3 leagues S. W. from Manilla, the capital of the island. It was formerly a very considerable place; but as the great towns in the Philippine islands, as well as in Europe, exhaust the small ones, there now remain in this place only the commandant of the arsenal, a contador or accountant, two port lieutenants, the commandant of the town, 150 soldiers in garrison, and the officers belonging to that corps. All the other inhabitants are metis (a species of mulattoes, half black, or the immediate offspring of a white man with a black woman), belonging to the arsenals, and form, together with their families, which are generally very numerous, a population of about 4000 inhabitants divided between the town and the suburb of St. Roch. There are two parishes, and three monasteries for men, each occupied by two ecclesiastics, though 30 might easily be accommodated. The Jesuits had formerly a very fine house, of which the trading company, established by the government, has obtained possession. In general, nothing is now seen here but ruins: the ancient edifices of stone are deserted, or occupied by Indians, who never repair them; and Cavita, the second town in the Philippine islands and capital of a province of the same name, is now only a paltry village, uninhabited by Spaniards, except the military officers, and those of the civil administration. In the port belonging to this town, the commander has established an order and discipline which give it great reputation. La Perouse's Voyage, vol. i. p. 269, &c.

CAVITY, in *Anatomy*, is a term applied to several hollow spaces, lined by membranes and containing the different viscera of the body. As the extent of these cavities is bounded and defined by the membranes, which line them, and they have no external communication, they are frequently called the circumscribed cavities of the body. These spaces are in every instance completely and accurately filled by the contained viscera; which generally have their surface covered by a reflected portion of the membrane which lines the cavity.

The surface of the viscera is in contact with that of the lining membrane, but is prevented from becoming actually adherent, by the secretion of a fluid from the exhalant arteries, by which the opposed surfaces are constantly preserved in a moist state. Hence it will be seen that the anatomical term cavity, in the sense which we have now mentioned, does not denote any void or empty space, and that it differs in that respect from the common acceptation of the term. The following cavities of this kind are found in the body: Cavity of the Abdomen; Pelvis; Pericardium; Thorax;

and Tunica vaginalis testis; for a particular description of which the reader is referred to those articles.—The various joints of the body present examples of similar cavities; they are lined, and circumscribed by the capsular ligaments.

The word cavity is also frequently employed in osteology: where it is not only applied to larger and more circumscribed spaces, as cavity of the cranium, cavity of the orbit, but also to the comparatively superficial impressions which contribute to the formation of joints, and which are denominated articular cavities of the bones. The same term is applied to the space included in any hollow part of the body; thus we have cavities of the heart, of the arteries and veins, of the stomach, intestines, &c. &c.

CAUK, or CAWK, formed probably of the German *kaalk*, spar, is used by miners in the Peak, to denote a coarse sort of spar; being a vitriolated ponderous earth, or marmor metallicum, generally found near lead mines, which will draw a white line like chalk, or the galactites. Phil. Transf. N° 110, p. 226. Ibid. N° 39, p. 770. It is unfusible in acids, and fusible by fire. See EARTH, *ponderous*.

It is properly no other than a sparry matter, rendered very coarse, by being mixed with a large portion of earth. In some places it is found more clear and transparent than in others: it approaches in this state to the nature of crystal, and is called ballard cauk, and bright cauk. Philos. Transf. N° 407.

There is a singular process mentioned by Dr. Lister, which is that of vitrifying antimony by its means. This is done with great readiness and speed by it, and the glass, thus made, will produce some effect on other metals, which no other glass will, nor indeed any other preparation of antimony. The method of preparing it is this; take a pound of antimony, flux it clear; have in readiness an ounce or two of cauk in a lamp red hot; put it into the crucible to the melted antimony, and continue it in fusion: then cast it into a clean mortar not greased, decanting the clear liquor from the lump of cauk. This process gives more than fifteen ounces of glass of antimony, like polished steel, and bright as the most refined quicksilver. The cauk, in the mean time, is found to be diminished, not increased in its weight, and will never flux with the antimony, though ever so strong fire be given it. This is a very odd mineral, and this learned author supposes it to be allied to those white, milky, and mineral juices which are found in mines. The effect of both is evidently the same; for the milky juice of lead mines vitrifies the whole body of antimony, in the same manner that the cauk does in this experiment. Phil. Transf. N° 110.

That there is somewhat very peculiar in the cauk is plain from this effect on antimony, which no other thing of this kind is possessed of; for lapis calaminaris, sulphur vivum, galactites, mundicia, alum ore, spar, and many other things, have been tried with antimony in the same manner, but not one of them has this effect.

CAUKING, in *Architecture*, signifies dove-tailing down. See DOVE-TAILING.

CAUKING time, in *Falconry*, a hawk's treading time.

CAUKING, or CALKING a ship. See CAULKING.

CAUL, in *Anatomy*, is the part generally described under the term OMENTUM. See PERITONEUM.

CAUL, or CAULE, among *Mineralists*, a reddish pink-coloured stone, found in the strata of the tin-mines. See TIN.

CAULCI, in *Ancient Geography*, a people of Germany placed by Strabo towards the ocean.

CAULEDON, from *καυλος*, a stem, in *Surgery*, is applied to fractures which happen transversely, wherein the parts of the

the broken bone start afunder, so as not to lie directly against each other.

CAULESCENT, in *Botany*, a term applied to such plants as have a stem.

CAULIAC, *GUY DE*, or *GUIDO DE CAULIACO*, in *Biography*, a celebrated restorer of the art of surgery, was born at a small town in the Gavandon, on the frontiers of the province of Auvergne, in the early part of the fourteenth century. He studied medicine at Montpellier under Raimond de Molieres, and made such progress that he was early appointed teacher in surgery in that university. He was thence sent for to Avignon, and made physician to Pope Clement the Sixth. This was in the year 1348, at which time a dreadful pestilence broke out, which visited every part of the then known world, and destroyed, it was thought, nearly a fourth part of its inhabitants. Under this prince, whose confidence he gained by his diligence and skill in the performance of his duty, he acquired considerable wealth; and with this wealth, such reputation for his abilities, that he was retained in his office of chief physician to the court, under Innocent the Sixth, and Urban the Fifth. It was during the pontificate of Urban, in the year 1363, that he composed or completed his "*Magnam Chirurgiam*," which gained him such reputation, that Fallopius does not hesitate to compare him to Hippocrates. Cauliac not only restored the surgery that had been taught by the Greeks and by the Arabians, but, what Carpus did in anatomy, he improved what he found, and added considerably from his own stock. He first, Douglas says, taught that incisions over the eyebrows should be made longitudinally in the direction of the fibres of the muscles. He also described more accurately than had been done before, the lower end of the humerus, and the joint of the elbow. He revived the use of the trepan, and invented several instruments, of which he gave the figures; among them, a pair of forceps, to take up wounded arteries. His work may be considered, Haller says, as an abridgment of all that had been done on the subject of surgery before his time; it also contains the names and the practice of several writers on the art, whose works have perished, and who are not noticed by any other writer. His work, originally written in the Latin language, has been printed many times, and translated into all the modern languages. The first impression of it appeared at Venice, in the year 1490. in folio; an English translation of it was published in 1541. fol. A copy of this edition was in the library of Sir Hans Sloane, now in the British Museum. Laurence Joubert published a translation of it into the French language, with explanatory notes and observations, at Lyons, in the year 1585. 4to. Haller Bib. Chirurg. Eloy. Dict. Hist.

CAULIAS, an appellation given to the juice drawn from the stalk of the silphium, contradicting distinguished from that drawn from the root of the same plant, which is called rhizias.

Schroder makes the caulias the same with our assafoetida.

CAULICI, in *Ancient Geography*, the name of a nation which inhabited the coast of the Ionian sea. Steph. Byz.

CAULICOLES, **CAULICULI**, in *Architecture*, denotes those eight lesser branches, or stalks, in the Corinthian capital, which spring out from the four greater principal caules, or stalks.

The word comes from the Latin *caulis*, the stalk, or stem of a plant.

The volutes of this order are sustained by four caules, or primary branches of leaves; from which arise these caulicoles or lesser foliages.

Some authors confound the caulicoles with the volutes

themselves; some with the helices in the middle, and some with the principal stalks whence they arise.

CAULIFEROUS HERBS, are such as have a true caulis, stalk, or trunk, which a great many have not; as the capillaries, &c.

They are sometimes divided into *cauliferous*, and *acaulesc.*

The former are either perfectly cauliferous, as cabbage; or imperfectly, as mosses.

CAULIFLOWER, in *Botany*. See **BRASSICA GLERACEA**.

CAULIFLOWER, in *Gardening*, an esculent plant belonging to the genus *Brassica*. It is said to have been first brought to this country from the island of Cyprus. By cultivation, this fine vegetable has lately been much improved in size, as well as in its other properties, and become common at our tables during the greatest part of the summer months, and even in the beginning of the autumn. See **BRASSICA**.

CAULINE, in *Botany*, a term applied to the leaves, &c. of plants when they proceed from the stem, in contradistinction to those which proceed from the root or branches.

CAULINIA, (in honour of Filippo Cavolini, a Neapolitan gentleman, author of several works on botany and zoology,) a genus separated from *Najas* by Willdenow, and described by him in a dissertation published in the memoirs of the Royal Academy of Berlin, 1801, and republished in the *Annals of Botany*, vol. 2. Class and order, *monæcia monandria*. Nat. Ord. *Inundata*, Linn. *Naiades*, Juss.

Gen. Ch. Male. *Cal.* none. *Cor.* none. *Stam.* filament none: anther oblong, dehiscent at the tip. Female. *Cal.* none. *Cor.* none. *Pist.* germ egg-shaped: style filiform, caducous; stigma bifid. *Peric.* capsule oblong, one-seeded. Seed oblong, egg-shaped.

Sp. 1. *C. fragilis*. Willd. Ann. Bot. vol. ii. tab. 1. fig. 2. (*Najas* γ. Linn. Sp. Pl. N. Minor. Allion, Pedem. 2106. Schkuhr Bot. Hand. 3. tab. 296. *Fluvialis minor*. Micheli gen. tab. 8. fig. 3.) "Leaves ternate or opposite, linear awl-shaped, recurved, prickly-toothed, rigid." *Roots* filiform, quite simple, very long and perpendicular. *Stem* from one to seven inches long, branched from the base, diffusely ascending; branches dichotomous, smooth, compressed. *Leaves* 3½ inch long or more, acute, proceeding from a roundish membranous sheath; teeth alternate, mucronate. *Flowers* axillary; stigmas one, two or three. The whole plant is very brittle; so much so that when fresh, the stalk and leaves will break to pieces if touched by the hand. A native of lakes and rivers in Italy, France, and Germany. 2. *C. indica*. Willd. Ann. Bot. tab. 2. "Leaves ternate or opposite, linear, awl-shaped, repand; younger ones bristly-toothed." *Stem* a foot and half or two feet long, swimming, round, filiform, dichotomously branched. *Leaves* spreading, straight. *Flowers* axillary, sessile: germ oblong; style filiform: stigmas two, simple. It differs from the preceding species in being large, flexible, and not in the least brittle: its leaves are not recurved; when young, they have sharp, bristle-shaped teeth, which afterwards drop off, whence the full grown leaves become sinuose at the border. A native of Tranquebar. 3. *C. flexilis*. Willd. Ann. Bot. tab. 1. fig. 1. "Leaves in sixes, linear, toothed at the tip, spreading." *Stem* a foot long, somewhat dichotomous, branched, filiform, round. *Leaves* in whorls, sheathing quite entire towards the bottom. *Flowers* axillary, sessile; germ oblong; style filiform; stigmas two, simple. A native of Pennsylvania. The whole plant in all the species is constantly immersed in water.

CAULIS,

CAULIS, in *Botany*, *καυλος*, Gr. as defined by Theophrastus, is that part of a plant which rises above the ground in a single stock, and is common to annuals and perennials, though, as the venerable botanist observes, in trees it has a peculiar name, and is called *στέλεχος*, or trunk, in the common English sense of the word. The Latin writers seem to confine the term to the stem of herbaceous plants. According to Linnæus, in his *Philosophia Botanica*, it is a species of trunk in its most extensive signification; denoting, in the language of the great Swedish botanist, the organ which multiplies the plant, or, in plainer language, that part in every plant which rises above the ground, and supports the parts of fructification, either with or without branches and leaves. See **TRUNK**.

The *caulis* or stem, in the Linnæan sense of the word, is the most common kind of trunk, that which supports some of the leaves, as well as the fructification: but Willdenow, in his *Principles of Botany*, confines the term to herbaceous plants, and considers the trunk as peculiar to trees and shrubs.

Stems are distinguished from each other as they are,

1. *Simple*, or proceed in a single unbroken form nearly to the summit of the plant: In this point of view they are either quite entire, i. e. without branches; or nearly so, i. e. furnished with only a comparatively few branches, and those so small as not to destroy the integrity of the stem.
2. *Compound*; so subdivided as nearly to lose the appearance of a stem.
3. *Dichotomous*; always divided into pairs as in viscum album, mistletoe, valeriana locusta, corn salad, &c.
3. *Flexuose*, or bending in a zigzag manner, so as to form a number of alternate curves or very obtuse angles.
4. *Climbing*, (scandens;) too weak to support itself, and therefore seeking support from other bodies.
5. *Twining*, (volubilis;) ascending in a spiral direction round the stem or branches of another plant, or any kind of foreign prop. In some plants, as in humulus, helixine, Ionicera, and tamus, the direction is from left to right, i. e. according to the course of the sun as seen by a spectator in our hemisphere with his face to the south: in others, as convolvulus, plaseolus, &c. from right to left, or opposite to the course of the sun.
6. *Erect*; nearly perpendicular.
7. *Nodding*; with the upper part bent outwards towards the horizon.
8. *Incurved*; with the upper part bent inwards.
9. *Declining*; bent downwards so as to form an arch.
10. *Ascending*; growing first in an horizontal direction, and afterwards curving upwards.
11. *Procumbent*; feeble and resting on the ground.
12. *Decumbent*; upright near the root, but afterwards bent down, so that the greatest part of it is procumbent.
13. *Creeping*, (repens); running along the ground, and here and there throwing out roots.
14. *Sarmentous*; filiform, almost naked; or having leaves in bunches only at joints or knots where it strikes root.
15. *Rooting*, (radicans); throwing out lateral radicles, by which it attaches itself to other plants for sustenance or support; as in cuscuta, and hederæ helix.
16. *Parasitical*; growing entirely on other plants; as viscum, epidendrum, tillandria.
17. *Articulated*; having joints at certain distances.
18. *Knotty*, (nodosus); swollen at the joints.
19. *Geniculated*; knee-jointed, bending at the joints somewhat in the manner of the human knee.
20. *Round*, (teres); cylindrical, without angles.
21. *Half round*, (semiteres); round on one side, and flat on the other.
22. *Compressed*; having two opposite flat sides.
23. *Ancipital*; two-edged, compressed with sharp edges.
24. *Angular*; having more than two angles separated by angular or curved hollow spaces.
25. *Triquetrous*, &c. three-sided, &c. having the spaces between the angles perfectly flat.
26. *Trigonus*, &c. having the spaces between the angles convex. Linnæus is by no means clear in his definitions of the last three terms, and is differently understood by different authors. We have

endeavoured to construct ours so as to convey distinct and precise ideas: premising however, that an attention to the etymology of the words is more likely to confound than to enlighten; but for this we are not answerable.

27. *Winged*, (alatus); with a membranous dilatation on each side.
28. *Furrowed*, (sulcatus); fluted or grooved, marked with deep, broad, longitudinal channels.
29. *Striated* or *streaked*; scored with shallow, slender, longitudinal lines.
30. *Even*, (lævis); with a level surface, i. e. not furrowed or striated.
31. *Rugged* or *scabrous*; rough with tubercles, or prominent stiffish points.
32. *Muricated*; armed with sharp awl-shaped points.
33. *Smooth*, (glaber); with a polished surface, free from every kind of roughness.
34. *Tomentous*; covered with soft hairs so interwoven as to be scarcely discernible.
34. *Villous*; covered with soft close hairs, forming a fine nap or pile like velvet.
35. *Hispid*; beset with stiff bristles.
36. *Sheathed*, (vaginatus); surrounded with the lower part of the leaves.
37. *Perfoliate*; passing through the leaves, as in bupleurum rotundifolium, expressly called in English thorough-wax.

CAULKING, **CAUKING**, or **CALKING**, in *Ship Building*, the operation of driving a quantity of oakum, or old ropes untwisted and drawn asunder, into the seams of the planks, or into the intervals where the planks are joined to each other in the sides or decks of the ship, in order to prevent the entrance of water. After the oakum is driven very hard into these seams, it is covered with hot melted pitch or resin, to keep the water from rotting it. The first among the ancients, who made use of pitch in caulking, were the inhabitants of Phœnicia, afterwards called Corsica. Wax and resin appear to have been commonly used previous to that period; and the Poles, at this time, use a sort of unctuous clay for the same purpose. Kennet derives the word from the barbarous Latin *calcatura*, *shoeing*.

CAULKING Irons, are iron chisels for driving the oakum into the seams. Some of these irons are broad, some round, and others grooved.

CAULNE, in *Geography*, a town of France, in the department of the North Coasts, and district of Dinas; $3\frac{1}{2}$ leagues S.W. of Dinas.

CAULON, **CAULONIA**, or **VALLONIA**, in *Ancient Geography*, a small town of Italy, situate on the east coast of Brutium, N. of Locri, and S.W. of the promontory Cocintum. It was founded by a colony of Achæans, and for a time made a part of the territory of the Locrians Epizephyrians. This city was demolished, and its inhabitants transported into Sicily by Dionysius the tyrant about 400 years B.C. Ovid and Virgil mention it; but it did not subsist in the time of Ptolemy.

CAUM, a place of Spain, marked, in the Itinerary of Antonine, between Osca and Mendiculaia.

CAUMANA, one of the branches of the river Indus, near its mouth, according to Arrian.

CAUMONT, in *Geography*, a town of France, in the department of the Calvados, and chief place of a canton, in the district of Bayeux; 4 leagues S.S.W. of Bayeux. The place contains 2151, and the canton 11,836 inhabitants: the territory includes 170 kilometres and 20 communes.

CAUNE, **LA**, a town of France, and principal place of a district in the department of the Tarn; 7 leagues E.N.E. of Castres. The place contains 2488, and the canton 7351 inhabitants: the territory comprehends 285 kilometres and 8 communes.

CAUNES, **LRS**, a town of France, in the department of Aude, and district of Carcassonne; 7 leagues W.N.W. of Narbonne, and $3\frac{1}{2}$ N.E. of Carcassonne.

CAUNENUS, in *Ancient Geography, a see of Asia Minor, in Lycia.*

CAUNGA,

CAUNGA, in *Botany*, Rheed. Mal. See ARECA *Catechu*.

CAUNGLASS-POINT, in *Geography*, a cape on the southern coast of Dingle bay, county of Kerry, Ireland. N. lat. $51^{\circ} 58'$. W. long. $10^{\circ} 8'$.

CAUNI, in *Ancient Geography*, a people of Mauritania, according to Ptolemy.

CAUNIA, the inhabitants of CAUNUS.

CAUNSA-HEAD, in *Geography*, a cape of the county of Kerry, Ireland. N. lat. $52^{\circ} 8' 30''$. W. long. $10^{\circ} 19'$.

CAUNUS, (Sphinx) in *Entomology*, a variety of the Fabrician SPHINX *Andromacha*, is described by Cramer under this name.

CAUNUS, in *Ancient Geography*, *Moncao*, a mountain of Spain, placed by Livy in Celtiberia.—Also, a town in the island of Crete. Steph. Byz.—Also, a town of Æolia.—Also, a town of Asia Minor, in Ionia.—Also, a town of Caria, on the southern side of the Doride, called “Rhodiorum” or of the Rhodians. It was situated at the foot of mount Tarbelus, W. of the small gulf of Glaucus. The air was proverbially insalubrious in summer and autumn, on account of the extreme heat, and the evil was increased by the abundance of its fruits. Steph. Byz. says, that this city took its name from Caunus, known in fabulous history for his incestuous love of his sister Bilbilibis; whence the proverb denoting this sort of attachment, viz. ὁ Καυνὸς ἔργος, *Caunius Amor*. This city was the native place of the celebrated painter Protegenes. The citadel, according to Strabo, was above the town, and called “Imbros.” It has been conjectured that the ancient Caunus has been occupied by the town now called Kaignez.

CAUPHIACA, a town of Persia, in the interior of the country, according to Ptolemy.

CAURALE, *Buffon*, and CAURALE *Snipe*, of Latham, in *Ornithology*. See ARDEA HELIAS of Pallas and Gmelin.

CAURANANI, in *Ancient Geography*, a people of Arabia Felix, whose name denotes their wealth in cattle, according to Pliny.

CAURASIÆ, a people of Spain, in Bætica.

C. AUREUM, in *Entomology*, a species of PAPILIO, the wings of which are indented, tailed, fulvous with black spots; posterior pair marked beneath with a golden C. Fabricius. This insect inhabits Asia.

CAURIENSES, in *Ancient Geography*, a people of Spain in Lusitania, according to Pliny, who inhabited the town called by Ptolemy *Caurium*; which M. d’Anville places in the country of the Vettones, N.E. of Norba Cæsarea.

CAURIS, in *Conchology*, a name by which certain authors formerly distinguished shells of the CYPRÆA genus. The word cauris is of Indian origin, being the name by which the small *money-couries* are known among the natives of the West Indian islands. It is from a false pronunciation of the word cauris, that these shells are now called *couries* or *gowries*. See CYPRÆA.

CAURO, in *Geography*, a town of the island of Corsica, or the department of Golo; 9 miles E.S.E. of Ajazzo.

CAURROY, FRANCIS EUSTACHE DU, in *Biography*, an eminent French musician, was born in 1549; and became master of the chapel to the kings Charles IX. Henry III. and IV., and also canon of the holy chapel in Paris, and prior of St. Aioul. By his contemporaries he was named the prince of musicians; and he was much beloved by cardinal du Perron, who frequently wrote verses for him to set to music, and composed a pompous epitaph for his tomb. He died in 1629, and was buried in the church des Grands Augustins at Paris. Of his works, which seem never to

have been known out of France, there remain a “Mafs for the Dead,” for four voices, which used to be sung annually in the cathedral of Paris, on the commemoration of the faithful deceased; and a book called “*Melanges de la Musique de Eustache du Caurroy*,” Paris, 1610. This last is said to be the origin of most of the Christmas carols sung in France. The merits of this composer will appear to a modern musical critic to have been much over-rated. Burney’s *Hist. of Music*, vol. iii.

CAURSINES, *Caurfini*, in *English History*, denote Italian bankers or money-changers, who flocked into England, France, and the Netherlands, about the year 1235, calling themselves the pope’s merchants, but, by departing from the proper business of merchants, and becoming agents for the pope in his usurious transactions, they rendered themselves as odious as the Jews. According to Matthew Paris, a contemporary historian, they sometimes exacted no less than 60 per cent. interest per annum. This, together with their ostentatious display of their riches, drew upon them a very severe prosecution. They were several times banished the kingdom for their extortions, and re-admitted by the interest and intrigues of the popes. Mat. Paris. *Hist. Ang.* p. 403. Du-Cange.

They are also called *caorcini*, *coarcini*, *catarcini*, *carwarcini*, and *corfini*. Some will have the name formed from *Caorsi*, *Cabors*, a city of France, where they flourished more than ordinarily. Others derive it from the *Corfini*, a family of wealthy merchants at Florence.

CAUS, in *Ancient Geography*, a village of Peloponnesus, in Arcadia, and in the country of Telephusia. According to Steph. Byz. and Pausanias, Æsculapius was worshipped here under the appellation of “*Causian*.”

CAUSA *Matrimonii prælocuti*, in *Law*, a writ that lies when a woman gives land to a man in fee, or for life, to the intent he shall marry her, and he refuses to do it in a reasonable time: and in such case for not performing the condition, the entry of the woman into the lands again has been adjudged lawful. The husband and wife may sue this writ against another, who ought to have married her.

CAUSA *Nobis significas*, a writ directed to the mayor of a town, &c. who being by the king’s writ commanded to make seisin of lands to the king’s grantee, delays doing it. The writ requires him to shew *cause* of the delay.

CAUSALITY, or CAUSATION, in *Metaphysics*, the power or action of a cause in producing its effect.

It is a dispute among the school-philosophers, whether, and how the causality is distinguished from the cause and effect? Some held it a mode, or modal entity, superadded to the cause, &c. others contend for its being the cause itself, only considered *principiatively* and *terminatively*, &c. See CAUSE.

CAUSALTY, in *Metallurgy*. See CASUALTY.

In the tin-works the causality is thrown in heaps upon banks, which in six or seven years they work over again, and receive a new supply of metal from it. Phil. Trans. N° 138. p. 952.

CAUSE, CAUSA, that which contributes to the production of an effect; or that by virtue whereof a thing is done, or from which it proceeds.—In which sense, *cause* stands essentially related to effect.

In every part of natural philosophy, it is assumed as a fundamental principle or axiom, that no event or change comes to pass merely of itself, that is, without relation to any thing else; but that every change stands related to, and implies the existence and influence of something else, in consequence of which such change came to pass, and which may be regarded as the principle, beginning, or source of the change

change referred to it. Accordingly, the term *cause* is usually employed to denote the supposed principle of change; and the term *effect* is applied to the change considered in its relation to the principle of change whence it proceeded; for it must be observed, that both these terms, as commonly used, are relative. The axiom or principle, to which we have above referred, is usually thus expressed; "For every effect there must be a cause:"—"Nothing exists, or nothing comes to pass, without a cause:"—*Nihil turpius philosopho quam fieri sine causa quicquam dicere.*" This principle, which is the foundation of natural philosophy, has been regarded both as a physical and as a metaphysical axiom: physical, as expressing an important general fact with respect to the material world; metaphysical, as expressing a corresponding law of human thought, or something which all men of competent judgment think, and cannot help thinking. This axiom, however, though it must be admitted as unquestionably true, has not precluded a difference of opinion with regard to the meaning of the term *cause*, and the relation conceived to subsist between *cause* and *effect*. Mr. Hume is represented by Dr. Reid, as the first author, who maintained (*ubi infra*), that we have no other notion of a cause, but that it is something prior to the effect which has been found by experience to be constantly followed by the effect; but it will appear in the sequel of this article, that a similar opinion, at least with regard to physical causes and effects, had been maintained long before, as well as after his time. Accordingly, his theory regarded events as simply conjoined, and not connected together by any conceivable process, nor produced the one from the other by any operative principle. As all our reasonings concerning matter of fact seem to be founded on the relation of "cause and effect," it is of importance to investigate, and, if possible, to ascertain this relation. Mr. Hume affirms, as a general proposition, admitting of no exception, that the knowledge of this relation is not, in any instance, attained by reasonings *a priori*; but arises entirely from experience, when we find, that any particular objects are constantly conjoined with each other. Let an object, says this acute writer, be presented to a man of ever so strong natural reason and abilities; if that object be entirely new to him, he will not be able, by the most accurate examination of its sensible qualities, to discover any of its causes or effects; nor, he says, can our reason, unassisted by experience, ever draw any inference concerning real existence and matter of fact. This proposition, he alleges, will readily be admitted with regard to such objects, as we remember to have been once altogether unknown to us; since we must be conscious of the utter inability, which we then lay under of foretelling what would arise from them. Such events as bear little analogy to the common course of nature, are also readily confessed to be known only by experience. The case is the same, when an effect is supposed to depend upon an intricate machinery, or secret structure of parts, for we then do not hesitate in attributing all our knowledge of it to experience. But the same truth may not appear to have the same evidence, with regard to events which have become familiar to us from our first appearance in the world, which bear a close analogy to the whole course of nature, and which are supposed to depend on the simple qualities of objects without any secret structure of parts. Such effects we are apt to imagine that we may be able to discover by the mere operation of our reason, without experience. But, in order to convince us that all the laws of nature, and all the operations of bodies, without exception, are known only by experience, Mr. Hume suggests a variety of reflections. The mind, he says, can never possibly find the effect in the

supposed cause, by the most accurate scrutiny: for the effect is totally different from the cause, and consequently can never be discovered by it. And as the first imagination or invention of a particular effect, in all natural operations, is arbitrary, where we do not consult experience; so must we also esteem the supposed tie or connection between the cause and effect, which binds them together, and renders it impossible, that any other effect could result from the operation of that cause. Moreover, after we have experience of the operations of cause and effect, our conclusions from that experience are not founded on reasoning, or any process of the understanding. For the author's illustration of this remark, and the evidence adduced in support of it, we must refer to his own train of arguments *ubi infra*. Experience, says Dr. Brown, can inform us only of the past. But the relation of cause and effect has reference to *future* and *invariable* antecedence and sequence, of which our experience can inform us. We believe it indeed, irresistibly; and the belief is not denied; it is only the attempt to found the belief on reason which this proposition opposes. He who asserts, that *A will always be followed by B*, asserts, *more* than he who asserts, that *A has always been followed by B*; and it is this addition which forms the very essence of the relation of cause and effect. Neither of the propositions includes the other; and, as they have no agreement, *reason*, which is the *sense of agreement*, cannot be applied to them. Till it be shewn, that the future is involved in the past, we must allow the truth of Mr. Hume's second proposition, that even after experience, the relation of cause and effect cannot be discovered by *reason*. Mr. Hume advances, in the course of his reasoning on this subject, a third proposition, which is, that the relation of cause and effect is an object of belief alone; and this, it has been said, must be admitted, if the two former propositions be received. This belief, not the result of reason, is derived from our nature, and, in its operation, is as certain and powerful as if it were an inference established by a reasoning process. As soon as we believe the relation of cause and effect, the idea of power arises; which idea consists not in the antecedence of one event to another, which has been uniform in all preceding cases, but in the uniform and invariable antecedence that shall take place in all future cases.

A *cause*, says Dr. Priestley, a late zealous advocate for the doctrine of necessity, cannot be defined to be any thing but "such previous circumstances as are constantly followed by a certain effect;" the constancy of the result making us conclude, that there must be a sufficient reason in the nature of things, why it should be produced in those circumstances.

Another ingenious writer (professor Dugald Stewart) who seems to have adopted Hume's general theory with regard to causation, as it respects physical causes, observes, as a fact pretty generally admitted among philosophers, that there is no instance in which we are able to perceive a necessary connexion between two successive events; or to comprehend in what manner the one proceeds from the other. From experience, indeed, we learn that there are many events, which are constantly conjoined, so that the one invariably follows the other; but it is possible, for any thing we know to the contrary, that this connexion, though a constant one, as far as our observation has reached, may not be a necessary connexion; nay, it is possible, that there may be no necessary connexions among any of the phenomena we see: and if there are any such connexions existing, we may rest assured that we shall never be able to discover them. This author remarks that the word *cause* is used, both by philosophers and the vulgar, in two senses that are widely different. When it is said, that every change in nature indicates the operation of a

cause, the word *cause* expresses something which is supposed to be necessarily connected with the change; and without which it could not have happened. This may be called the *metaphysical* meaning of the word; and such causes may be called *metaphysical* or *efficient* causes. In natural philosophy, however, when we speak of one thing being the cause of another, all that we mean is, that the two are constantly conjoined; so that when we see the one, we may expect the other; these conjunctions we learn from experience alone; and without an acquaintance with them, we could not accommodate our conduct to the established course of nature. The causes, which are the objects of our investigation in natural philosophy, may, for the sake of distinction, be called *physical* causes. This doctrine, says this ingenious writer, concerning the object of natural philosophy, is not altogether agreeable to popular prejudices. It is a curious question, what gives rise to prejudices of this kind? In stating the argument for the existence of the deity, several modern philosophers have been at pains to illustrate that law of our nature, which leads us to refer every change we perceive in the universe to the operation of an efficient cause. This reference is not the result of reasoning, but necessarily accompanies the perception, so as to render it impossible for us to see the change, without feeling a conviction of the operation of some cause by which it was produced; much in the same manner in which we find it to be impossible to conceive a sensation, without being impressed with a belief of the existence of a sentient being. Hence it is, as professor Stewart conceives, that when we see two events constantly conjoined, we are led to associate the idea of causation, or efficiency, with the former, and to refer it to that power or energy by which the change was produced; in consequence of which association, we are led to consider philosophy as the knowledge of efficient causes; and lose sight of the operation of the mind, in producing the phenomena of nature. By an association somewhat similar, we connect our sensations of colour with the primary qualities of bodies. In the same way we associate with inanimate matter the ideas of power, force, energy, and causation; which are all attributes of mind, and can exist in a mind only. Our language also, with respect to cause and effect, is borrowed by analogy from material objects; and hence we transfer to certain events the same language which we apply to connected objects. Thus, we speak of a connection between two events, and of a chain of causes and effects. This language is purely analogical, and our knowledge of physical events is restricted to the laws which regulate this succession; and yet it has misled the greater part of philosophers, and has had a surprising influence on the systems, which they have formed in very different departments of science. The maxim that nothing can act, but where it is and when it is, has been always admitted with respect to metaphysical or efficient causes. Whatever objects, says Mr. Hume, are considered as causes or effects, are contiguous; and nothing can operate in a time or place which is ever so little removed from those of its existence; we may therefore, he adds, consider the relation of contiguity as essential to that of causation. But admitting this maxim in relation to causes which are efficient, and which as such are necessarily connected with the effects, there is surely no good reason, professor Stewart conceives, for extending it to physical causes, of which we know nothing, but that they are the constant forerunners and signs of certain natural events. According to this doctrine, indeed, it may be improper to retain the expressions, cause or effect, in natural philosophy; but as long as the present language upon the subject continues in use, the propriety of its application, in any particular instance, does not depend on the contiguity of the two events in place or time, but solely on this question, whether the one event be the

constant and invariable forerunner of the other, so that it may be considered as its infallible sign? Notwithstanding, however, the evidence of this conclusion, philosophers have in general proceeded upon a contrary supposition; and have discovered an unwillingness, even in physics, to call one event the cause of another, if the smallest interval of space or time existed between them. In the case of motion, communicated by impulse, they have no scruple to call the impulse the cause of the motion; but they will not admit that one body can be the cause of motion in another, placed at a distance from it, unless a connexion is carried on between them, by means of some intervening medium.

Mr. Hume's theory on the subject of causation, and the relation between cause and effect, has occasioned alarm, and excited an apprehension that it sapped the foundation of those arguments and processes of reason, by which the existence and superintendence of a Deity are illustrated and established. Hence its truth has been disputed and denied; and without considering that the fallacy of the system does not consist in his premises, but in the conclusion which he draws from them, it has been represented as favourable to infidelity. But it ought to be recollected, that the principle which has been frequently ascribed to Mr. Hume as its author, both by his followers and his opponents, or that of restricting the physical inquirer from tracing necessary connections or ascertaining the efficient causes of phenomena, is of a much earlier date, and has been maintained by many of the most enlightened and the least sceptical of our modern philosophers; nor does its dangerous tendency seem to have been suspected till the publication of Mr. Hume's writings, and the gross misapplication which he made of his premises for invalidating the argument for the existence of the Deity derived from his works. An opinion coinciding remarkably with that advanced and illustrated by Mr. Hume is ascribed to Socrates by Xenophon. The sophists in ancient Greece, like their successors in modern times, appear to have entertained some confused notions about a necessary connexion between cause and effect, implying the existence of an operating principle in the cause: they inquired, says Xenophon, "ΤΙΣΙΝ ΑΝΑΓΚΑΙΣ ΕΚΑΣΤΑ ΓΙΝΕΣΘΑΙ ΤΩΝ ΕΡΑΝΩΝ." The same excellent writer informs us in what light Socrates regarded those by whom such notions were adopted. "ΑΛΛΑ ΚΑΙ ΤΟΥΤΕ ΦΡΟΝΤΙΖΟΝΤΑΣ ΤΑ ΤΟΙΑΥΤΑ ΜΟΡΠΑΙΝΟΝΤΑΣ ΕΠΙΔΕΙΚΝΥΝ. Afterwards he adds, "Εβανμαζε δέ, η μη φανερον αυτοις εστιν, οτι ταυτα ε δυνατον εσθιν ανθρωποις ευρειν."

"If we except," says Dr. Barrow (Mathematical Lectures read at Cambridge), "the mutual causality and dependence of the terms of a mathematical demonstration, I do not think there is any other causality in the nature of things, wherein a necessary consequence can be founded. Logicians do indeed boast of I do not know what kind of demonstrations from external causes, either efficient or final; but without being able to shew one genuine example of any such: nay, I imagine, it is impossible for them so to do. For there can be no such connexion of an external efficient cause with its effect," (or at least none such can be understood by us) "through which, strictly speaking, the effect is necessarily supposed by the supposition of the efficient cause, or any determinate cause by the supposition of the effect." He adds afterwards, "therefore there can be no argumentation from an efficient cause to the effect, or from an effect to the cause which is lawfully necessary."

"All things," says Dr. Clarke (Works, vol. ii. p. 698. fol. ed.) "that are done in the world, are done either immediately by God himself, or by created intelligent beings; matter being evidently not at all capable of any laws or powers whatsoever, any more than it is capable of intelligence;

gence; excepting only this one negative power, that every part of it will, of itself, always and necessarily continue in that state, whether of rest or motion, wherein it at present is. So that all those things which we commonly say are the effects of the natural powers of matter and laws of motion, of gravitation, attraction, or the like, are indeed (if we will speak strictly and properly) the effects of God's acting upon matter continually, and every moment, either immediately by himself, or mediately by some created intelligent beings. Consequently there is no such thing as what men commonly call the course of nature, or the powers of nature. The course of nature, truly and properly speaking, is nothing else but the will of God producing certain effects in a continued, regular, constant, and uniform manner."

Dr. Butler also, in his Discourse on the ignorance of Man (Sermons) has remarked, "that it is in general no more than effects that the most knowing are acquainted with; for as to causes they are as entirely in the dark as the most ignorant." "What are the laws," he continues, "by which matter acts on matter, but certain effects, which some, having observed to be frequently repeated, have reduced to general rules?" "The laws of attraction and repulsion," says Dr. Berkeley (Siris, p. 108.) "are to be regarded as laws of motion, and these only as rules or methods observed in the productions of natural effects, the efficient and final causes whereof are not of mechanical consideration. Certainly, if the explaining a phenomenon be to assign its proper efficient and final cause, it should seem the mechanical philosophers never explained any thing; their province being only to discover the laws of nature, that is, the general rules and methods of motion; and to account for particular phenomena, by reducing them under, or shewing their conformity to such general rules."—"With more to the same purpose. Professor Stewart has also cited a very remarkable passage from Mr. Locke (Ess. b. ii. c. 23. § 28, 29.), which shews clearly, that this eminent philosopher considered the connection between impulse and motion as a *conjunction* which we learn from experience only, and not as a consequence deducible from the consideration of impulse, by any reasoning *à priori*. The passage is the more curious, because it is this particular application of Mr. Hume's doctrine, that has been generally supposed to furnish the strongest objection against it. Some of Mr. Hume's reasonings concerning the nature of the connections among physical events coincide perfectly with those of Malebranche on the same subject; though they were employed by this last writer to support a very different conclusion.

The author of the "Procedure, Extent, and Limits of Human Understanding," (said to be Dr. Peter Brown, bishop of Cork), lays it down as the first fundamental unerring rule in physics, that it is not within the compass of human understanding to assign a purely speculative reason for any one phenomenon in nature. By a speculative reason, the writer means, assigning an *efficient cause à priori*, together with the manner of its operation, for any effect whatsoever purely natural. "We find, indeed," he adds, "by observation and experience, that such and such effects are produced; but when we attempt to think of the reason *why* and the manner *how* the causes work those effects, then we are at a stand, and all our reasoning is precarious, or at best but probable conjecture."

At a still earlier period, Hobbes expressed himself (see his *Tripos*), with respect to physical connections, in terms so nearly approaching to Mr. Hume's, that it is difficult to suppose that they did not suggest to him the language which he has employed on that subject. "What we call experience," he remarks, "is nothing else but remembrance of what ante-

cedents have been followed by what consequents." "No man," he continues, "can have in his mind a conception of the future; for the future is not yet; but of our conceptions of the past we make a future, or rather call past future, relatively," &c. &c. Lord Bacon also hath plainly taken for granted the doctrine now under consideration, without formally stating it, in all his reasonings on the method of prosecuting philosophical discoveries; for if we could perceive in any instance the manner in which a cause produces its effect, we should be able to deduce the effect from its cause by reasoning *à priori*; the impossibility of which he every where strongly inculcates. "*Homo naturæ minister et interpretes tantum facit et intelligit quantum de naturæ ordine re vel mente observaverit; nec amplius scit aut potest.*" However, lord Bacon's metaphysical notions on this subject do not seem from other passages in his writings to have been very accurate.

The consistency of Mr. Hume's fundamental principle, independently of his application of it, with the most devout impressions concerning the existence and the power of God, is sufficiently evinced by the testimonies of the excellent writers already cited. If it be alleged, that the passages above quoted are furnished by authors prior to Mr. Hume, and who were not fully aware of the consequences which he was afterwards to deduce from them; the following authorities are collected from philosophers and divines of a later date.

"What we observe by our external senses," says Dr. Price (Review of the principal Questions and Difficulties in Morals), "is properly no more than that one thing *follows* another, or the *constant conjunction* of certain events, as of the melting of wax, with placing it in the flame of a candle; and, in general, of such and such alterations in the qualities of bodies, with such and such circumstances of their situation. That one thing is the *cause* of another, or *produces* it by its own efficacy and operation, we never see."

"With regard to the phenomena of nature," says Dr. Reid (*ubi intra*), "the important end of knowing their causes, besides gratifying our curiosity, is, that we may know when to expect them, or how to bring them about. This is often of real importance in life; and this purpose is served by knowing what by the course of nature goes before them, and is connected with them; and this, therefore, we call the cause of such a phenomenon." See the sequel of this article.

"There is no necessary connection," says Dr. Waring, Lucasian professor of mathematics in the university of Cambridge, whose zeal for the peculiar doctrines of Christianity has never been questioned, in his "Essay on the Principles of Human Knowledge," "known to us between cause and effect. Can any person by reasoning, independent of experience, from the cause deduce the effect? No one ever has; and, consequently, to mankind there is no necessary connection known between cause and effect." "Is it probable," continues this author, "that any necessary connection is contained in their own nature?" "Newton's success," says the late professor Robison, in his "Mechanical Philosophy," was owing to the modesty of his procedure. He peremptorily resisted all disposition to speculate beyond the province of human intellect, conscious that all attainable science consisted in carefully ascertaining nature's own laws; and that every attempt to explain an ultimate law of nature, by assigning its cause, is absurd in itself, against the acknowledged laws of judgment, and will most certainly lead to error. It is by following his example that we can hope for his success." For Dr. Gregory's sentiments on this subject, see the sequel of this article.

The language of Mr. Hume, as professor Stewart observes, has even been adopted by philosophers, and by atheists as well as theists. The latter have represented natural events as parts of a great chain, the highest link of which is supported by the Deity. The former have pretended, that there is no absurdity in supposing the number of links to be infinite. Mr. Hume, the professor adds, had the merit of shewing clearly to philosophers, that our common language, with respect to cause and effect, is merely analogical; and that if there be any links among physical events, they must for ever remain invisible to us. If this part of his system be admitted, and if, at the same time, we admit the authority of that principle of the mind, which leads us to refer every change to an efficient cause; Mr. Hume's doctrine seems to be more favourable to theism than even the common notions upon this subject; as it keeps the Deity always in view, not only as the first, but as the constantly operating cause in nature, and as the great connecting principle among all the various phenomena which we observe; this, accordingly, was the conclusion which Malebranche deduced from premises very nearly the same with Mr. Hume's. That a necessary connection has been supposed to exist, among physical events by many philosophers, whom it would be unfair to charge with atheism, is a fact that must be allowed. It was the doctrine of the ancient fatalists, that all things above and below are linked together by an inevitable necessity; but they did not, therefore, deny the existence of God. "Cum fatum (says Seneca) nihil aliud sit quam series implexa causarum, ille est prima omnium causa ex qua cetera pendent."

"While we condemn, therefore, the *conclusion* of Mr. Hume (so far as it has a tendency to weaken the evidence for the existence of the Deity) as sophistical and false, we are constrained," says professor Stewart, "not by that justice which is due to his philosophical abilities, but by our fidelity to the cause for which we profess to combat, not to involve *both conclusion and premises* in the same condemnation."

Having stated Mr. Hume's theory of causation, and presented to the view of the reader some of those arguments and authorities that have been urged by its advocates, in order to vindicate it from those licentious consequences with which it has been charged; we shall now give as concise an account as possible of the sentiments of those who have differed from him with regard to this subject. To the class of such persons we may refer Dr. Reid, whose opinions and reasoning claim peculiar attention, and merit the strictest examination. They will probably be no less satisfactory to many of the readers of this article, than to the compiler of it. Every thing that begins to exist, says this excellent writer, must have a cause of its existence, which had power to give it existence; and every thing that undergoes any change, must have some cause of that change. This principle appears very early in the mind of man; and it is so universal and so firmly rooted in human nature, that the most determined scepticism cannot eradicate it. From this principle it follows, that every thing which undergoes any change, must either be the efficient cause of that change in itself, or it must be changed by some other being. In the first case it is said to have *active power*, and to *act* in producing that change. In the second case it is merely *passive*, or is *acted upon*; and the active power is in that being only which produces the change. The name of a *cause*, and of an *agent*, is properly given to that being only, which, by its active power, produces some change in itself, or in some other being. The change, whether it be of thought, of will, or of motion, is the *effect*. Active power, therefore, is a quality in the cause, which enables it to produce the effect; and the exertion of that active power in producing the effect, is called *action*, *agency*, *efficiency*. In

order to the production of any effect, there must be in the cause not only power, but the exertion of that power: for power that is not exerted produces no effect. With regard to the opinion of Mr. Hume and his followers, who maintain, that a cause is only something prior to the effect, and constantly conjoined with it, Dr. Reid observes, that every man who understands the language knows, that neither priority, nor constant conjunction, nor both together, imply efficiency. Every man free from prejudice must assent to what Cicero has said: "Itaque non sic causa intelligi debet, ut quod cuique antecedit, id et causa sit, sed quod cuique efficienter antecedit." In common language we say, the sun rises and sets, and comes to the meridian, the moon changes, the sea ebbs and flows, and the winds blow; and as languages were formed by persons who believed these objects to have life and active power in themselves, it was proper and natural to express their motions and changes by active verbs.

Our knowledge of the real causes of the phenomena of nature is very imperfect; but though our acquaintance with external objects must be grounded upon the information of our senses; yet causation and active power are not objects of sense, nor is that always the cause of a phenomenon which is prior to it, and constantly conjoined with it; otherwise night would be the cause of day, and day the cause of the following night. It is to this day problematical, whether all the phenomena of the material system be produced by the immediate operation of the first cause, according to the laws which his wisdom determined, or whether subordinate causes are employed by him in the operations of nature; and if they be, what their nature, their number, and their different offices are? And whether, in all cases, they act by commission, or, in some, according to their discretion? In consequence of this imperfect knowledge of the real causes of the phenomena of nature, ingenious men who have been desirous of exploring and ascertaining them, have formed numberless conjectures and theories: and unwilling to confess their disappointment in the search of causes, they have vainly conceived every thing they stumbled upon to be a cause; and the proper notion of a cause is thus lost, by giving the name to numberless things which neither are nor can be causes. In a very ancient system, love and strife were made the causes of things: in the Pythagorean and Platonic system, matter, ideas, and an intelligent mind: by Aristotle, matter, form, and privation; Des Cartes thought that matter, and a certain quantity of motion given at first by the Almighty, are sufficient to account for all the phenomena of the natural world. Leibnitz conceived that the universe is made up of monads, active and percipient, which, by their active power received at first, produce all the changes they undergo. In the ordinary concerns of life this confusion of various things under the names of causes is of little moment and influence; although it may be very hurtful to sound philosophy. A constant antecedent or concomitant of the phenomenon whose cause is sought, may answer the purpose of the inquirer, as well as if the real cause were known. In compliance with custom, says Dr. Reid, or perhaps to gratify the avidity of knowing the causes of things, we call the laws of nature causes and active powers. Thus we speak of the powers of gravitation, of magnetism, and of electricity. But persons of juster discernment perceive, that the laws of nature are not agents; they are not endowed with active power, and therefore cannot in the proper sense be causes. They are only the rules according to which the unknown cause acts; hence it happens that the word *cause*, and other words bearing relation to it, become so ambiguous as to have, in a manner, lost their proper and original meaning; and yet,

yet we have no other words to express it. Every thing joined with the effect, and prior to it, is called its cause. An instrument, an occasion, a reason, a motive, an end, are called causes; and the related words, *effect*, *agent*, *power*, are extended in the same vague manner. Were it not, continues this ingenious writer, that the terms *cause* and *agent* have lost their proper meaning in the crowd of meanings that have been given them, we should immediately perceive a contradiction in the terms *necessary cause* and *necessary agent*. If this necessity, thus combined with cause and agent, be attributed even to the Deity, it must follow, that there neither is, nor can be, a cause at all; that nothing acts, but every thing is acted upon; nothing moves, but every thing is moved; all is passion without action; all instrument without an agent; and that every thing that is, or was, or shall be, has that necessary existence in its season, which we commonly consider as the prerogative of the first cause. If it be evident, says Dr. Reid, that what begins to exist must have an efficient cause which had power to give or not to give it existence; and if it be true that effects well and wisely fitted for the best purposes, demonstrate intelligence, wisdom, and goodness, in the efficient cause, as well as power, the proof of a Deity from these principles is very easy and obvious to all men that can reason. If, on the other hand, our belief, that every thing that begins to exist has a cause, be got only by experience; and if, as Mr. Hume maintains, the only notion of a cause be something prior to the effect, which experience has shewn to be constantly conjoined with such an effect, I see not how from these principles, it is possible to prove the existence of an intelligent cause of the universe. Accordingly, Mr. Hume seems to reason justly from his definition of a cause, when, in the person of an Epicurean, he maintains, that with regard to a cause of the universe, we can conclude nothing; because it is a singular effect. We have no experience that such effects are always conjoined with such a cause. Nay, the cause which we assign to this effect, is a cause which no man hath seen nor can see, and therefore experience cannot inform us that it has ever been conjoined with any effect. Mr. Hume, according to Dr. Reid, seems to deduce a just inference from his definition of a cause, when he alleges that *any thing* may be the cause of any thing; since priority and constant conjunction are all that can be conceived in the notion of a cause.

The following consequences are stated by Dr. Reid, as deducible from Mr. Hume's definition of a cause. It follows, *first*, he says, that night is the cause of day, and day the cause of night; for no two things have more constantly followed each other since the beginning of the world. It follows also, *secondly*, that, for what we know, any thing may be the cause of any thing, since nothing is essential to a cause but its being constantly followed by the effect. What is unintelligent may be the cause of what is intelligent; folly may be the cause of wisdom, and evil of good: and all reasoning from the nature of the effect to the nature of the cause, and all reasoning from final causes, must be given up as fallacious. A *third* consequence from this definition is, that we have no reason to conclude, that every event must have a cause; for innumerable events happen, when it cannot be shewn that there were certain previous circumstances that have constantly been followed by such an event. And though it were certain, that every event actually observed by us had a cause, it would not follow, that every event must have a cause; for it is contrary to the rules of logic to conclude, that because a thing always has been, therefore it must be; to reason from what is contingent to what is necessary. *Fourthly*, it

would follow, that we have no reason to conclude that there was any cause of the creation of this world; for there were no previous circumstances that had been constantly followed by such an effect. And, for the same reason, it would follow from the definition that whatever was singular in its nature, or the first thing of its kind, could have no cause. Having shewn what he conceives to be the absurd and dangerous consequences that follow from Mr. Hume's definition of a cause, Dr. Reid proposes another not chargeable with such consequences. "Why," says he, "may not an efficient cause be defined to be a being that had power and will to produce the effect? The production of an effect requires active power, and active power, being a quality, must be in a being endowed with that power. Power without will produces no effect; but when these are conjoined, the effect must be produced. This, I think, is the proper meaning of the word *cause*, when it is used in metaphysics; and particularly when we affirm that every thing that begins to exist must have a cause; and when, by reasoning, we prove, that there must be an eternal first cause of all things. Was the world produced by previous circumstances which are continually followed by such an effect? Or, was it produced by a Being that had power to produce it, and willed its production?"

"In natural philosophy," says this ingenious writer, "the word *cause* is often used in a very different sense. When an event is produced according to a known law of nature, the law of nature is called the cause of that event. But a law of nature is not the efficient cause of any event; it is only the rule, according to which the efficient cause acts. A law is a thing conceived in the mind of a rational being, not a thing that has a real existence; and therefore, like a motive, it can neither act nor be acted upon, and consequently cannot be an efficient cause. If there be no being that acts according to the law, it produces no effect."

It can hardly escape our observation, says Dr. Gregory, (*ubi infra*), that the notion of a cause, as explained by Dr. Reid, is very different from that commonly adopted by philosophers, either metaphysicians or physical inquirers;—so very different, indeed, that the axiom, "Every change or effect must have a cause," as understood by him, will scarcely be admitted even by physical inquirers; and will not only not be admitted by metaphysicians as a principle universally true, but will be regarded by many of them, especially by Dr. Priestley, and all the disciples of Mr. Hume, as universally false, and even impossible. Dr. Reid, like many preceding philosophers, had attended too much to one kind of *cause*, or principle of change, namely, what a man, or any other living being, is to his own voluntary actions, or to those changes which he produces directly in himself, and indirectly in other beings, by the occasional exertion of his own power. This kind of *cause* may be called, for distinction sake, exclusively an *agent*. That there are such agents, and that many events are to be referred to them, as either wholly or partly their causes or principles of change, is allowed as not only certain, but even self-evident. Nevertheless, Dr. Gregory will not allow, that *all events*, without exception, are to be referred to some *such causes*, and necessarily imply the operation of *agents*, and the exertion of *power*; because he neither perceives it as a self-evident necessary truth, nor has ever met with any evidence of it. To this author it appears, that Dr. Reid, and many philosophers, who have thought and argued nearly as he has done on this subject, have gone as far wrong on one side as Mr. Hume, Dr. Priestley, or M. Leibnitz, or, in general, all assertors of the doctrine of necessity, have done on the other. These philosophers have attended too much

to another kind of cause, called, by way of distinction, *physical cause*; as, e. g. what impulse is to motion, heat to expansion, fusion, and evaporation, the earth to the fall of a stone towards it, the sun and moon to the tides, &c. That there are such causes, or, in other words, that we conceive some relation to subsist between the various things and events respectively that have been mentioned, which relation we are accustomed to express by the terms *cause and effect*, is as certain as that there are *agents* for other events. However, it seems evident, that these two relations are some-how different from one another; and that both of them are very different, and easily distinguishable, from various other relations of event. When heat is said to be the cause of the melting of ice, a certain relation is expressed between the heat and that event; but very different from that between a man and any of his voluntary actions; different also from that between motive and action; different even from that between evidence and belief; different from that between the vital principle of a plant or animal, and its growth, its functions, and diseases; different from that between the various occasional or exciting causes, (such as air, water, light, heat, cold, contagion, poison, &c.) and the growth, the functions, and the diseases of plants and animals; different even, in some measure, from that between impulse and motion; and different from that between any body and the fall, or tendency to fall, of another body towards it. All these relations, and such like, are easily distinguishable from one another; and cannot be confounded, by any thinking and discerning person, with the simple relation of priority and succession among things and events; as, e. g. between the morning dawn and the rising of the sun. No man surely ever regarded the dawn as the cause of the rising of the sun, or night as the cause of day. But as the philosophy of Mr. Hume, adopted by other metaphysicians, and even his definitions and explanations of the relation between cause and effect, lead men to confound all these notions, it is expedient to keep in view the simple relation of priority and succession, even in our inquiries concerning causes; that we may then be the better enabled to perceive what more there is in the relation of every kind of cause and effect than merely of the sequence of the one to the other. Whilst philosophers have speculated concerning the nature and influence of causes, they have been prone to overlook some of the kinds of causes that have been mentioned, and to confound others of them; to attend chiefly to *physical causes*; to suppose that for every event, even for the voluntary action of a living person, there *must be* such a cause; to maintain that the relation of motive and action is essentially the same with that between physical cause and effect, and thereby to exclude, not only the necessity, but almost the possibility, of the operation of an *agent*, or cause of that kind which Dr. Reid, in the passages above cited, and which many other philosophers have thought universally necessary for the production of change. Dr. Gregory differs from the systems both of Hume and Reid; from the latter, because he thinks there are many events which we have no reason whatever, either from the primary laws of human thought, or from particular observation, experiment, and induction, to refer to *agents*; and from the other, because there are many events, e. g. the voluntary actions of mankind, which, in his opinion, ought to be referred to *agents* as their proper and chief principles of change. When we refer the voluntary action of a person to the agent as the author of it, that is, as the *cause*, or principle of change, from which it proceeded, we cannot reasonably be charged with the absurdity, that there may be an event or effect without a cause. As little can we be charged

with that absurdity, when we refer the melting of ice, and the boiling of water, to heat; and when we refer the falling of a stone to the ground, and the ebbing and flowing of the sea, to the influence of the earth on the stone, and of the sun and moon on the ocean, according to the principle of general gravitation. We have evidence sufficient, corresponding to the nature of the subject and the extent of our own faculties, to believe, that among things inanimate, and consequently incapable of *power* or *activity*, in the literal and common sense of the terms, there are such relations that they may be mutually causes or principles of change to one another, without any exertion of *power*, or any operation of an agent strictly so called. Such relations, for aught we know, may subsist among bodies remote from one another, as well as among those that are really or apparently in actual contact; and they may vary, both in kind and degree, according to the distances between the bodies. We know these relations, however, merely as matter of fact; but the result, in point of event, in any given case of the application of such causes, will be the same, whether the relation among the bodies be necessary, or contingent and arbitrary; provided only that it be established and constant. Some of the relations of event, particularly that of physical cause and effect, comprehending the circumstance of their constant conjunction, as it has been very properly called, which seems always to be implied in strict physical reasoning, as well as in the common notions, and actual conduct of mankind, are necessary, like those of quantity, which are the objects of mathematical reasoning; the opinion, that there *must be* an exertion, or power, or activity, to produce such events, would be not merely erroneous, but absurd; for, on that supposition, no power or agency would be requisite to produce them, any more than to produce the relations of geometry; and no power in heaven or earth could prevent them from being what they are. If such relations, comprehending the circumstance of constant conjunction, subsist only by the wise but arbitrary appointment of the Supreme Being, who might, if he had thought fit, have made them different; still the necessity at least, if not the possibility, of any exertion of power, or of any agency, would be completely excluded; while some other relations of events, that do not comprehend the circumstance of the constant conjunction of the cause with its effect, but, on the contrary, imply their occasional and very frequent separation, as, e. g. the relation of motive and action, not only do not exclude, but absolutely require and imply the operation of an agent, and the exertion of power. The question, it should be remembered, is not whether body can act, either where it is, or where it is not; but simply whether it be consistent with the laws of human thought to believe, that such relations may subsist among bodies, either by necessity, or the nature of things, or by the arbitrary appointment of the Deity, that they shall, in certain circumstances, be mutually causes or principles of change to one another. Whatever may be thought of numberless other events, and of their causes, it must be admitted, says Dr. Gregory, that every voluntary action of a person does proceed from some exertion of *active power*, or some such cause as Dr. Reid supposes to be universally necessary for every change. See on the subject of this article, besides the authors, whose works have already been cited, Hume's *Essays*, &c. vol. ii. § 4. part i. § 7. part i. Stewart's *Elements of the Philosophy of the Human Mind*, ch. i. § 2. Notes C and D. A short Statement of some important Facts, relative to the late Election of a Mathematical Professor in the University of Edinburgh, &c. 1805. Brown's *Observations on the Nature and Tendency of the Doctrine of* Mr.

Mr. Hume, concerning the Relation of Cause and Effect, 2d edit. 1806. Reid's Essays on the Active Powers of Man, Ess. iv. Gregory's Philosophical and Literary Essays, vol. i. Introduction. See also LIBERTY, MOTIVE, NECESSITY, and POWER.

CAUSE, *First*, is that which acts of itself, and from its own proper power or virtue.—In this sense, God is the only *First Cause*.

CAUSES, *Second*, are those which derive the power and faculty of acting, from a first cause.

CAUSES were distributed by Aristotle into four different kinds; viz. the *efficient*, the *material*, the *final*, and the *formal*. *Efficient* causes are the agents that produce certain effects. *Material* causes are the subjects on which the agent performs his operation, or those contingent natures which lie within the reach of the agent to influence. *Final* causes are the motives or purposes, which move to action, or the end for which any thing is done. See MOTIVE. The doctrine of final causes furnishes an obvious and unanswerable argument in proof of the existence of a Deity, infinitely wise and benevolent. This argument is admirably illustrated by Dr. Paley in his "Natural Theology," or "Evidences of the Existence and Attributes of the Deity, collected from the Appearances of Nature." 8vo. 1802. This excellent work deserves unprejudiced and attentive perusal; and thus perused, cannot fail to produce conviction in every mind. See GOD and PROVIDENCE. *Formal* causes denote the changes resulting from the operation of the agent; or that which determines a thing to be what it is, and distinguishes it from every thing else. See FORM. Instead of dividing causes into these four kinds, it would be more proper to leave out matter and form, as not being properly causes; and the rest might be distributed into four kinds, viz. *emanative*, *efficient*, *instructive*, and *suasive*; and these include all the various ideas of positive proper causes in the most natural and easy view and order. An *emanative* cause is when the effect flows from it without any action to produce it, supposing only that all obstructions be removed. Thus water flows from a spring, and heat from the fire. An *efficient* cause, which most properly deserves the name of a cause, produces the effect by some sort of active power or natural agency. Of efficient causes there are many subordinate divisions. An *instructive* cause is that which produces effect either by way of manifestation of truth, or direction in practice; and may be called manifestative or directive. A *suasive* cause is properly something from without, which being apprehended by the mind, excites or inclines a voluntary or free agent to act, and it operates either by intreaty or authority, by commands or counsels, by promises or threats, by rewards or punishments, by fear or hope, or any other motives; all which are called moral agency or influence. The end or design is one of the chief suasive causes, and is usually called the final cause; of which the schoolmen have given a variety of divisions. They have also given us several other distinctions and denominations of causes, which it is hardly necessary to enumerate. Accordingly causes are distinguished into *physical*, or *natural*, and *moral*. The former is that which produces a sensible corporeal effect. See CAUSE, above. The latter is that which produces a real effect, but in things immaterial; thus repentance is the cause of forgiveness.

Others define a physical cause to be that which produces its effect by a physical virtue or natural influence; and a moral cause, that which determines the physical cause, though not necessarily, to produce the effect, or which works by persuasion: in which sense, it is also called a *dispositive*, *excitative*, and *imputative cause*. Thus, the sun is a physical

cause of light: a stone, that breaks the skull, is a physical cause of death: and thus the advice, intreaty, commands, or menaces, which determine us, though not necessarily, to do, or not to do, any thing, are moral causes. In this sense, a moral cause is only applicable to a free intelligent agent: and it is this notion of a moral and physical cause that is the most just, clear, and distinct.

CAUSES, again, are considered, either as *universal*, or *particular*; *principal*, or *instrumental*; *total*, or *partial*; *univocal*, *equivocal*, &c. An *universal* cause is that, which, by the extent of its power, may produce all effects. Thus the sun, soil, and air, are universal causes of plants, herbs, and flowers; for by the same sort of influences each of them produces various and different effects. A *particular* cause is that which can only produce a single effect; or a certain kind of effects. Thus the particular seeds are the particular causes of each different herb and flower. To these, common and proper causes are nearly allied. A *principal* cause is that which gives motion to the instrument, or which does not operate beyond its own natural efficacy. An *instrumental* cause is that used by the principal to produce its effect; or which is excited to produce an effect, beyond the measure of its own perfection. A *total* cause is that which produces the whole effect. A *partial* cause is that which occurs with some other in producing the effects. An *equivocal* cause is that which is of a different kind and denomination from its effect: as when a man writes a book, when a root produces a stalk and leaves, or when money buys land. An *univocal* cause is that which is of the same kind and denomination with its effect: as when a lion produces a young lion, or when a fountain sends forth a stream of water, or when money being lent, gains money by interest. See Watts's Brief Scheme of Ontology, in his Works, vol. v. ch. 10.

CAUSES, *Occasional*, are only the occasions, not the direct causes of their effects. The Cartesians resolve all physical causes into occasional ones. See OCCASION.

The soul, say those philosophers, is not able to act on the body; nor the body reciprocally on the soul: to keep up an intercourse between them, God, on occasion of a motion of the body, impresses a sensation on the soul; and, on occasion of a sentiment of the soul, impresses a motion on the body: the motions, therefore, of the soul and body, are only occasional causes of what passes in the one or the other. Thus, say they, the stroke, or percussion, is only the occasional cause of the motion produced in the body struck; it is God is the direct efficient cause. And thus the action of objects on our organs is not the efficient cause of our ideas and perceptions, but merely the occasional cause which determines God to act on the mind, according to the laws of the union of soul and body.

CAUSE, in *Medicine*, is usually considered in a sense somewhat complex, and different from the ordinary acceptation of the word. It signifies not merely those agents, which, when applied externally or introduced internally, excite, in the body or in some of its organs, a state of disease; but it is also employed to express the previous condition of the body, which renders it liable to disease, as well as that which constitutes the disease itself. Thus physicians have treated of the causes of diseases under the two heads of *remote* and *proximate* causes; the former of which they have again divided into *predisposing* and *exciting*, or *occasional*, causes.

The *predisposing* cause, is that which renders the body liable to be attacked by disease, or to be acted upon by an exciting cause; for the operation of an exciting cause alone is generally not sufficient to produce disease. Thus several persons may be exposed at the same time to the same external agents,

agents, e. g. to cold and moisture : in some these agents will excite disease, on others they will act with impunity. In the former persons some circumstances must have existed, which rendered them liable to receive those morbid impressions ; in the latter no such predisposition was present. Again, some of those, whom the exciting causes affected, may suffer one species of disease, and others a different species : thus one individual may be afflicted with rheumatism, another with catarrh, a third with dysentery, and so on ; a fact implying the existence of some peculiar condition of the body, or of the organs respectively attacked, which is justly deemed a *predisposing cause* of the particular malady, which may have occurred. In some instances the *predisposition* is obvious and well understood : thus one attack of rheumatism, pleurisy, or any inflammatory disorder, generally renders the body more liable to suffer a second : a peculiar formation of the chest, combined with a fair and delicate skin, with dark eyes, lively spirits, &c. implies a tendency to be affected with pulmonary consumption : and a plethoric habit, large head, short neck, very florid complexion, &c. portend a probable apoplexy. In such circumstances the kinds of exciting causes, which ought to be peculiarly avoided, are manifest ; and by a careful attention to this suggestion, the diseases, with which the individuals are menaced, may be altogether warded off.

In some instances this *predisposing* condition of the body, after long continuance, becomes gradually a condition of actual disease, without the concurrence of any external exciting cause ; or it becomes, in the language of some writers, itself an *exciting cause* of disease. In this light a general mobility or morbid irritability of the system, excessive plethora, &c. must be considered.

The *exciting or occasional cause* is that agent which produces disease in the body already predisposed to receive it. There are some exciting causes, however, so powerful, as to occasion the most severe maladies, in the most vigorous constitutions, from which every predisposition to disease seems to be absent. Such are the poisons of small pox and syphilis, the extremes of heat and cold ; and so forth. And again, an *exciting cause* which may not immediately induce disease, may, if frequently applied, undermine by degrees the strongest habit, and render it liable to various infirmities. Such are luxury, intemperance, exposure to inclemency of weather, &c.

The *proximate cause* is usually defined, that, "quæ presens morbum facit, sublata tollit, mutata mutat." It is that condition or circumstance, from which the symptoms of a disease immediately originate, and on which they exclusively depend. The proximate cause of the generality of diseases is obscure ; and this obscurity has led ingenious men to enter into a variety of speculations altogether fertile, and tending rather to mislead than to inform the mind ; and in some instances indeed altogether unintelligible.

CAUSES and Effects, in Law. In most cases the law hath respect to the *cause* or beginning of a thing as the principal part, on which all other things are founded : and herein the next, and not the remote cause, is most looked upon, except it be in covinous and criminal things ; and therefore that which is not good at first, will not be so afterward ; for such as is the cause, such is the effect : e. g. if an infant or feme-covert make a will, and publish it, and afterwards die of full age, or sole, this will is of no force, on account of the original *cause* of infancy and coverture, &c. Finch 12. Where the cause ceaseth, the effect or thing will cease. Co. Lit. 13.

CAUSED, *CAPE*, in *Geography*, lies on the south coast of the island of St. Domingo ; 5 miles S.E. of St. Domingo,

CAUSEWAY, or *CAUSEY*, a massive construction of stone, flakes, and fascines ; or an elevation of fat, viscous earth, well beaten ; serving either as a road, in wet marshy places ; or as a mole, to retain the waters of a pond, or prevent a river from overflowing the lower ground.

The word comes from the French *chauffee*, anciently wrote *chaufsee* ; and that from the Latin *calceata*, or *calcata* ; according to Somner, and Spelman, à *calcando*. Bergier rather takes the word to have had its rise à *pedum calceis, quibus teruntur*.

CAUSEWAY, *calcetum*, or *calcea*, more usually denotes a common hard raised way, maintained and repaired with stones and rubbish.

CAUSEWAY, *Devil's*, a famous work of this kind which ranges through the county of Northumberland, commonly supposed to be Roman, though Mr. Horsley suspects it to be of later times. Horsley, Brit. Rom. lib. v. cap. 2. p. 449.

CAUSEWAY, *Giants*, is a denomination given to a huge pile of stony columns, in the district of Coleraine, in Ireland. See *BASALT* and *GIANTS' Causeway*.

CAUSSADE, in *Geography*, a town of France, in the department of the Lot, and chief place of a canton, in the district of Montauban ; 12 miles N.E. of Montauban. The place contains 4142, and the canton 13,183 inhabitants : the territory includes 225 kilometres and 11 communes.

CAUSSIDICUS. See *ADVOCATE*.

CAUSSIN, *NICHOLAS*, in *Biography*, a learned French Jesuit, was born at Troyes in 1580 ; and having entered into the society of Jesuits at the age of 23 years, taught rhetoric with great reputation at their college. He afterwards became a popular preacher and writer, and was chosen confessor to Lewis XIII. For this situation he does not seem to have possessed the necessary talents ; but more attentive to his duty than to the means of maintaining the good opinion of an all-powerful minister, he opposed cardinal de Richelieu in urging the king to recal the queen-mother, and not only lost his post but was exiled from the court to a town in Brittany. After the cardinal's death he returned to Paris, and died in the house of the society in 1651. Among his various works in French and Latin, the most popular of the former was his "La Cour Sainte" in 5 vols. 8vo., indicating piety rather than judgment, but much read, and translated into several languages. His principal learned work is "De Eloquentia sacra et humana," 1619, 4to., which was several times reprinted. It exhibits numerous examples of different styles in writing. He also published "Electorum Symbolorum et Parabolarum historiarum Syntagmata," 1618, 4to. ; "Disputes sur les quatre Livres des Rois, touchant l'Education des Princes," fol. ; "Tragedie Sacree," 1620 ; "Apologie pour les Religieux de la Compagnie de Jesus," 1644, 8vo. ; "La Vie neutre des Filles devotes," &c. 1644 ; "Symbolica Ægyptiorum Sapientia," 1647, 4to., and some other works of devotion and controversy. Nouv. Dict. Hist.

CAUSTIA, in *Antiquity*, a kind of woollen cap used by the Macedonians ; which was so strong as sometimes to serve instead of a helmet. Mem. Acad. Inscript. vol. ii. p. 394.

CAUSTIC, *COMMON*, in *Chemistry*, a fixed alkali deprived of ærial acid and most of its water. If the lixivium of the soap-boilers be evaporated to dryness in a silver or copper vessel, then fused in a crucible, poured out into a basin, and when solid, cut into small pieces, it forms the common caustic ; which must be kept in a bottle to prevent its deliquescing. When a piece of this alkali is applied to the skin, for the space of three quarters of an hour, it corrodes

rodes it; forming without doubt a saponaceous compound with its fat parts. It was much used in making issues, before that practice was laid aside. See *Caustic ALKALI*, and *CAUSTIC, infra*.

CAUSTIC, in *Surgery*, from *καίω, to burn*, a substance, which, by its activity, will erode and consume the animal texture, wherever it is applied: the burning sensation it produces, and the destructive effects which are occasioned by its application, exactly accord with its name. (See *CATHERETICS* and *ESCHAROTICS*.) In some cases of abscesses and deep-seated inflammation, particularly in chronic affections, the use of caustics is very considerable. The reader will find a few observations on the comparative use of caustics, in our article *ABSCESS*, under the head of "*Various modes of opening abscesses*." We shall here subjoin some remarks on their composition, and the method of employing them.

Caustics are used either in a solid or fluid form; but those which are fluid, can seldom be applied with all the requisite advantages. The stronger concentrated mineral acids are most frequently chosen by surgeons, when they use fluid caustical applications; as they are less liable to spread than an alkaline fluid, such as the aqua kali puri of the London college, or the common lixivium causticum.

The solution of caustic alkali or potash, has, however, been often used as a solvent of the stone in the urinary bladder, (see *LITHONTRIPTIC*); for which purpose M. Fourcroy recommends applying the remedy by injecting into the bladder a tepid solution of potash or soda, so weak as to be borne in the mouth. Before it is injected, the bladder should be completely evacuated of urine, and washed out with warm water. After the solution has been injected, and retained half an hour or more, it may be voided and allowed to settle in a proper vessel. If, on the application of a little muriatic acid to the fluid, a precipitate be formed, we shall have reason to conclude that the calculus contains uric acid, and that the alkali has acted on it.

The strongest caustic of a solid form, in general use among surgeons, is prepared as follows:—evaporate a solution of pure kali or potash in a clean iron vessel to a state of dryness; after which let the saline matter, in a melted state, be poured on a smooth iron plate, and divided into small pieces before it hardens, which must immediately be placed in a well stoppered vial for use. This caustic is very apt to liquify on exposure to the air: it is therefore usually managed, by the admixture of quick-lime, to render it less liable to deliquescence; but this procedure also weakens the causticity of the remedy, so that it is not so fit for surgical purposes.

Some practitioners will even dilute the caustic still more, before they use it, by the mixture of soft soap, &c. which forms a paste; and they apply this in the following manner: put several folds or layers of common adhesive plaster upon the part, through each of which cut a circular aperture for the reception of the paste. Then fill this hollow with the caustical substance, and let it remain for the space of six, seven, or eight hours, according to the effect desired; when it will be found to have penetrated sufficiently deep. Although this method has been sanctioned by the names of many eminent surgeons, it is very far from being the most eligible; as the pure kali rubbed on the skin about three or four minutes, will produce all the purposes wished for, and cannot extend itself or penetrate farther than is proper. The pain caused by this short process, is not to be compared to that of applying a milder caustic several hours together.

When the caustic has produced its full effect, there will be a portion of dead skin or flesh, called an *eschar*, which, by degrees, will separate and leave an opening. The part

should be poulticed until the eschar is cast off; but should the separation of the dead skin be longer in taking place than the surgeon expects, he may puncture it through with a lancet, to facilitate the discharge of the confined matter.

When a superficial and more circumscribed effect is required, the *lunar caustic* will be found preferable to the pure kali; as it is much less apt to dissolve, and therefore is very easily managed even by an unskilful hand. The lunar caustic consists of a solution of pure silver in nitrous acid, formed into long solid pieces, about the size of a goose-quill; which must be always moistened a little, before we apply them to the skin. A scruple or half a dram of this substance, dissolved in an ounce of water, makes a useful lotion for languid phagedenic sores; or it may be now and then injected into fistulous ulcers, until the surface begins to suppurate freely.

The milder caustic substances, are burnt alum, vitriolated zinc, vitriolated copper, verdegis, &c. but they seldom produce much benefit without repeated application, as they are too weak to act upon a part which is not previously deprived of its cuticle.

Arfenical caustics have likewise been employed by surgeons, especially in cancerous cases: but their superiority to more safe applications is very questionable; and it is certain that bad consequences have sometimes arisen from the use of them, even in the hands of skilful practitioners. See *Home* and *Justamond's* Tracts on cancers.

CAUSTIC Curve. See *CURVE*.

CAUSTIC, by reflection. See *Caustic CURVE*.

CAUSTIC, by refraction. See *Caustic CURVE*.

CAUSTIC glasses. See *BURNING glasses*.

CAUSTIC, Lunar, in Chemistry, improperly called "*lapis infernalis*," consists of the crystals of silver obtained by solution in nitrous acid, and afterwards fused in a crucible. It is prepared by dissolving very pure silver to saturation in nitrous acid, and separating the crystals by evaporation and cooling. These are to be fused in an earthen crucible, sufficiently large to admit of the frothing and swelling that happen at the commencement of the fusion. The heat must be gentle, because the crystals are very fusible, and the acid easily decomposed and driven off. It requires, however, to be somewhat raised after the ebullition has ceased. As soon as the matter is in quiet fusion, it is to be poured into a mould, consisting of five or six small cylindrical cavities, by which it acquires the form of small pencils, and may conveniently be held in a case instead of touching it with the fingers. The blackness of lunar caustic seems to arise from part of the acid being driven off, and a portion of the silver received. Its causticity or action on animal substances appears to depend on the strong disposition of the silver to recover its metallic state, and consequently is a true combustion.

CAUSTICITY denotes a quality belonging to several substances, by the acrimony of which the parts of living animals may be corroded or destroyed; accordingly, all substances which have so strong a tendency to combine with the principles of organized bodies as to destroy their texture, are said to be caustic. The chief of these are the concentrated acids, pure alkalis, and the metallic salts. See *CAUSTIC, supra*.

CAUSTICUM ANTIMONIALE, the name given in the late London Dispensatory to what was before called *butter of ANTIMONY*.

CAUSUS, in *Medicine*, *καῦσος*, from *καίω, I burn*, a term applied by Hippocrates and other Greek writers, to an acute fever, accompanied by great heat of the skin. It is

the same with the *febris ardens* of the Latins. See *Inflammatory Fever*.

CAUTERISATION, in *Surgery*, is the operation of burning any part of the body artificially by means of a hot iron.

CAUTERY, *καυτήρ*, is a surgical instrument made of iron, gold, or silver, which, after having been made red hot, exerts its cauterising power upon the part to which it is applied; and it must be of various dimensions according to the purposes for which it is to be used. It is also termed the *actual cautery*.

The actual cautery was formerly much employed for stopping hæmorrhages, by touching the wounded arteries with it. When this is used, we must, in order to avoid irritating and burning the neighbouring parts, place an iron tube or cannula upon the orifice of the artery, surrounded with cold wet cloths, through which the red hot iron is to be introduced, and the artery touched for a moment with it. Should it be practicable, we ought previously to stop the hæmorrhage by means of the tourniquet, and dry the wound well. But as the eschar produced by the cautery may easily separate, and the hæmorrhage return, the patient should lie quiet and be constantly watched; and in order to prevent the separation of the eschar, it may be frequently moistened with brandy, and the impetus of the blood towards the part diminished by the application of the tourniquet, or by blood-letting: and also in removing the dressings proper caution ought to be observed with respect to the eschar.

In some cases the actual cautery is the only remedy that can be employed with effect; as when the bleeding vessel is deep situated, or when from any cause no other styptic remedy can be used; for example, in hæmorrhages from under the tongue, from the sockets of the teeth, &c. The actual cautery is therefore a remedy which certainly deserves to be more frequently used than is generally done, especially as the irritation and pain which it occasions are by no means so great as is generally supposed. See *HÆMORRHAGE*. The actual cautery is moreover used in caries and enlargements of the bones; in caries of the teeth; in excrescences, especially of the gums; and in wounds produced by the bites of mad dogs, or venomous animals. Consult on this subject the dissertation of Mr. Le Cat concerning the use of fire in surgical diseases, and that of Mr. Spiritus concerning fire considered as a surgical remedy, Götting. 1784.

To this head belongs also the cauterisation with moxa, cotton, gun-powder, burning-glasses, or live coals. The moxa is prepared from the plant termed *Artemisia vulgaris*. It must lie for a very long time, even for whole years, in the shade to dry, after which the leaves and superior extremities are pounded and rubbed between the hands till they form a sort of cotton. For the purpose of perfuming it, the Chinese sometimes mix musk or the ashes of the wood of aloes with the artemisia. When this cotton has been purified from all coarse and foreign substances, it is rolled between the hands till it acquires the form of a cone, pointed at the top and broad at the base, like a pyramid. This pyramid is fastened with saliva to the skin, and set on fire; and when it has quite burnt down, it leaves an eschar upon the skin.

The cylinders of cotton, or Mr. Pouteau's bougies, are prepared in the following manner. Take carded cotton, and form it, without twisting it close together, into cylinders four inches long, and one in diameter. The cylinder is next wrapped round with a piece of fine linen, four inches broad and three long, and the two ends are laid over each other

and sewed together, so as to form a small plug. This is then cut through the middle with a pair of scissors, so as to form two cylinders. The rest of the cotton, which projects either at the top or bottom, is to be cut off with the scissors, close to the edge of the linen. In using these cylinders, the lower extremity is placed upon the skin, moistened a little with saliva, to make it adhere. The upper end is then kindled with a wax taper, and kept burning by means of a fan or bellows, till it has quite burnt down. As soon as the heat penetrates into the skin, the cotton is made to stick still faster to the part by means of the augmented perspiration.

The method proposed by Mr. Pascal is still more convenient. The cotton having first been boiled in a strong solution of nitre, the cylinder after being once lighted, burns till it is quite consumed, so that there is no necessity for fanning or blowing the flame. If we confine the cylinder in a wide tube of strong pasteboard, we may hold it between our fingers whilst it is burning, so as to prevent its falling down or injuring the neighbouring parts.

Of such cylinders we may apply one, two, or more, according to circumstances, and yet the operation of the fire will never penetrate deeper than the skin. When the operation is finished, the burnt part may be covered with ung. resin. flav. or *basilicon* spread upon a pledgit. When the heat does not penetrate quite through the skin, and into the cellular substance, we frequently fail of our intention, on which account we must always see to it, that the cylinder burns down to its very last particle, as the end of the combustion is the most efficacious.

Cauteries have been employed with advantage in various diseases, but they are chiefly useful in arthritic and rheumatic pains, in which cases the pyramids of moxa, and especially the cotton cylinders, are preferable to the actual cautery. But before we proceed to the use of these applications, we ought first to have tried every other proper remedy, and when these produce no benefit, we must employ the cautery. We ought always to place these substances exactly upon the part at which the pain is most violent. When the pain shifts, we must follow it with the cylinder wherever it seats itself. However, this method of cauterising is properly applicable only when the pain has actually seated itself in some particular part; for, as long as it is fugitive, we merely make it shift from its temporary seat to another, without radically removing it. Its most speedy and surprising effect is in the lumbago.

It is further useful also in cases of ulcers, and in lymphatic swellings of the joints. However, it is necessary that particular attention should be paid to the nature of the circumstances in applying it. When, for example, the white swelling is combined with a deep seated and violent pain, when there is cause to believe that the ligaments are attacked by an arthritic, rheumatic, or venereal acrimony, cauterisation might tend to increase the evil; which might be the case in a still greater degree if the bones were enlarged and carious, or whenever the lymphatic tumour is the effect of some violent constitutional disease. It is most useful when the tumour is of a primary nature. But powerful as the effects of these cauterising cylinders are, there are some cases in which it is necessary to employ them repeatedly before the pain yields to their operation.

The method of burning with gun-powder is as follows: when (for example, after a person has been bit by a mad dog) the actual cautery cannot be employed, either on account of the irregular shape of the wound or the fear of the patient, gun-powder is sprinkled into the wound, and set fire to, as often as may be necessary.

The ancient surgeons with justice placed great dependence upon cauteries; only they are in some degree to be reprehended for the abuse they sometimes made of them; as are the moderns also, for their too great neglect of these very efficacious remedies.

Actual cauteries are distinguished, according to their degrees of strength, from *caustics*; which are termed *potential cauteries*. The difference between the actual and the potential cautery consists in the circumstance, that though caustics produce an eschar or crust, they do it in a much slower manner, and not till several hours have elapsed; whilst the actual cautery produces its effects instantaneously. The potential cautery is therefore applicable in none of those cases which require the actual cautery. See the article *CARIES*, *sub finem*.

CAUTGUNGE, in *Geography*, a town of Hindoostan, in the country of Bahar, on the north side of the Ganges, opposite to *Bar*.

CAUTING IRON, among *Farriers*, an iron instrument, wherewith they cauterise and sear the parts of a horse which require burning.

CAUTIO, in the *Civil Law*, denotes an assurance or security given or taken for any thing trusted.

CAUTION, in *Military Language*, is an explanation given before the word of command, by which the attention of the soldiers is called to the regular and correct execution by all of them at the same time of the movement they are about to be directed to perform.

CAUTIONE admittenda, in *Common Law*, a writ which lies against a bishop who holds an excommunicated person in prison for contempt, notwithstanding he offers sufficient caution or security for obeying the commands of the church for the future. Reg. Orig. 66. And if a man be excommunicated, and taken by a writ of "significavit," and after offers caution to the bishop to obey the church, and the bishop refuseth it; the party may sue out this writ to the sheriff to go against the bishop and to warn him to take caution, &c. But if he has reason to doubt whether the sheriff will deliver him by that writ, the bishop may purchase another writ, directed to the sheriff, reciting the case, &c. When the bishop hath taken caution, he is to certify the same in the chancery, and thereupon the party shall have a writ unto the sheriff to deliver him. New. Nat. Brev. 142.

CAUTIONARY TOWNS, places of strength, which one prince or power puts into the possession of another as a security either for the payment of a debt, or performance of some other matter stipulated between them. Thus, when a profusion of expence was incurred by the elevation of the duke of Buckingham in the reign of James I. which was too great for his moderate revenues, the cautionary towns were delivered up to the Dutch, A.D. 1616. In the preceding reign, queen Elizabeth, when she lent the revolted Hollanders large sums of money, required of them a proper deposit, as security for payment. The Dutch, in compliance with this demand, put her into possession of the three important fortresses of Flushing, Brille, and Ramekins. But James, in his present exigence, agreed to evacuate these fortresses, upon being paid only a third part of the money which was due; this measure occasioned a very general discontent.

CAUTIONRY, or **FIDE-JUSSIO**, in *Scots Law*, denotes the obligation by which one person becomes engaged as security for another, that he shall either pay a sum or perform a deed. A cautioner for a sum of money may be bound, either simply as cautioner for the principal debtor, or conjointly and severally for and with him. The first has, by custom, the "*beneficium ordinis*," or of discussion; by which the creditor is obliged to discuss the proper debtor, before he can insist for payment against the cautioner. Where a per-

son is bound as full debtor with and for the principal, or conjointly and severally with him, the two obligants are bound equally in the same obligation, each "*in solidum*;" and, consequently, the cautioner, though he is but an accessory, may be sued for the whole, without either discussing or even citing the principal debtor. Cautioners for performance of facts by another, or for the faithful discharge of an office (e. g. for factors, tutors, &c.) cannot, by the nature of their engagement, be bound conjointly and severally with the principal obligant, because the fact to which the principal is bound cannot be performed by any other. In such engagements, therefore, the failure must be previously constituted against the proper debtor, before action can be brought against the cautioner for making up the loss of the party suffering. The cautioner, who binds himself at the desire of the principal debtor, has an "*actio mandati*," or of relief against him, for recovering the principal and interest paid by himself to the creditor, and for necessary damages; which action lies "*de jure*," though the creditor should not assign to him on payment. As relief against the debtor is implied in fidejussory obligations, the cautioner, where such relief is cut off, is no longer bound: hence the defence of prescription frees the cautioner, as well as the principal debtor. Nevertheless, where the cautionry is interposed to an obligation merely natural, the relief is restricted to the sums that have really turned to the debtor's profit. Moreover, a cautioner, who pays without citing the debtor, loses his relief, so far as the debtor had a relevant defence against the debt, in whole or in part. Relief is not competent to the cautioner, till he either pays the debt or is distressed for it, except, 1st, where the debtor is expressly bound to deliver to the cautioner his obligation cancelled, against a day certain, and has failed; or 2dly, where the debtor is "*vergens ad inopiam*;" in which case, the cautioner may, by proper diligence, secure the debtor's funds for his own relief, even before payment or distress. A right of relief is competent "*de jure*," to the cautioner, who pays against his co-cautioners, unless where the cautioner appears to have renounced it. In consequence of this implied relief, a creditor, if he shall grant a discharge to any one of the cautioners, must, in demanding the debt from the others, deduct that part as to which he has cut off their relief by that discharge. Where the principal debtor, in a bond in which a cautioner is bound, grants bond of corroboration with a new cautioner, both cautioners, as they intervene for the same debt, and at the desire of the same debtor, have a mutual relief against each other; but where the cautioner in the first bond signs as a principal obligant in the corroboration, the cautioner in the new bond, it would seem, would be entitled to a total relief against the first cautioner. Upon this branch of the doctrine of cautionry the decisions of the court of session are not agreed. Cautionry is also "*judicial*," as in a suspension. It is sufficient to loose the cautioner, that when he became bound, the suspender had good reason to suspend; e. g. if the charger had at that period no title, or had not then performed his part, though these grounds of suspension should be afterwards taken off. In all maritime causes, where the parties are frequently foreigners, the defender must give caution "*judicio fisci et juncatum solvi*;" such cautioner gets free by the death of the defender before sentence; but he continues bound though the cause should be carried from the admiral to the court of session. This sort of caution is only to be exacted in causes strictly maritime.

CAUTO, in *Botany*, a name given by the people of Guinea, to a shrub common in that part of the world; a decoction of which they use as a cure for the running of the reins, or a clap. Phil. Trans. N^o 232.

CAUTO, in *Geography*, a river of the island of Cuba, which runs into the sea, 20 miles N.W. of *Bayamo*.

CAUTURIER, in *Anatomy*, a name given by the French writers to a muscle of the leg; called by the old writers, *primus flexentium tibiam*; and by the latter writers, Cowper, Albinus, &c. *Sartorius*; by Riolan, *Sutorius*.

CAUVERY, in *Geography*. See **CAVERY**.

CAUX, a country of France, in Normandy, so called before the revolution, about 50 leagues in circumference; lying between the Ocean and the Seine, Vexin, Normandy, Picardy, and the country of Bray. The land is fertile in grain, hemp, fruits, &c. The coast abounds with fish, and the forests with game. Caudebec is the capital.

CAVY, in *Zoology*. See **CAVIA**.

CAVY, *musk*, of Pennant's quadrupeds, is the *Mus pilorides* of Pallas, and other late writers. See *Mus pilorides*.

CAVY, *Cape*, of Pennant, is *Hydrax capensis*; which see.

CAWNPOUR, in *Geography*, a town of Hindoostan, in the Soubah of Oude; 37 miles S.W. of Lucknow, and 98 N. W. of Allahabad.

CAWOOD, a town in the west riding of Yorkshire, England, seated on the banks of the navigable river Ouze, over which there is a ferry from this town into the east riding. Here was formerly a castle, some ruins of which still remain. This was given by Athelstan to the archbishops of York, and was the birth-place of bishop Mountain, who is buried in the church at this place. The castle suffered materially in the civil wars. Here are a weekly market on Wednesdays, and two fairs yearly. The town contains 247 houses, and 1025 inhabitants, the greater number of whom is employed in agriculture. Cawood is situated 10 miles S. of the city of York, and 187 N. from London.

CAWSTON, a small market town of Norfolk, England, is held of the Duchy of Lancaster in free soccage. It is situated on the river Bure, and has a small market on Wednesdays, and three annual fairs, one of which is well supplied with sheep. Cawston is eleven miles N.W. of Norwich, and 112 miles N.E. from London. Here are 176 houses and 846 inhabitants.

CAXA, in *Commerce*, a little coin made of lead, mixed with scoria of copper; struck in China, but current chiefly at Bantam, in the rest of the island of Java, and in some of the neighbouring islands.

It is somewhat smaller than the French double, and has a square hole through the middle; by means whereof, several of them are hung on the same string: this string, which they call *santa*, usually contains two hundred caxas, equivalent to nine French deniers, or somewhat less than three farthings sterling. Five *fantas* tied together, i.e. a thousand caxas, make a *sapacou*.—Nothing can exceed the brittleness of the caxa; a string never falls to the ground without breaking at least ten or twelve pieces. Leaving them at night steeped in salt-water, they cling so firm to one another, that they are not to be separated without breaking one half of them. The Malays call them *cas*; and the Javese *piis*. The caxas are of two kinds; *great* and *small*: the *small* are those we have been speaking of; three hundred thousand whereof are equal to fifty-six livres five sols, French money. The *large* are old caxas; six thousand whereof are equal to the piece of eight, or four shillings and six pence sterling. These are nearly the same with the *caches* of China, and the *cassies* of Japan.

CAXA MINES, an appellation distinguishing those mines of gold and silver in the province of Quito in South America, which are contained and confined, as it were, betwixt two natural walls; in contradistinction to those in which the metal is found dispersed and mingled with earths of different species. In these mines, as in the others, the silver and gold

are intimately united with other bodies; and, therefore, it is necessary to separate the grains from the earth by running conduits of water. After having undergone the operation of the quicksilver, which their quality renders indispensable, the substance is washed in order to separate the remaining filth. After the last operation the amalgama is pure, consisting entirely of quicksilver, and gold or silver, according to the species which has been worked.

CAXAMARCA, in *Geography*, a jurisdiction of South America, in the country of Peru, and diocese of Truxillo, lying to the eastward of Truxillo, and extending along a vast interval between the two Cordilleras of the Andes. This jurisdiction is fertile in all kinds of corn, fruit, and esculent vegetables, and also in cattle, sheep, and especially hogs, of which they sell a great number to the farmers in the valleys, who, after fattening them with maize, send them to the markets in the large towns. The farmers of the valley of Chinca, and others, in particular, carry on a considerable trade in these creatures at Lima, Truxillo, and other flourishing places. The Indians throughout this jurisdiction weave cotton for ship-sails, bed-curtains, quilts, and other uses, which are sent into the other provinces. Here are also some silver mines, but of little consequence. The principal town is of the same name, and was formerly a royal city, where the emperor Atahualpa was put to death, after having been defeated and imprisoned by Pizarro: about 70 miles from the Pacific ocean. S. lat. 8°. W. long. 76° 10'.

CAXAMARQUILLA, or **COXAMARQUILLA**, called also *Pataz*, a jurisdiction of South America, in the diocese of Truxillo. It lies among the mountains at a small distance S.W. from Caxamarca, and from its different situations has a variety of products; but it is particularly remarkable for gold mines. The chief commerce consists in exchanging that metal for current money, especially silver coin, which is the more esteemed here on account of its scarcity.

CAXATAMBO, a jurisdiction of South America, in the circuit of Lima, commencing 35 leagues N. of Lima, and extending about 20 leagues, and partly among the mountains, so that the temperature of the air is various; but the whole territory is very fertile in grain. It has also some silver mines, which are wrought; and the Indians have manufactures of bays, which constitute part of the trade of this jurisdiction.

CAXCAXTOTOTL of Ray, in *Ornithology*. See **STURNUS MEXICANUS**, *Gmel.*

CAXINES, *Cape*, or *Ras Accon-natter*, in *Geography*, a cape on the north coast of Africa, in the Mediterranean, forming the west point of the bay of Algiers. N. lat. 37° 15'. E. long. 3° 30'.

CAXOU, in *Metallurgy*, a word used to express a chest of ores of silver, or any other metal, that has been burnt, ground, and washed, and is ready to be refined.

CAXTON, **WILLIAM**, in *Biography*, deserves to be recorded as the first person, who, according to some writers, introduced the art of printing into England, or who, according to others, improved and perfected it by the use of fusile types. He was born about the latter end of king Henry the IVth's reign, who died in the year 1412, in the Weald of Kent; and, after having been well instructed by his mother in reading and writing, he was apprenticed to Mr. Large, an eminent mercer in London, lord-mayor of the city, in 1439, with whom he resided till his death. In the year of his master's death, 1441, he was sent abroad by the mercers' company, as their agent and factor in the Low Countries, where he continued in the management of their concerns for about 23 years. His conduct in this department of public trust had been so satisfactory to his employers, and so highly reputable to himself, that he was joined

in a very honourable commission, granted by king Edward IV. in 1464. for the purpose of continuing and confirming the commercial treaty subsisting between his majesty and Philip duke of Burgundy, or, if necessary, of negotiating and establishing a new treaty. Afterwards he appears to have held some office in the household of lady Margaret of York, the sister of king Edward, who, in 1468, was married to the duke's son, Charles, then duke of Burgundy. By his long residence in these countries, as he was of an inquisitive and studious disposition, he became acquainted with the new invention of printing, which was then practised in Holland and Flanders; and he seems to have been actuated by the laudable ambition not only of acquiring the art, but of introducing it into his own country. At the instigation of the dukes of Burgundy, by whom he was probably employed in some literary department; having attained by his diligent application a competent knowledge of the Latin and French languages, he translated from the French a work, which he entitled "The Recuyell of the Historys of Troye, &c." the first book supposed to have been ever printed in the English tongue. Having laboured for three years in the translation of this work, which he begun at Bruges, in 1468, and finished at Cologne, in 1471, he undertook the task of printing it in this city, having, as he himself says, "practised and lerned at my grete charge and dispenche, to ordyne this sayde book in prynte." Its date is 1471. After having published "The Book of Troy," he proceeded in printing others; and, at length, having provided himself with presses, types, and all other printing materials, he came over to England, in 1472; and, in a printing-room at the entrance of Westminster Abbey, whence a printing room is to this day called a "chapel," he produced, in 1474, the first book that was ever printed in this country, which was the translation of a French work, and entitled "The Game and Play of the Cheffe, &c." For other claims to the introduction and practice of printing in England; see the article PRINTING. The next works, printed by Caxton, in the order of time, were "The History of Jason," supposed, though without a date, to have been printed in 1475; "The Dicts and Sayings of the Philosophers," printed at Westminster in 1477; "The Moral Proverbs of Chrysostome of Pyse," printed in the following year; "The Cordyal," printed in the same year; and after printing began to make its first appearance at Oxford in 1479, three books, entitled the "Image of the World," "Ovid's Metamorphoses," and the "Chronicles," with a "Description of England," all printed in 1480. Such was his indefatigable industry, even in the decline of life, that in the space of 20 years he produced between 50 and 60 specimens of his skill and labour, most of them being translations, by himself, from the French, and judiciously selected with a view to the promotion of a taste for literature, and of good morals. Caxton died in 1491, and was buried in St. Margaret's church, Westminster. Although Caxton had no great pretensions to literature, nor to the reputation of an original writer, and though he does not appear to have made any improvement in the typographical art, he is entitled to respect and gratitude for the share he had in introducing and establishing an invention of the highest importance in his own country, and in facilitating and extending the practice of it. As a printer, and also as a translator, he had undoubtedly great merit; as he contributed in a very considerable degree, not only to the perfection of the art of printing, but to the diffusion of useful knowledge. The specimens of his talents and performances as a poet are found in the rhyming introductions and epilogues, with which he frequently decorates his books, and in a poem of

considerable length, entitled the "Work of Sapience." This comprehends not only an allegorical fiction concerning the two courts of the castle of Sapience, in which there is no imagination, but a system of natural philosophy, grammar, logic, rhetoric, geometry, astronomy, theology, and other topics of the fashionable literature. Although Caxton appears, by the prologue, to be the author, yet Mr. Warton, (Hist. of Poetry, vol. ii. p. 194.) thinks it not improbable, that he might on this occasion employ some professed versifier, at least as an assistant, to prepare a new book of original poetry for his press. The writer's design is to describe the effects of wisdom from the beginning of the world; and the work is a history of knowledge or learning. Biog. Brit.

CAXTON, in *Geography*, a small market town of Cambridgeshire, in England, has no other claim to publicity than from having been the birth-place of that respectable old historian, Matthew Paris, and the supposed birth-place of William Caxton, who introduced the art of printing into England. This ancient printer, we are informed by himself, was a native of Kent. In his "Recuyell of the Historys of Troye," he thus informs us. "In France was I never, and was born and learned myne English in Kente in the Weeld, where English is spoken broad and rude." This town is seated on a Roman road, and at present derives its principal support from being situated on a modern public road. The houses are small and mean, and the inhabitants mostly occupied in husbandry. It has a small market on Tuesdays, and two fairs annually.

CAY, a town of China of the second rank, in the province of Pe-tche-li; 125 miles S.S.W. of Peking. N. lat. 38° 3'. E. long. 115° 20'.

CAY. See CAYS.

CAY, or CAI, in *Zoology*, the Brazilian name of a very small monkey that inhabits South America, the prevailing colour of which is deep or coal black. Ray observes, that it lives only in thick woods, and is usually found sitting on the boughs of some of the trees which bear pods, the fruit of which it feeds upon. The species thus described is called by Buffon *tamarin*, and is the Linnæan *simia midas*. Linn. Mus. Ad. Fr.

CAYA, in *Geography*, a river of Spain, which runs into the Guadiana, near Badajoz.—Also, a river of Spain, in Catalonia, which runs into the Mediterranean, near Tamarit.

CAYAHOGA, or CAYUGA, a river of North America, in the state of Ohio, which discharges itself, by a mouth 38 yards wide, into the lake Erie at the south bank, 40 miles eastward of the mouth of Huron; having an Indian town of the same name on its banks, 30 miles S. of lake Erie. N. lat. 41° 20'. W. long. 81° 20'. It is navigable for boats 60 miles to the portage, which is $7\frac{1}{2}$ miles to the head-waters of the Tuscarawa branch of the Muskingum; and it is also navigable for sloops for fifteen miles without any falls or rapids; but at the mouth there is a bar like that of Grand river. In the vicinity of this river are fine uplands, extensive meadows, oak and mulberry trees fit for ship-building, and walnut, chestnut, and poplar trees adapted to domestic uses. Near the mouth of this river are the celebrated rocks which project over the lake. They are several miles in length, and rise 40 or 50 feet perpendicular out of the water. Some parts of them consist of several strata of different colours, lying in a horizontal direction, and so exactly parallel that they resemble the work of art. The view from the land is grand; but the water presents the most magnificent prospect of this sublime work of nature; it is attended, however, with great danger, for,

far, if the least storm arises, the force of the surf is such, that no vessel can escape being dashed against the rocks. The heathen Indians, when they pass this impending danger, offer a sacrifice of tobacco to the water. Part of the boundary line between the United States of America and the Indians, begins at the mouth of Cayahoga, and runs up along the same to the portage between that and the Tuscarawa branch of the Muskingum.

The Cayuga Indian, consisting of 500 persons, 200 of whom are warriors, 40 being resident in the United States, and the rest in Canada, receive of the state of New York an annuity of 2300 dollars, besides 50 dollars granted to one of their chiefs, as a consideration for lands sold by them to the state, and 500 dollars from the United States, agreeably to the treaty of 1794.

CAYAMBE, a village of South America, in the province of Quito, and jurisdiction of Otabalo, seated in the middle of a spacious plain, about 12 leagues N. of Quito. In this place M. Couplet, one of the French mathematicians deputed to measure the length of an arc of the meridian, died on the 17th of September, 1736, after an illness of two days.

CAYAMBURO, a mountain of South America, in the province of Quito, seated at the extremity of the plain of Cayambe, about 11 leagues N.E. from Quito. It is one of the largest mountains of the Cordilleras in this part of the country, being nearly equal in height to that of Chimborazo, that of the latter above the ocean being 19,595 English feet, and that of the former 19,391 feet. Its altitude is so great that it may be seen from the city of Quito. Its summits are covered with snow and ice: and its vicinity renders the whole plain of Cayambe cold, which is increased by the violence and continuance of the winds. It exhibits no appearance of having ever been a volcano, nor is there any tradition to this purpose. Several rivers issue from it, of which those from the west and north run either into the river of Emeralds or that of Mira, but all fall into the South Sea; while those from the east discharge themselves into the river of the Amazons.

CAYANG, in *Botany*, a leguminous plant, cultivated in the Mogul dominions for food. It is a kind of coarse pulse; of which the Europeans use great quantities on ship-board in the East Indies. It is a species of the *cytiscus*, called by the Indians there *kissery*. *Pöhl. Dict. Com.*

CAYAO, or CALAO, in *Ornithology*, a name by which the Linnaean *buceros bicornis*, or Philippine hornbill, is described in the Transactions of the Royal Society, v. 23. p. 1394.

CAYBOBO, in *Geography*, a town of the island of Ceram, in the East Indian Sea.

CAYBOROUGH, a river of America, being one of those rivers, which fall into the channel of Arroway, or north-west branch of the river Amazons; but, though navigable, it is useless for want of towns and inhabitants to trade.

CAYELAC, a sweet scented wood which grows in Siam; the Siamese and Chinese burn it in their temples. It is one of the commodities exported from Siam for China.

CAYENNE, or French *Guiana*, in *Geography*, a province of South America, frequently, but erroneously, called the island of Cayenne, which forms only an inconsiderable part of it, is bounded N. and E. by the Atlantic Ocean, S. by a line not ascertained; and W. by Dutch (now British) Guiana, or Surinam. It extends from the mouth of a small river called Amano, W. to another called Aracara, E., though an attempt was lately made to extend the

limits, at the expence of the Portuguese, to the estuary of the Marañon; its whole extent not exceeding 350 British miles in length by 240 in breadth. The French formed their first settlement in Guiana about the year 1635; and having abandoned it soon after, they were succeeded by the English; but again took possession of the country about the year 1664, and retained it ever since. The coast is low and marshy, and subject to inundations from the number of rivers, which rush down the mountains with great impetuosity. The soil of this colony is in many parts uncommonly fertile; and the productions are on the whole of an excellent quality, and it is easy to gain a subsistence. The Cayenne pepper is a noted produce of this country, and the inhabitants using it to excess, a considerable quantity is always imported from Peru. The other products of the colony are sugar, cocoa, coffee, and indigo, which, with maize, cassia, and vanilla, form the chief articles of its commerce. The interior parts, though much neglected, and remaining obstructed by thick forests and underwood, feed, nevertheless, a great number of horses, sheep, goats, and cattle, which roam at pleasure: the beef and mutton are reckoned excellent. The climate is much more salubrious than that of any of the Antilles; but as the situation of the town is ill chosen, in a swampy isle, its disadvantages have been laxly ascribed to the whole territory. The opinion that has been entertained of the unhealthfulness of this climate partly took its rise from the unfortunate expedition to Kourou, 12 leagues below Cayenne, which between 30 and 40 years ago was undertaken by command of the late duke of Choiseul, then prime minister of France; who sent 10,000 persons, very much unprovided with the most necessary articles, and in the most rainy season of the year, to people the immense deserts of French Guiana. This multitude of new colonists, after encountering in their voyage, and on their arrival, numberless inconveniences and hardships, presently vanished, falling victims, as it was said, to the insalubrious climate. Hence an erroneous opinion prevailed in France, which ruined the colony of Cayenne, by preventing the government from paying the least attention to that country, and discouraging a number of Europeans and inhabitants of the West Indian islands from settling in Guiana. In this colony there are, properly, only two different seasons, the dry and the rainy season. The former generally continues from the beginning of June until the end of September, during which time the heat is commonly very oppressive: the air is almost always serene, and scarcely a few drops of rain descend to purify and cool the atmosphere. The heavy falls of rain begin in the month of October, and are very frequent in December, January, February, and March, at which time they begin gradually to decrease until the dry season sets in. During the rainy season, that is, for seven or eight months, the heat is as moderate as can be expected so near to the equator; nay, the negroes sometimes complain of cold; and, upon the whole, the state of health is as good there as in Europe. However, at the time when stagnant waters are dried up and corrupted by the heat, fevers prevail for about two months, which, though not contagious, prove very destructive. The inhabitants of French Guiana are plentifully supplied with all the requisites of a good table, but they generally prefer salt meat and fish to fresh provisions. Being also much addicted to the use of every kind of food that is highly seasoned, they cultivate several sorts of pepper for culinary purposes, however sharp and pungent they may be. The Creoles prefer the cassava, which is a large round cake, about three lines thick, made of coarse flour of manioc and slightly baked on a tin plate, to the best and finest sorts of bread.

Besides

Besides the other articles of subsistence common to Guiana and other colonies, they have a dish called "calatoll," which is prepared of the fruit of a plant denominated "Combua," which is in frequent use. At every meal a negro presents to the guests a glass of ratifia, as soon as the first course is removed. This liquor is as transparent at Cayenne as the purest spring-water; it is very wholesome, and acquires a more pleasant flavour the older it grows; especially since the colonists have applied themselves to distil it over newly gathered cinnamon. The dress of the male sex consists in white pantaloons and a linen jacket, and the women spend most of their time in a hammock, a piece of furniture much valued in Guiana, and serving both for ornament and convenience. All hammocks are made of cotton; they are in general from six to seven feet in length, and nearly as broad; they are fastened on both ends by a number of small cotton strings; which join, at each end, a large rope of the same stuff. The whole burden is supported by these ropes, which are fastened to the walls of the room by means of large hooks. The hammocks are commonly suspended in the corners of the room, where they hang, like swings, in the form of a garland. Very fine hammocks are made at Cayenne; but the most beautiful are imported from Peru in Brasil, situated on the right banks of the river Amazon. The latter are made of variegated cotton, after various designs, ornamented with borders, tassels, and fringes, and cost about 50 dollars.

CAYENNE, the capital of the above colony, which is the seat of government, and of the courts of justice and the military. It is seated close to the sea, on the right banks, and near the mouth of a river of the same name, which is there about a league in width. The town is small; the houses are badly constructed of wood; and it is surrounded by a swampy moat, and wretched walls, which form a sort of irregular hexagon. The fort, which commands the town, is constructed of earth, and tolerably strong towards the sea, especially for this reason, that, from the want of depth of water, ships of a middle size only can approach it within gun-shot. The palace of the government, and the ancient mansion of the Jesuits, are the only buildings which deserve particular notice. They form two large façades, fronting the place of parade, which presents a pleasing prospect. It is bordered with two rows of orange trees of the largest size, which exhale an exquisite fragrance, and are crowded with colibris skipping from branch to branch. The population of the town of Cayenne, having of late years increased, and its circuit not admitting of a proportionate enlargement, a new town has been built on the neighbouring savanna, separated from the former merely by a ditch. This new town, which is already more considerable than the ancient city of Cayenne, and is daily increasing, is constructed on a regular plan: the streets are wide, admitting the free access and circulation of air, and contain some elegant houses, the beautiful appearance of which becomes more striking from the obvious marks of poverty and wretchedness exhibited by every thing about them. Cayenne, the metropolis of the whole colony, is also the capital of the island of the same name. Cayenne is celebrated on account of the experiment made by M. Richer, by order of the Academy of Sciences at Paris, in 1672, upon the pendulum; for an account of which, see PENDULUM. N. lat. 4° 56'. W. long. 52° 15'.

CAYENNE, or CAYANO, a small island on the coast of Guiana, formed northwards by the sea, and in other directions by the rivers Ouya, Cayenne, and Orayu. It is disjoined from the continent only by a kind of canal. This island, which is but five or six leagues in length, and three

leagues in breadth, is the more distinguished on account of its elevated and mountainous ground; as almost all the other parts of the coast of Guiana are low, and covered with swamp-pines, a species of large trees, which grow in the sea, and form forests at a considerable distance from the shore. All the productions of the continent of Guiana are also supplied by the island, with this difference only, that the latter is as it were exhausted, and does not indemnify the planter for his trouble and expence; while, on the contrary, more remote lands are fruitful in a very astonishing degree. Nevertheless, the produce of the soil, which is a kind of black sand covering a loamy clay and fit for making bricks, is not obtained without labour and expence; and the culture of it has been neglected. The number of inhabitants amounts, exclusively of the garrison, to about 1000 or 1200 whites, most of whom reside in the town of Cayenne; and consist of the feeble remains of Choiseul's unfortunate expedition to Kourou, of poor emigrants from Canada, and some other persons of the lowest class, who are chained down, as it were, to the glebe of the colony, because their means will not allow them to emigrate to other parts. They cultivate merely as much land as is requisite for their subsistence; and as they have in vain solicited the support of government, they are incapable of extending their culture. This small number of whites, dispirited by the total neglect which they experienced, and apprized of the insufficiency of their means for any important enterprise, have not presumed to indulge the favourite idea of planters, that of amassing a fortune, and of passing their latter days in Europe. Being necessitated to procure from Europe wine, flour, clothing, and some other things, they raised exactly as many commodities as amounted to the value of those articles, for which they exchanged their produce. They exported, therefore, little or nothing for the benefit of the parent country; and as the latter was obliged to keep agents in Guiana, it began even to consider this colony, which might have become a source of great opulence, in the light of a burthenome possession. Several of the inhabitants, thinly scattered over vast deserts, and separated by impervious brakes and brambles, and at the same time surrounded by negroes, who threatened to endanger their safety and peace, have relinquished the cultivation of the soil, and confined themselves to the rearing of cattle, which could be kept without care and expence in the immense savannas or natural meadows of the country.

CAYENNE river, which gives name to the island and country, rises in the mountains near the lake of Parima, runs through the territory of the Galibis, a nation of Caribbee Indians, and after a course of 100 leagues, discharges itself into the North Atlantic Ocean by a mouth about a league wide near the town of Cayenne.

CAYENNE bay, a bay on the south-west coast of the island of St. Vincent; two miles north-west of Kingston bay.

CAYES, *les*, a sea-port town on the south coast of the island of St. Domingo, 13 leagues W. by S. from St. Louis. It is surrounded by a plain, 6 leagues long and $4\frac{1}{2}$ broad; its harbour is very inferior, and the air is unwholesome; but the soil is very fertile. N. lat. 18° 13'. W. long. 73° 45'.

CAYEUX, a town of France in the department of the Somme, and district of Abbeville; $3\frac{1}{2}$ leagues N. of Montdidier.

CAYHOCA, or KEYOCCA, a town of Spanish America, in the province of Tabasco; 30 miles W. of Tabasco.

CAYLAR, *Le*. See CAILAR.

CAYL-

CAYLLOMA, or **CALLOMA**, a jurisdiction of South America, in the country of Peru, and diocese of Arequipa, at the distance of about 30 leagues east from the city of Arequipa, famous for a mountain of the same name, and the silver mines it contains. The produce of these mines has been very considerable; and in the principal village of the same name there are a governor and officer appointed for receiving the king's fifths, and vending the quicksilver used in separating the metal from the ore. The cold in the greatest part of this district is so intense, that the inhabitants are obliged to have recourse to the neighbouring provinces for the fruits of the earth. In some parts there are wild affies.

CAYLUS, **ANN-CLAUDE-PHILIP DE TUBIERE**, **DE GRIMOARD**, **DE PESTELS**, **DE LEVY**, count of, in *Biography*, an illustrious amateur of the arts, was descended from one of the most noble families of France, and born at Paris in 1692. Having entered at an early age into the military service, he distinguished himself in Calabria in 1711, and at the siege of Fribourg in 1713. But the peace of Rastadt terminated his military career; and from this time he devoted himself to those antiquarian researches, to which his love of the arts powerfully prompted him. In 1715 he joined the train of the French ambassador to the Porte, and visited the ruins of Ephesus, Colophon, and other places in Asia Minor and Greece. Availing himself by his garb and escort of those measures for his security, which prudence suggested, he viewed scenes that had been rarely contemplated by Europeans, and returned to France, in 1717, with a rich collection of drawings and descriptions. He afterwards visited London and other countries of Europe. Having concluded his foreign rambles and researches, he devoted himself to the incessant study of the elegant arts in all their branches. He was a practitioner in music, drawing, painting, and engraving; and the labours of the pencil and graver were aided by his pen in the illustration of classical antiquities. By his encouragement the public obtained a magnificent work, describing the sculptured gems in the king's cabinet, with the figures by Bourhardon, and the explanations by Mariette. In 1731, he was admitted a member of the Academy of Painting and Sculpture; and in return for this honour he composed the lives of the principal artists that had belonged to it; and he collected in three works all the new subjects for painting, which had occurred to him in his perusal of the writers of antiquity. He also founded an annual prize for the best drawing or model after nature of a head, expressing some particular passion; and he also, at his own expence, caused to be engraved the beautiful coloured drawings of Pietro Santò Bartoli, made at Rome after ancient paintings. In 1742, he was appointed one of the honorary members of the Academy of Inscriptions and Belles Lettres; and thus distinguished he was led to prosecute diligent inquiries into the Egyptian mode of embalming, the preparation of the papyrus, the transportation of enormous blocks of stone from one extremity of Egypt to the other, and several other curious subjects of ancient art. He also elucidated many difficult passages in the elder Pliny, relative to the arts, and by the assistance of a chemist revived the secret of tinging marble and of **ENCAUSTIC painting**, which see. His academical dissertations amounted to more than 40 in number; and he instituted a prize for a disputation, explaining the customs of antiquity from monuments, with a view to the improvement of artists in the knowledge of costume. By his various labours he acquired a reputation which extended throughout Europe, and which induced the principal learned academies to associate him with their members. He was justly deemed the Mæcenas

of talents and literature; and by his own economical mode of living, he was enabled to indulge his taste both as a collector and a patron. His moral character was amiable: cheerful, good-humoured, polite, strictly just, an enemy to flattery, and indifferent to honour, he was a true practical philosopher. His health was preserved to an advanced period, and he died at Paris, after a short confinement, in 1765, aged 73 years. His principal work is a "Collection of Egyptian, Etruscan, Greek, Roman, and Gaulish Antiquities," 7 vols. 4to. of which the last appeared in 1767, with an elege of the author by Mr. le Beau. Of his other works are, "The History of the Theban Hercules, taken from various Authors," 8vo. 1758; "A Discourse on Ancient Pictures;" and several romances and fairy tales, the productions of his hours of relaxation. *Nouv. Dict. Hist. Gen. Biog.*

CAYLUX, in *Geography*, a town of France, in the department of the Lot, and chief place of a canton in the district of Montauban; 7 leagues N.E. of Montauban. The place contains 5131, and the canton 10,473, inhabitants; the territory comprehends 195 kilometres and 9 communes.

CAYMAN, in *Zoology*, the common name of the alligator in America. Bontius, in his History of Java, calls it *Crocodylus cayman*. See **LACERTA alligator**.

CAYMANS, in *Geography*, three small islands of the West Indies, in the bay of Honduras, 55 leagues N.N.W. of the island of Jamaica, called Great Cayman, Little Cayman, and Cayman Brock. The former is the most southerly, about 1½ milc long, and a mile broad, and inhabited by about 160 persons, descendants of the old Buccaneers. It has no harbour for ships of burden, and only a tolerable anchoring place on the S.W. The climate and soil are very salubrious; and the people, who are vigorous, live to a great age. The produce is more than sufficient for the use of the inhabitants. Their chief employment is that of piloting vessels to the adjacent islands, and fishing for turtle; with which they supply Port Royal and other places in great quantities. It is situated in N. lat. 19° 20'. W. long. 81° 40'. The other two islands are uninhabited.

CAYMANUM LAPIS, in *Natural History*, the name of a stone found in the beds of rivers in many parts of America, and of a yellowish colour, veined with red and white. The Indians have an idle tradition, that it is originally found in the stomach of a crocodile, which in their language they call *caymens*; and thence authors have named it *lapis caymanum*. The natives of America pretend that it has great virtues in medicine, and particularly that it cures quartans by being applied to the wrist; and, to enhance its value, they pretend to take it from the crocodile.

CAYMITES, in *Geography*, three islands near the coast of St. Domingo, in the West Indies, the largest being about 12 miles in circumference; 35 miles W. from cape Donna Maria.

CAYNE, a river of Wales, which runs into the Severn, 4 miles W. from Newtown in Montgomeryshire.

CAYO, **EL**, a town of the island of Cuba; 60 miles E. of Spirito Santo.

CAYONNE, a river of the island of St. Christopher, in the West Indies; which falls into the sea from the W.S.W. near Little Bay, half a mile S.E. of Madan's point.

CAYOPOLLIN, of Buffon, and Fernand. Nov. Hisp. in *Zoology*, a quadruped of the *didelphis* genus, described by Pennant under the name of the Mexican opossum. Schreber calls it *didelphis cayopollin*, which see.

CAYRES, in *Geography*, a town of France, in the department of the Upper Loire, and chief place of a canton in the

the district of Le Puy; 8 miles S.S.W. of Le Puy. The place contains 678 and the canton 3556 inhabitants; the territory includes 130 kilometres and 6 communes.

CAYS, a general denomination applied in the West Indies to small islands or rocks, or other banks above water. The English seamen improperly give them the name of *Keys*.

CAYSTER, in *Ancient Geography*, now *Minderseare*, and called also by the Turks *Coutchouk-mindre*, that is, the Little Mæander, or the Black Mæander, a river of Asia Minor, which had its two sources N. and S. of the mount Tmolus, and having bathed Lydia, and traversed the plain between the mountains Galleus and Corissus, it discharged itself into the Ægean sea near Ephesus. This river was celebrated by the poets for the swans that frequented its banks, and the lakes formed by it on the plain. To this purpose Virgil says:—

“Jam varias pelagi volucres, et quæ Asiæ circum,
Dulcibus in stagnis rimantur prata Caystri.”

Georg. l. i.

It is also said to have almost as many windings as the Mæander itself. From this resemblance several of our modern travellers have been led to mistake the one for the other.

CAYSTRIUS CAMPUS, or CAYSTRUM, a plain of Asia Minor, in Ionia, between mount Galleus to the north and mount Corissus to the south, on which was seated the city of Ephesus. The Cayster traversed it from the east to the west. Pliny says that this plain was formed by the successive depositions of the river.

CAYSTROPEDIUM, a very populous city of Asia, in Phrygia; where Cyrus remained five days and was joined by Epyaxa, wife of Syennesis, king of Cilicia.

CAYUGA, in *Geography*, a beautiful lake in Onondaga county and state of New York, in America, from 35 to 40 miles long, about 2 miles wide, in some places 3, abounding with salmon, bass, catfish, eels, &c. It lies between Seneca and Owaseo lakes, and at the north end empties into Scayace river, which is the south-eastern part of Seneca river, whose waters run to lake Ontario. The reservation lands of the Cayuga Indians lie on both sides of the lake at its northern end.

CAZAL, a town of Arabia, 80 miles N.E. of Medina.

CAZALLA. See CAÇALLA.

CAZALS, a town of France, in the department of the Lot, and chief place of a canton in the district of Cahors; 3 leagues S.W. of Gourdon. The place contains 1046, and the canton 7947 inhabitants; the territory comprehends 142½ kilometres and 7 communes.

CAZARES, a town of Mexico. See ANGELO.

CAZAUBON, a town of France, in the department of the Gers, and chief place of a canton in the district of Condom; 6 leagues W. of Condom. The place contains 2275, and the canton 12,174 inhabitants; the territory includes 287½ kilometres and 18 communes.

CAZ-DAGLI, or CAZ-DANGLI, a district of Asia Minor, lying between Anatolia and Caramania, which the Turks believe to have been the country from which the English first drew their origin, and on this account, it is said, that they never fail to claim kindred with the English wherever they meet, especially if they stand in need of their assistance.

CAZECA, in *Ancient Geography*, a maritime town of the Tauric Chersonesus, between Panticapæa and Theodosia, according to Arrian.

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CAZEMATE, in *Fortification*. See CASEMATE.

CAZENOVIA, in *Geography*, a new and thriving township of America, in Herkemer county and state of New York, 40 miles westward of Whitestown. By the state census of 1796, 274 of its inhabitants are electors.

CAZERES, a town of France, in the department of the Upper Garonne, and chief place of a canton in the district of Muret; 2 leagues S.W. of Rieux. The place contains 2023, and the canton 10,978 inhabitants; the territory comprehends 222½ kilometres and 20 communes.

CAZERNS, in *Fortification*. See CASERNS.

CAZES, PETER-JAMES, in *Biography*, an eminent French painter, was born at Paris in 1676, and having discovered an early inclination for design, he was placed under the instruction first of Ferou, and afterwards of Houasse senior. The manner of Houasse being too mechanical for his taste, he received lessons of Boullogne the elder, and became his best scholar, so that he obtained several academical prizes. In 1703, he became a member of the Royal Academy of painting, and from this time began to distinguish himself. His first performances were fabulous subjects in the gallery of the marquis de Clerambaut; but his reputation was established by a large picture displayed at the church of Notre Dame on every first of May, representing the Woman with an Issue of Blood. He then opened a school, which was much frequented. Being of mild and polished manners, and of an enlarged understanding, he acquired the friendship of several persons of taste. By the Academy his merit was so much noticed, that he was advanced through the gradations of adjunct, professor, governor, and director, to that of chancellor. His particular walk of painting was that of history; and his compositions are grand and well-studied, marked by elevated conceptions, large and flowing draperies, correct drawing, and a good style of colouring. In his church pictures there is much dignity, and grace in his fabulous subjects; and he equally excelled in great and small works. He is principally deficient in expression, and in some of his later pieces, especially, the coldness of age is perceptible. He lost his faculties some time before his death, which happened in 1754. His works are numerous in Paris, and its vicinity, and they are also found at Abbeville, Amiens, and other places. His easel works are met with in several cabinets. The king of Prussia has two excellent ones, which for their beautiful finish are compared to the works of Corregio. Argenville. Gen. Biog.

CAZES de Mondenard, in *Geography*, a town of France, in the department of the Lot and district of Montauban; 3 miles S.E. of Lauzerte.

CAZIC, or CAZIQUE, a general title given by the Spaniards to the petty kings, princes, and chiefs of the several countries of America, excepting those of Peru, who are styled *curacas*. The French call them *casiques*, a denomination which they also give to the chiefs of the Tartarian hords.

The cazics in some places do the office of physicians, and in others of priests, as well as captains. The dignity of cazic among the Chiites, a people of South America, does not descend to children, but must be acquired by valour and merit. One of the prerogatives annexed to it is, that the cazic may have three wives, while the other people are only allowed one. Mexico comprehended a great number of provinces and islands, which were governed by lords called *caziques*, dependent on and tributary to the emperor of Mexico; thirty of these *caziques* or vassals are said to have been so powerful, that they could each of them bring an army of an hundred thousand men into the field.

A a

CAZIMI,

CAZIMI, among the *Arabian Astronomers*, denotes the disc of the sun. A planet is said to be in *cazimi*, when it is not distant from the center of the sun more than 16', the semidiameter of the sun's disc.

CAZOULS, in *Geography*, a town of France, in the department of the Hérault, and district of Beziers; 5 miles N.W. of Beziers.

CAZZOLA, a small island in the Adriatic, near the coast of Dalmatia. N. lat. 43° 8'. E. long. 16° 44'.

CAZZONS, in *Rural Economy*, a term provincially applied to signify the dried dung of cattle, which is employed as fuel. It is a sort of fuel frequently made use of in some parts of Yorkshire, as about Holderness.

CEA, in *Geography*, a town of Portugal, in the province of Beira, 7 leagues S.S.E. of Viseu.

CEADAS, or CÆADAS, in *Ancient Geography*, a name given by Pausanias and Strabo to a place of Peloponnesus, in the vicinity of Sparta, in which was a deep cavern, into which they precipitated those who were condemned to death for very atrocious crimes.

CEANIDES, or CEANTIDES, in *Natural History*, a name given by many of the ancients to the stone more generally known under the name of *enchymonites*. It was the same with our sparry incrustations on the walls and roofs of subterranean caverns: and, from the opinion of the times, that these stones brought forth young ones, which was founded on their finding little ones daily produced among them, it became a custom to give this internally to women in labour, as a thing that would, by a sort of sympathy, hasten the time.

CEANMHARRA, in *Geography*, a hill in the Scots island of Tiree, remarkable for numerous caves, to which sea-fowl, eagles, and ravens resort; some of the caves are more than 50 yards deep.

CEANOTHUS, in *Botany*, *κεανωθος*, Gr. a name given by Theophrastus to a prickly plant, supposed by Columna to be *ferratus arvensis* of Linnæus, but by Adanson to be a species of *cirsium*. Linn. gen. 267. Schreb. 361. Willd. 412. Lam. Ill. 358. Gært. 615. Juss. p. 380. Vent. vol. iii. p. 472. Clafs and order, *pentandria monogynia*. Nat. Ord. *Dumoseæ*; Linn. *Rhamni*; Juss. *Rhamnoideæ*; Vent.

Gen. Ch. *Cal.* Perianth one-leaved, top-shaped, permanent, five-cleft; segments acute, nearly closed. *Cor.* Petals five, equal, clawed, awl-shaped, inserted into the calyx between its divisions. *Stam.* Filaments five, awl-shaped, erect, opposite to the petals, the length of the corolla; anthers roundish. *Pist.* Germ superior, trigonous; style cylindrical, semitrifid, the length of the stamens; stigmas obtuse. *Peric.* Capsule (dry berry; Linn.) obtuse, three-grained or three-celled. *Seeds* solitary, egg-shaped.

Eff. Ch. *Calyx* five-cleft. *Petals* five, clawed, cowlled, opposite to the stamens. *Capsules* three-grained, three-celled.

Sp. 1. *C. americanus*, Linn. Sp. 1. Mart. 1. Lam. 1. Willd. 1. Lam. Ill. pl. 129. fig. 1. Gært. tab. 106. fig. 4. (*Celastrus*; Gron. Virg. 23. Evonymus; Com. Hort. tab. 86. Pluk. alm. tab. 28. fig. 6.) New Jersey tea. "Leaves egg-shaped, acute, serrated, three-nerved at the base; panicles axillary, on long peduncles." A shrub, three or four feet high. *Stems* several, slender; branches cylindrical, smooth, reddish. *Leaves* alternate, deciduous, on short petioles. *Flowers* small, white, very numerous. *Capsules* about the size of a pepper-corn. A native of New Jersey, Virginia, Carolina, and other parts of North America. An infusion of the dried leaves is used by the common people instead of tea; particularly in the southern states, where,

from its Indian name, it is commonly called pongpong tea. It flowers from July to October, and from the profusion of its blossoms is a very ornamental shrub. 2. *C. macrocarpus*, Willd. 2. Cav. ic. 3. p. 38. tab. 276. "Leaves cordate-roundish, obtuse, three-nerved; corymbs axillary." Fruit nodding, large. Sufficiently distinct from the preceding, both in its inflorescence, and its leaves. A native of New Spain. 3. *C. microphyllus*, Lam. Illust. 2681. "Leaves oblong-elliptical, distantly toothed, small; panicle terminal, composed of alternate peduncled cymes." *Stems* about nine inches high, slender, much-branched. Found by André Michaux in Florida. 4. *C. asiaticus*, Linn. Sp. Pl. 2. Mart. 2. Lam. Enc. 2. Illust. 2682. Pl. 129. fig. 2. Willd. 3. (Rhamnus asiaticus; Poir. in Encyc. Art. Nerprun. Glossularia; Burm. zeyl. iii. tab. 48. Katapa; Rheed. Mal. 5. tab. 47. Carpodetus ferratus; Schreb. 360. Willd. 410. Mart. Forst. prod. 111. gen. p. 33. tab. 17.) "Leaves egg-shaped, somewhat serrated, three-nerved at the base; peduncles axillary, branched, many-flowered, shorter than the leaves." Lam. A shrub of a moderate size. *Branches* stiff, cylindrical, perfectly smooth. *Leaves* alternate, obscurely nerved, veined, smooth. *Flowers* in axillary racemes; most of them abortive. A native of the East Indies, and the isle of France. 5. *C. reclinatus*, Mart. 4. Lam. Ill. 2683. L'Herit. Sert. Ang. p. 6. (Rhamnus ellipticus; Willd. 23. Hort. Kew. R. venosus; Poir. Encyc. 25. R. inermis; Swartz. prod. 50. Fl. ind. 1. p. 497. R. arborescens; Brown Jam. 172. tab. 29. fig. 2.) "Leaves egg-shaped, quite entire; branches dependent; cymes axillary, shorter than the leaves." Lam. A shrub. The young branches, petioles, peduncles, and calyxes clothed with light yellowish down. *Leaves* alternate, acute; a little villous underneath when young; smooth and bright green above. *Flowers* in small, axillary corymbs; peduncles branched at the summit into short, thick pedicels, petals shorter than the divisions of the calyx, almost linear. A native of Jamaica and St. Domingo. 6. *C. colubrinus*, Lam. Illust. 2684. (Rhamnus colubrinus; Linn. Sp. Pl. 8. Mart. 16. Poir. 15. Willd. 16. Jacq. Amer. 74. n. 2. Hort. 3. tab. 50. R. arboreus; Brown Jam. 2. p. 176. Arbor baccifera; Com. Hort. 1. p. 175. tab. 90.) "Leaves elliptical, quite entire; petioles, peduncles, and calyxes clothed with a ferruginous down." Lam. A tree, twenty feet high in mountain woods; only seven or eight in coppices on the coast. *Branches* spreading horizontally. *Leaves* alternate, acute, smooth and shining above. *Flowers* greenish, in short axillary racemes. A native of the West Indies, called by the French bois couleuvre, or snake-wood. In Cuba, according to Jacquin, the down is silvery, but in the other islands it is always ferruginous. 7. *C. cubensis*, Lam. Ill. 2685. (Rhamnus cubensis; Linn. Sp. Pl. 10. Mart. 15. Poir. 14. Willd. 15. Jacq. Hort. 3. tab. 49.) "Leaves egg-shaped, obtuse, quite entire, wrinkled, tomentous on both sides; cymes axillary." A small upright tree seven feet high, in habit approaching to viburnum lantana. *Leaves* alternate, petioled. *Petals*, examined under a magnifier, ciliated. A native of Cuba. 8. *C. africanus*, Linn. Sp. Pl. 3. Mart. 3. Lam. Encyc. 3. Illust. 2686. Willd. 4. (Celastrus; Hort. Clif. 73. Alaternus; Pluk. tab. 126. fig. 1. Alaternoides; Comm. præl. 61. tab. 11. Ricinoides; Seb. Thes. 1. p. 35. tab. 22. fig. 6.) "Leaves lanceolate, obtuse, serrated; stipules roundish." Lam. A shrub from six to nine feet high, evergreen. *Branches* smooth, reddish brown. *Leaves* alternate, smooth, shining, dark green above, on very short petioles; stipules embracing the stem. *Flowers* small, in axillary and terminal racemes. *Fruit* about the size of a large

large pea, globular, surrounded on its lower part by the calyx, which, having lost its divisions, resembles a little cup. A native of Africa. 9. *C. circumscissus*, Mart. 5. Gært. tab. 106. fig. 4. (Rhamnus circumscissus; Linn. jun. Sup. p. 152. Poir. in Encyc. 10. Willd. 32. Lycium; Pluk. Amalth. tab. 426. fig. 3.) "Prickly; leaves nearly opposite, in two rows; prickles solitary, recurved opposite to the leaves." A shrub. Branches simple, opposite, widely spreading, angular, with an even surface. Prickles solitary, opposite, fixed, horizontal, recurved, solid. Leaves petioled, inversely heart-shaped, obscurely toothed; stipules two, very minute, caducous. Flowers small, lateral, in axillary corymbs; pedicels four or five, very short, thick, placed near the summit of the peduncle; calyx campanulate, with five small sharp teeth, which fall off as the fruit advances, and leave the body of the permanent calyx apparently cut round; petals of a beautiful white colour, nearly heart-shaped, ciliated, involving the anthers; filaments a little shorter than the calyx; anthers upright, oblong, style short, permanent; stigma, emarginate. Fruit three-celled; Linn. jun. two-celled, two-seeded in the specimens sent to La Marck by Sonnerat. A native of the East Indies and Isle de France. We have followed Gærtner and professor Martyn in referring this plant to the present genus, on account of its having a dry fruit opening with pressure by two or three regular valves, although La Marck has left it under Rhamnus. 10. *C. capsularis*, Mart. 6. Lam. Ill. Forst. Flor. Austr. p. 18. n. 212. "Leaves ovate-cordate, acuminate, serrated; capsules three-valved." Forst. A native of Otaheite.

Propagation and Culture. The first species was cultivated in England, by bishop Compton, at the beginning of the last century. It was soon after lost, but, in Mr. Miller's time, was re-imported from America, and is become not uncommon in nurseries. It may be raised either from seeds or by layers of the young branches; but the first method is to be preferred. The seeds should be sown in autumn in small pots, which must be kept during the winter in an old hot-bed, and well sheltered from frost, but occasionally exposed to fresh air in mild weather. In March the pots should be plunged into a moderate hot-bed, and when the plants have gained a little strength, they should be exposed in a sheltered situation till autumn, but must be placed under a hot-bed frame to screen them from the frost of the ensuing winter, with a free allowance of open air in mild weather. In the following spring, they should be transplanted before they begin to shoot, some into separate pots, and others into the nursery bed in a warm situation, where they may remain for a year or two, and then be removed to the places where they are designed to remain. They require a dry soil and a sheltered situation; in stiff cold land they put out late in the spring, and their young shoots are consequently so full of sap in the autumn, that they are commonly hurt by the first frosts, and die nearly down to the ground. When propagated by layers, the young shoots should be laid down in autumn, and the surface of the ground covered with decayed tan taken from an old hot-bed, to secure them from frost, and to prevent the winds from drying the mould too much in the spring. In a light soil they will put out roots in about a year; but as the shoots are tender, they are apt to rot if they be more than very moderately watered.

The fourth species may be propagated either by layers or cuttings, but requires the protection of the bark-stove.

The seeds of the sixth species should be sown on a hot-bed in the spring; and when the plants are fit to remove, they should be placed separately in small pots, filled with light sandy earth, and treated like other tender exotic plants.

The eighth species is best propagated by cuttings, which

should be planted in spring, in pots filled with good kitchen-garden earth, and plunged into a very moderate hot-bed. In about two months, if only moderately watered, they will have taken root, and may be treated like the other species. Miller.

CEAUX, in *Geography*, a town of France, in the department of the Vienne and district of Loudun; 2 leagues E. of Loudun.

CEBA, ANSOLDO, in *Biography*, an Italian poet, and a copious writer both in verse and prose, was born at Genoa in 1565, and died in 1623. In verse he wrote two heroic poems, "L'Elther" and "Il Furio Camillo;" and he laid down the rules of epic poetry in a dialogue on the subject more happily than he exemplified them. His "Elther" contained many fabulous additions to the Scripture history, which caused it to be inserted in the prohibited list. He chiefly excelled as a dramatic poet; and two of his tragedies, the "Gemelle Capoane" and the "Alcippo" have been inserted by the marquis Maffei in the *Theatro Italiano*. Ceba also wrote a Roman history in Italian, a collection of academical exercises, orations, &c. Tiraboschi. Gen. Biog.

CEBA, in *Ancient Geography*, a town of Liguria, S.E. of Augusta Vagiennorum. The cheese made near this city is commended by Pliny.

CEBARADEFENSIS, an episcopal see of Africa, in the Byzacene territory.

CEBARSUSSI, another see in the same territory.

CEBASSAT, in *Geography*, a town of France, in the department of the Puy-de-Dôme, and district of Clermont Ferrand; 3 miles N. of Clermont.

CEBATHA, in *Botany*, Forsk. *Ægypt*. p. 171. See *MENISPERMUM edule*.

CEBEL, in *Music*, an ancient English air, found among the compositions of the English masters of the violin who lived in the time of Charles II., in duple time of four bars or measures repeated at the will of the composer; the strains being alternately in the grave, and the acute series of notes in the musical scale.

CEBENNA, corruptly GEBENNA, the *Cevennes*, mountains of the Gauls, occupied by the Gabali and Ruteni. The Averni were situated to the north of these mountains, in relation to the Romans, by which they were fortified as by a wall, "ut muro se munitos existimabant," says Cæsar; however, he penetrated their district.

CEBES, in *Biography*, a philosopher of Thebes, and a disciple of Socrates, is supposed to be the author of a beautiful allegorical piece, entitled "Pinax," or the "Tablet," representing a picture of human life. In its moral spirit and character, this piece is truly Socratic; but contains some sentiments which seem to have been borrowed from the Pythagorean school. Professor Meiners in a "Memoir," published in the 5th volume of the "Transactions of the Royal Society of Gottingen," urges several objections against the authenticity of the table of Cebes; and though they are not new, they are acute and judicious. It favours more, he says, of the Stoical than of the Socratic school. He considers it, indeed, as a noble composition; pure in style, as well as in precept; anterior also to the decline of Grecian eloquence, and infinitely superior to all the other productions that have been falsely attributed to the early writers of the Socratic school; nevertheless, he is induced, by various considerations, to pronounce positively, that it was composed long after the time of Cebes. In the first place, the author of this "Table" considers poetry, rhetoric, music, dialectics, and all the branches of mathematical science, as a *fallacious philosophy*, which has no tendency to render mankind wiser and better; an opinion,

which does not seem to be consistent with the tenets of the Socratic school. *Secondly*, he mentions the Peripatetic sect, which arose in Greece long after the time of Cebes; and, *thirdly*, he uses several expressions, which, as Meiners thinks, were not in use among the early Socratic writers. The learned Brucker, in his account of Cebes, (Hist. Crit. Philos. t. i. p. 578. ed. 2. 1767.) has made several observations, which, if they do not entirely remove these objections, diminish, at least considerably, their force. Some interpolations have been supposed by the learned to have got into the text, perhaps from marginal notes in the MS.; and the passage from which professor Meiners deduces his first and most important objection, has, with no small appearance of evidence, been considered by Fabricius as corrupt and supposititious. The professor, however, maintains, that this passage is so closely connected with what precedes and what follows, that the suspicion of any addition or interpolation is entirely groundless. Be that as it may, all the learned ancients, with one voice, attribute this philosophical table to Cebes, and, most certainly, both with respect to beauty of composition and excellence of matter, it is worthy of the most flourishing period of Athenian philosophy and literature. The editions of this table in various languages have been innumerable. The first complete edition of it was published from a MS. in the king of France's library by J. Gronovius, in 1687, 8vo. It is now usually printed with the *Enchiridion of Epictetus*; as a manual for students in the Greek language. Brucker, by Enfield, vol. i. Fabr. Bib. Græc. t. i. p. 831.

CEBESSUS, in *Ancient Geography*, a town of Asia, in Lycia.

CEBESTUS, a town of Asia Minor, in Lycia, according to Quintus Curtius.

CEBRENA, a town of Asia Minor, in the Troade, and in the country named *Cebrenia*, a level country below, and parallel to, Dardania. It is mentioned by Strabo, Thucydides, Pliny, and Scylax.

CEBRINUS, a river of Asia Minor, in Cebrenia, mentioned by Herodian.

CEBRUS, a place of Lower Mæsia, according to the Itinerary of Antonine. It was situated to the north-west, on the right bank of the Danube, below Rithiaria, at the mouth of a river of the same name.

CEBU, in *Geography*, an island of the East-Indian Ocean. See ZEBU.

CEBU, SEBOU, or SUBRO, a river of Africa, in the empire of Morocco, which runs from mount Atlas, through the provinces of Fez and Asgar, and in its course cuts its way through two steep rocks of prodigious height near the mountain of Beni-yazga, and falls into that sea near Mamor, a city destroyed by Almanzor, about 20 miles N. of Sallee. The mountaineers convey themselves from one side of this dreadful chasm to the other, by seating themselves in a strong basket, that runs by a pulley along a stout cable, which is fastened at both ends to two beams fixed in the rock, and is drawn by the people on the opposite side; so that if the basket or any of the tackle chance to break, as it has sometimes done, by the weight of the passengers, they fall into the river from a height of above 1500 fathoms. This river is reckoned the largest in Mauritania, and abounds with excellent fish, which has been farmed by the emperor at above 20,000 ducats.

CECCO, D'ASCOLI, whose proper name was FRANCESCO DE GLI STABILI, in *Biography*, was born at Ascoli, about the year 1257; and acquired eminence, according to the age in which he lived, in poetry, theology, medicine, and mathematics. By his mechanical skill, he proposed to

the people of Ascoli to bring the Adriatic under their wall, through an interval of six leagues. He seems to have had for some time an intimacy with Dante, which was interrupted by his free remarks on the *Commedia* of this author; and it is probable that by the severity of his criticisms and by other parts of his conduct he made himself many enemies at Florence. He was invited to Avignon by pope John XXII. in order to be his first physician; though his medical reputation probably depended chiefly on his professed skill in astrology. In 1322, he was appointed professor of astrology and philosophy at Bologna, and there published his "Commentaries on the Sphere of John de Sacrobosco." An accusation against him before the inquisition of Bologna was founded on this work, because he had taught that incantation and other wonderful feats might be effected by means of demons inhabiting the first sphere: and the inquisition passed a sentence enjoining penance, and depriving him of the right of ever again reading lectures on astrology. From Bologna he removed to Florence, and became astrologer and physician to Charles, duke of Calabria, who governed that city. Here again the inquisition took cognizance either of his pretended prophecies or heretical opinions concerning the influence of the stars on the human character and conduct; and the power of his enemies prevailed against him to such a degree, particularly that of Dino del Garbo, a famous physician, who had attacked his commentaries, and who was probably jealous of his influence at court, that he was capitally condemned and brought to the stake at Florence in 1327. Dino himself died a few days after, distressed by the reflection that he had been instrumental in promoting this cruel event. Cecco was vain, fraudulent, and superstitious, and licentious in his practice. Besides the commentaries which occasioned his condemnation, he wrote a poem in *Sessa rima*, entitled "L'Acerba," which was a medley of physics, morals, theology, and judicial astrology, without much poetical merit; and yet the temporary reputation of the author caused it to pass through 19 editions: and the last year of its publication was 1546. Tiraboschi. Moreri. Gen. Biog.

CECIL, WILLIAM, lord Burleigh, an eminent statesman, was son of sir Richard Cecil, master of the robes to Henry VIII. and was born at Bourn in Lincolnshire in 1520. From St. John's college, Cambridge, where he completed his education, he was removed to Gray's Inn, for the study of the law. In consequence of a dispute with two Irish priests concerning the power of the pope, which he conducted with credit, he was introduced to the king; who conferred upon him the reversion of the place of "Custos brevium"; and he was then encouraged to push his fortune at court. His first wife was the sister of sir John Cheke, who recommended him to the favour of the earl of Hertford, afterwards so powerful in the reign of Edward VI. under the title of the duke of Somerset. Soon after the commencement of that reign, having lost his lady, he married the daughter of sir Anthony Cook, director of the king's studies; and thus supported, he rose in 1547 to the post of master of requests, and in 1548, to that of Secretary. Some court intrigue occasioned his loss of this place, and his being committed, with some others of the duke of Somerset's friends, to the Tower; whence, however, he was soon liberated. In 1551, he was reinstated in his office, with an increase of favour, knighted, and sworn a member of the privy council. So wary was his conduct amidst the collision of parties, that he stood secure when his patron, the duke of Somerset, fell; and such was his personal influence with the young king, that the haughty duke of Northumberland treated him with respect. Upon the death of Ed-

ward

ward he pursued the same cautious conduct, and thus secured a favourable reception from queen Mary; but refusing to change his religion, he forfeited his office. In 1555, he attended Cardinal Pole and other commissioners to the continent in order to treat of a peace with France. On his return, he was deputed to parliament by the county of Lincoln, and distinguished himself by his opposition to a bill brought in for confiscating the estates of fugitives on account of religion. His prudent counsels were also of singular service to the princess Elizabeth in her critical situation; and they were duly acknowledged on her accession in 1558, when, in the arrangement of her first ministry, he was appointed privy counsellor and secretary of state. The settlement of religion was one of the first acts of the new reign, in which Cecil took the lead, and in which he manifested great prudence and moderation; and in the recovery of the coin from its debased state he also successfully engaged. With regard to foreign affairs, it was his great object to guard against the dangers impending from the catholic powers; and with this view he thought it of great importance effectually to guard the reformed religion in Scotland. As he was one of the commissioners who accomplished the convention of Leith and the treaty of Edinburgh, which were eminently advantageous to the English interest, he was advanced, in recompence of this service, to the post of master of the wards in 1561. His system of politics, which was prudential and cautious, corresponded, in a considerable degree, with the inclinations of his mistress; and he thus maintained a regular and permanent influence through the whole of his ministry. For his wisdom and activity in suppressing the northern rebellion, he was raised by Elizabeth to the peerage in 1571, by the style of Baron of Burleigh, and in the following year he was made knight of the garter and lord high treasurer. His steady and zealous opposition to the machinations of the popish party, drew upon him the rancorous hatred of the Jesuits, and emissaries of Spain; and their rancour was further inflamed by the part he took in the unhappy fate of Mary, queen of Scots; whom he is charged with having driven from the throne, and kept as a prisoner in England, and whom he considered as the inveterate foe of Elizabeth, so that he never ceased urging her trial and condemnation. Burleigh shared with other actors in the catastrophe of her execution the feigned resentment of Elizabeth, and it was with some difficulty that he recovered his former credit. At the time of the threatened Spanish invasion, he drew up the plans of defence, and his eldest son served on board Lord Howard's fleet. Soon after this period he sunk into a state of melancholy, in consequence of the death of his wife, to whom he was affectionately attached, and wished to withdraw from public business. However, he was persuaded to retain his employments, and he was diligent to the last in fulfilling the various duties of his station, so that he was regarded as at the head of Elizabeth's counsellors. One of the last services in which he engaged was an effort to bring about a peace with Spain; but being vehemently opposed in his proposed scheme of pacification by the earl of Essex, he contented himself with pointing out to his lordship in a prayer-book the following words, "Men of blood shall not live out half their days." Having attained an honourable old age, Lord Burleigh died in 1598, after having completed his 77th year. Cecil may be justly reckoned the animating soul of queen Elizabeth's ministry, and to his counsels may be attributed, in a very great degree, the singular prosperity of that period in the history of our country. Possessing no distinguished genius, he had other qualities, such as the knowledge of mankind, the wisdom of experience, invincible resolution and indefatigable application, which qualified him

for encountering the difficulties and performing the services, which the critical circumstances of the times presented. Particular emergencies demanded corresponding measures of policy; and it must be allowed, that they offer an apology for some of those adopted by lord Burleigh, who always approved himself a faithful servant of his royal mistress. In his character as a courtier he combined that degree of probity which conciliated esteem; and he seems to have possessed that learning, piety, and decorum, which in that age usually accompanied elevated stations. His manner of living was splendid and yet economical; and though he raised a considerable fortune, it was by no means greater than the various posts which he occupied might justify. His whole life was that of a busy statesman; and therefore he had not much leisure for literary avocations. However, he is said to have been the author of a few Latin verses, and of moral and historical tracts. Several of his letters on business are still extant. Biog. Brit.

CECIL, ROBERT, earl of Salisbury, was the second son of the former, and born about the year 1550. As his constitution was feeble and his form distorted, he received the first rudiments of learning at home, under his learned mother and an excellent tutor, and finished his education at St. John's college, in the university of Cambridge. By his father, however, he was instructed in the arts of an accomplished courtier and statesman. He began his political career as assistant to the earl of Derby, ambassador at the court of France, and in 1596, was appointed by queen Elizabeth second secretary of state with Sir Francis Walsingham; and when that minister died, he became principal secretary, which post he occupied as long as he lived. He acquired also other offices of profit and honour, for which he seems to have manifested a greater degree of avidity than his father. His advancement, indeed, was strenuously opposed by the earl of Essex; and for this reason he was a principal instrument in the disgrace and unfortunate end of that eminent nobleman. By the regular correspondence which he attentively maintained with foreign courts, he was enabled to counteract and defeat many conspiracies against his sovereign and his country. Whilst he contributed to support the declining years of Elizabeth by his vigour and prudence, he was not regardless of the favour of her successor. Accordingly he held a secret correspondence with him, and adopted the necessary measures for his quiet inheritance of the crown at the queen's demise; and for these services he was continued as prime minister at the accession of James; who advanced him to the peerage; creating him baron of Essenden in 1603, viscount Cranbourn in 1604, and earl of Salisbury in 1605. In this last year he was appointed chancellor of the university of Cambridge, and admitted to the order of the garter. His politics were altogether adverse to the Spanish interest, which was powerful at court; he steadily opposed the popish party, and placed himself at the head of the protestant cause, inasmuch that he was reproached with the appellation of puritan. He was indispensably necessary to James; and therefore, though the king did not love him, he was chosen, in 1608, as the fittest person to succeed the lord high treasurer, the earl of Dorset, at his death. The king's profusion rendered his post very delicate and trying; and in order to supply the royal coffer, he is said to have had recourse to various methods that have been deemed arbitrary and oppressive. The good of the nation was, however, the object at which he aimed; and he justly merited the praise of the ablest minister in that reign. By his application to business he injured his health; and as he had a weakly constitution, his life terminated by a decline, in 1612. He died at Marlborough in his return from Bath, and was buried

buried at his magnificent seat at Hatfield in Hertfordshire ; which manor he had obtained from the crown, in exchange for his seat of Theobalds near Cheshunt.

Lord Salisbury is characterised as a man of more subtle and acute genius than his father ; and he was thus led, as some have said, to pursue a more crooked and treacherous system of policy, so that those who were concerned with him in public affairs could repose no confidence in him. The death of Sir Walter Raleigh is in a great degree charged upon him ; and he is also reproached with having adopted arbitrary maxims of government, in order to ingratiate himself with his weak master. He was also selfish and avaricious in making lucrative bargains with the crown, and thus aggrandizing his own fortune. His natural temper was mild, gentle, and courteous ; and though in the height of power, he met death with philosophical tranquillity. "Ease and pleasure," said he in his last illness, "quake to hear of death ; but my life, full of cares and miseries, desireth to be dissolved." As a writer, he was the author of a work against the papists, of several letters, dispatches, and parliamentary speeches, and of some notes in Dr. Dee's discourse on the reformation of the calendar. Biog. Brit.

CECIL, in *Geography*, a county of America, in the state of Maryland, situate on the shore of Chesapeake-bay, and containing, by the estimate of the population in 1782, 7749 inhabitants.—Also, a township of Washington county in the state of Pennsylvania.

CECILIA, SAINT, in *Biography*. Musical historians have found it very difficult in the lives and legends of saints, to authenticate the claim which this holy personage has to such divine honours and annual celebrations from the wicked sons of Apollo, the divinity whom she had abandoned.

It was natural to expect to find in the "Legenda Aurea" of Jacobus Januensis, and in Chaucer's account of this saint in his second "Nonnestale," that some mention would have been made of her musical powers and promise of protection to the art ; but neither in Chaucer, nor in any of the histories or legendary accounts of this saint, which we have been able to consult, does any thing appear that can authorise the religious veneration which the votaries of music have so long paid to her ; nor is it easy to discover whence it has arisen. Chaucer's account is almost literally translated from the life of St. Cecilia, in the "Legenda Aurea" of Jacobus Januensis. Bede, in his Ecclesiastical History (lib. v. cap. 2.), mentions her church at Rome, as the place where Vilbrord was ordained pope in 696 ; and in his Martyrology, he tells us, that her intended spouse, Valerian, and his brother Tiburtius, suffered martyrdom in the time of the emperor Alexander Severus. Mabillon (De Liturgia Gallicana, p. 175.) has proved, that the festival of this saint was celebrated in France before the time of Charlemagne, by a Gallician Missal, which he has published, and which must have been in use before the Gregorian chant was received in that country. (Cardinal Bona, "De divina Psalmod." says, that the MS. of this mass, which was in possession of the late Christina, queen of Sweden, had belonged to the learned Petavius, and was written in the 9th century, as was discovered by the learned from the square form of the letters, and the capitals.) Fortunatus of Poitiers (lib. vii. cap. 4.), the most ancient author who speaks of her, says, that she died, or rather suffered martyrdom in Sicily. Fortunatus wrote at the end of the 6th century ; but even this was at too remote a period from that in which tradition tells us the saint lived, as Alexander Severus reigned from 194 to 211.

There was a great festival at Rome in 1599, during the pontificate of Clement VIII. for the finding the body of St. Cecilia among other relics. Cardinal Baronius, who was

himself a witness of this transaction, has left an ample account of it. (Voyez la Vie de Saints, tom. 31. 3 edit. fol. p. 369, Par. 1715.)

The earliest notice of her as the titular saint and protectress of music seems to have been in the works of the great painters of the Italian school ; some representing her in performing on the harp, and others on the organ. Raphael, in his celebrated portrait of the saint, has placed in her hands a column of organ pipes, or rather the front of a portable instrument called the *Regals*, which in Roman catholic times used to be carried by one person and played by another in processions. But when her birth-day first began to be celebrated by assemblies of musicians, we have been able to discover no instance earlier than the latter end of the 17th century, when there was a rage among the votaries of music for celebrating the birth-day of this saint, not only in London, but in all the considerable cities and provincial towns in the kingdom where music was cultivated.

We meet with no such constant annual celebrations of this saint on the 22d of November in other countries. In the *Drammaturgia* of Leo Allatius, indeed, 13 dramas, tragedies, and oratorios are recorded, of which this female saint is the heroine.

The first composition expressly produced for a musical meeting in England on St. Cecilia's day, was called "a musical entertainment performed November 22d, 1683, on St. Cecilia's day, printed in score by John Playford, with a dedication to the gentlemen of the musical society, and particularly the stewards, written by Henry Purcell, composer of the music."

But whoever wishes to trace the celebration of this pious patroness of music in our country from this period, will find an ample account detailed in the life of Dryden, by the diligent and accurate Mr. Malone, who has not only gone over the same ground as the musical historians, but taken a much wider range in search of materials for the life of this saint, and the honourable titles conferred upon her by the sons of Apollo.

The history of this nominal patroness of music is involved in some obscurity, it not very clearly appearing how she became entitled to this honour. She is supposed to have been born in the reign of the emperor M. Aurelius Antoninus, and to have suffered martyrdom in that of Septimius Severus, in the beginning of the third century ; and, according to the legend, she was a noble Roman lady of distinguished piety, who from her infancy had been bred in the Christian faith ; notwithstanding which, she was married by her parents to a young Pagan nobleman, named Valerianus, who, on claiming the rights of a husband, was told by her, that she was visited nightly by an angel, who was enamoured of her, and would destroy him if he presumed to approach her. He replied, that he would desist, if he were permitted to behold his rival, and he should prove an angel ; but if he were a mere mortal, as he feared, he would put them both to death ; to which Cecilia answered, that he should be indulged in what he desired, provided he became a convert to Christianity. To this requisition Valerianus agreed ; and after having been baptised by bishop Urban (afterwards pope Urban I.), repaired to his wife's chamber, where he found her at prayer, with the angel by her side, in the form of a beautiful youth, clothed with celestial brightness. The angel had in his hand two crowns, or wreaths, the one of lilies, the other of roses, which he had brought from Paradise ; one of them he presented to Cecilia, and the other to her husband, informing him at the same time, that as a reward for his piety, whatever he asked should be granted him. Valerianus replied, that he had a brother named Tiburtius, whom he wished to be made partaker

taker of the same grace which he had received. The angel having granted his request, told him that they both should be crowned with martyrdom; and then vanished. They accordingly were put to death for their faith; but Cecilia was informed, that she should be spared, if she would offer sacrifice to Jupiter. Not choosing to preserve her life on such conditions, she suffered martyrdom, by being shut up in a dry bath, beneath which a large fire was made for the purpose of slowly consuming her. (According to other accounts, she was thrown into scalding water. Fortunatus of Poitiers, who lived in the sixth century, says, she suffered martyrdom in Sicily.) Finding, however, that the fire had no effect, her tormentors put her to death. Malone's Life of Dryden, vol. i. pt. 1st. p. 255.

"If (says Mr. Malone, as Dryden and others seem to have thought, she had been the inventress of the organ (*ubi supra*, p. 257) an instrument so happily adapted to religious worship, that circumstance might have entitled her to a place, though not to so extraordinary an elevation, among the improvers of the musical art.

All this adoration of the saint seems "to have arisen from a tradition that she was a skilful musician, and that the angel who visited her was drawn from the mansions of the blessed by the charms of her melody; a circumstance to which Dryden has alluded in the conclusion of his ode."

Mr. Malone has been at the trouble of tracing all the great *Cecilian* festivals held in London, from the year 1683 to about the year 1740. And Mr. M. in his very agreeable book has given a chronological list of all the odes written expressly for the celebration of this saint, specifying by whom they were written, and by whom set to music.

CECILIA, in *Ancient Geography*, a town of Syria, near the Euphrates, according to Ptolemy; probably the same with *Ceciliania*.

CECILIA *Gemellina*, a town placed by Ptolemy in Lusitania; perhaps the same with *Ceciliania*, or *Castra Cæcilia*.

CECILIANA, a town of Asia in Syria, seated on the western bank of the Euphrates, S.E. of Hierapolis.

CECILIONICUM, a place of Spain, marked in the Itinerary of Antonine, between Capara and Ad Lippos.

CECINA FLUVIUS, a river of Italy in Etruria, which ran from the east to the west and discharged itself in the sea.

CECROPIA, in *Botany*, Linn. gen. 1099. Schreb. 1492. Juss. p. 402. Vent. vol. iii. p. 542. Coulequin, Lam. Bosc. Class and order, *diæcia diandria*. Nat. Ord. *Scabridæ*, Linn. *Urticæ*, Juss.

Gen. Ch. *Male*. Calyx common. Spathe egg-shaped, bursting, caducous; containing many fasciculated, cylindrical aments, imbricated with numerous flowers. *Cal. proper*. Scales top-shaped, compressed-quadrangular, obtuse, with a double perforation at the tip. *Cor.* none. *Stam.* Filaments two, capillary, very short, from the perforations of the scales; anthers oblong, quadrangular. *Female*. *Cal. common*. Spathe oblong, obtuse with a point, bursting longitudinally, deciduous; containing four cylindrical, imbricated aments. *Cal. proper* funnel-shaped, oblong, erect, bifid at the tip; segments roundish, obtuse, concave, erect, small. *Cor.* none. *Stam.* none; but there are two very small, caducous bodies on the divisions of the calyx, which have the appearance of barren anthers. *Pist.* Germs numerous, imbricated, compressed, quadrangular, obtuse; styles solitary, very short; stigmas somewhat capitate, lacerated. *Peric.* Berry the form of the germ, one-celled, one-seeded. *Seeds* oblong, compressed.

Eff. Ch. *Male*. Spathe caducous. Ament imbricated with

top-shaped, compressed-quadrangular scales. *Cor.* none. *Female*. Germs imbricated. Style one. Stigma lacerated. Berry one-seeded.

Sp. *C. peltata*, trumpet-tree, or snake-wood. Linn. Sp. Pl. Læsl. it. 272. Jacq. Obs. 2. tab. 46. fig. 4. Amer. pict. 126. tab. 262. fig. 66. (Ambaiba; Marceg. bras. 91. Pif. bras. 147. Yaruma Ovidi; Sloan jam. tab. 88. fig. 3. tab. 89. Ficus furinamenfis; Pluk. alm. tab. 243. fig. 5. Coilo-tapalus; Brown jam. n. 1.) A tree, about thirty feet high. Trunk a foot in diameter, hollow, stopped from space to space with membranous septa, which form slight annular marks on the surface, branched only at the summit. Leaves in clusters at the ends of the branches, large, peltate, green and scabrous above, downy-white underneath, deeply divided into nine or ten oblong lobes, on long petioles. Berries in flavour somewhat resembling the common raspberry. The wood when dry easily takes fire by attrition; and is employed by the native Indians for kindling their fires in the woods. The bark is strong and fibrous, and used for cordage. The smaller branches, when cleared of their membranous divisions, are employed for wind instruments. Both trunk and branches yield a great quantity of fixed salt with which the French despumate and granulate their fuggars. A native of the West Indies, Guiana, and other parts of South America. It may be propagated by seeds brought from its native country in sand, and requires the same treatment as other tropical plants.

CECROPIA, in *Ancient Geography*, one of the first names given to the citadel of Athens, and also to the whole city. See ATHENS.

CECROPIA, a burgh of Greece in Attica, between Mount Cægaleus and the village of Achernes, according to Thucydides. A tribe of the same name belonged to it.

CECROPIUS MOUNTS, a name given by Seneca the tragedian to a mountain of Greece, in Attica, in the vicinity of Athens; probably the eminence on which was erected the Acropolis, which afterwards bore the name of Cecropia.

CECROPS, in *Biography*, the first king of Athens, whose history ascends into the fabulous times, is said to have been an Egyptian by birth, and to have brought a colony from the city of Sais in Egypt, whom he conducted after a tedious voyage to the shores of Attica, and settled on the rock, that became afterwards the site of the city of Athens. The period to which this point is referred is, according to the Eusebian chronicle, about 1556 years B.C. On this spot Cecrops built a fortress, called *Cecropia*; and having taken possession of a country inhabited by a barbarous people, divided it into districts, introduced laws, agriculture, and the arts, social polity, and religion; and, on this account, deserved to be reckoned the founder of the Athenian state. Such was the beneficial effect of the regulations which he established, that Attica was soon peopled by 20,000 inhabitants, who were divided into four tribes. From respect to his memory, the Athenians assumed the appellation of "Cecropidæ," which they retained to the time of Erechtheus. Cecrops died after a reign of 50 years. He had espoused Agraulis, the daughter of Actæus, one of the principal inhabitants of Attica, by whom he had a son, who died before him, and three daughters to whom the Athenians afterwards decreed divine honours. His tomb was long preserved in the temple of Minerva; and his memory was perpetuated in the constellation of Aquarius, which was consecrated to him. After Cecrops, reigned 17 princes, during an interval of about 565 years, the seventh of whom was called Cecrops, and the last Codrus. Travels of Anacharxis, vol. i. See ATTICA.

CECRYPHALEA, in *Ancient Geography*, a promontory of Peloponnesus, near which the Athenians gained a naval combat against the Æginetæ, according to Diodorus Siculus and Thucydides. This has been supposed to be the isle of Cecryphalos, which Pliny has placed near the Peloponnesian Epidaurus. That part of the sea which bathed the island and promontory of this name was called "Cecryphaleum mare."

CEDAR, *Barbadoes bastard*, in *Botany*. See **CEDRELA**.

CEDAR, *bastard*. See **BUBROMA Guazuma**.

CEDAR, *Bermudian*. See **JUNIPERUS Bermudiana**.

CEDAR, *Carolina*. See **JUNIPERUS**.

CEDAR of *Lebanon*. See **PINUS Cedrus**.

CEDAR, *Lycian*. See **JUNIPERUS Lycia**.

CEDAR, *Phœnician*. See **JUNIPERUS Phœnicea**.

CEDAR, *red*, or **VIRGINIAN**. See **JUNIPERUS Virginiana**.

CEDAR, *white*. See **CUPRESSUS THYOIDES**.

CEDAR, or **KEDAR**, in *Ancient Geography*, a portion of Arabia, near Judæa. The Arabians in this district had black tents. See the Song of Solomon, ch. i. ver. 5.

CEDAR, in *Geography*, an island of America, on the coast of Virginia. N. lat. $37^{\circ} 37'$. W. long. $76^{\circ} 40'$.

CEDAR, a river of Canada which runs into the lake Michigan. N. lat. $47^{\circ} 30'$. W. long. $86^{\circ} 50'$.

CEDAR, a lake of North America, N. lat. $52^{\circ} 30'$. W. long. $100^{\circ} 5'$. The entrance into this lake is through a small channel on the left, formed by an island. Banks of rocks appear at intervals, in the approach to it on either side: the rest of the country is low. This is the case along the south bank of the lake and the islands, while the north is level throughout. This lake runs first west four miles, then as much more W.S.W., across a deep bay on the right, then six miles to the Point de Lievre, and across another bay again on the right: then N.W. 8 miles across a still deeper bay on the right; and 7 miles parallel with the north coast, N.N.W. through islands, 5 miles more to Fort Bourbon, situated on a small island, dividing this from Mud lake. The Cedar lake is from 4 to 12 miles wide, exclusive of the bays. Its banks are covered with wood and abound in game, and its waters produce plenty of fish, particularly the sturgeon. The river Saskatchewan will probably, in a course of time, by the deposition of earth and sand, convert the whole of the cedar lake into a forest. Mackenzie's Voyages, Introd. p. 68.

CEDAR lick, a salt spring in the state of Tennessee, America, 19 miles from Nashville, 4 from Big Spring, and 6 from Little Spring.

CEDAR Point, a port of entry in Charles county, Maryland, on the east side of Patowmac river, about 12 miles below Port Tobacco, and 96 S. by W. of Baltimore. Its exports are chiefly tobacco and Indian corn, and in 1794 amounted in value to 18,593 dollars.—Also, a cape on the west side of Delaware bay, in St. Mary's County, Maryland.

CEDAR-cups, a sort of wooden ware brought from the West Indies. They are made out of the wood of the bastard cedar, and appear of a very close and firm grain; but they are really so porous, that when any liquor is poured into them, it runs out at the bottom.

CEDEBRATIS, in *Ancient Geography*, a town of Asia Minor in Lycia.

CEDEYRA, in *Geography*, a town of Spain, in the province of Galicia; 5 leagues north of Ferrol.

CEDIAS, in *Ancient Geography*, an episcopal town of Africa.

CEDILLA, in the Spanish and French languages, denotes a sort of small *c*, to the bottom of which is affixed a kind of virgula, as *ç*, to denote that it is to be pronounced like *s*. The cedilla is called by some of our printers a *cece-ril*. It is used before the vowels *a*, *o*, and *u*; as in *braços*, *choga*, *commença*, *legon*, and *dega*, &c. in the Spanish, it is sometimes used at the beginning of a word; as in *çamarra*, *çurzar*, &c.

CEDOGNA, in *Geography*, a town of Naples, in the province of Principato Ultra, the see of a bishop, suffragan of Conza, at the foot of the Apennines, in a decayed state: 12 miles N.W. of Meli.

CEDREÆ, in *Ancient Geography*, a town of Asia Minor, in Caria. Steph. Byz.

CEDREI, **CEDRÆANS**, or **CEDARENIAN**s, a people of Arabia Deserta, in the vicinity of the Nabathæans, mentioned by Pliny. They dwelt in tents, and commonly occupied the southern part of Arabia Deserta, north of Arabia Petræa and Arabia Felix.

CEDRELA, in *Botany*, (formed from *Cedrus*, and so called from its aromatic resin) Linn. gen. 277. Schreb. 383. Willd. 436. Lam. Ill. 378. Juss. p. 266. Vent. vol. iii. p. 165. Gært. 592. tab. 95. fig. 2. Class and order, *pentandria monogynia*. Nat. Ord. *Meliæ*, Juss. *Meliaceæ*, Vent.

Gen. Ch. *Cal.* Perianth one-leaved, campanulate, very small, five-toothed, withering. *Cor.* pentapetalous, funnel-shaped; tube bellied below; petals linear-oblong, obtuse, erect, adnate to the receptacle about a third of their length. *Stam.* filaments five, awl-shaped, seated on the receptacle; shorter than the petals, adnate to the receptacle, Lam. short, distinct, Juss. united into a tube, half their length, Vent.: anthers oblong, bent outwards at the tip. *Pist.* Receptacle proper, five-cornered; germ globular, (elevated on a yellowish receptacle which rises within the flower, Lam. placed at the top of a stipes which has the stamens inserted into its upper part and the petals into its lower, Juss. supported by the tube formed by the union of the stamens, Vent.) style cylindrical, the length of the stamens; stigma capitate, depressed. *Peric.* capsule woody, roundish, five-celled, five-valved; valves deciduous. Schreb. Lam. (dehiscient from the tip, fixed at the base, not caducous, Gært.) *Seeds* numerous, fleshy, imbricated downwards, terminated by a membranous wing. (Compressed; upper ones elliptical; middle ones oblong-ovate; lower ones ovate-lanceolate; all of a ferruginous-cinnamon colour, with a nucleus at the top, and a membranous wing beneath, Gært.) *Receptacle* central, very large, woody, pentagonal, five-angular.

Ess. Ch. Calyx withering. Corolla five-petalled, funnel-shaped, adnate to the receptacle a third of its length. Capsule woody, five-celled, five-valved. Seeds imbricated downwards, with a membranous wing. Nearly allied to *Swietenia*.

Sp. C. *odorata*, Linn. Sp. Pl. Brown. Jam. tab. 10. fig. 1. Lam. Ill. Pl. 137. (*Cedrus barbadensium*, Pluk. alm. tab. 157. fig. 1. *Pruno forte affinis*, Sloan. Jam. 182. hift. tab. 220. fig. 2. *Acajou aplanches*, Nicols. St. Dom. p. 135.) "Flowers panicked." A straight tree seventy or eighty feet high. Wood soft, light, reddish, of a pleasant smell; bark smooth and ash-coloured when young, rough as it advances in age; having, when fresh, an unpleasant taste and very offensive smell resembling that of *asafœtida*. Leaves sometimes near three feet long, winged with sixteen or eighteen pairs of leaflets without an odd one, with a smell like that of the bark. Flowers whitish flesh-colour, small, very numerous, in much-branched racemes or panicles: branchlets alternate,

nate, rather remote, each bearing two or three flowers. On account of its agreeable odour, the wood is commonly known in the British West India islands under the name of cedar. It is much used there for canoes and periaguas, some of which have been hollowed out of its trunk not less than forty feet long and six broad; the softness and lightness of its wood render it peculiarly proper for this purpose. It is also cut into shingles for the roofs of houses, which are found very durable; and is a valuable material for chests of drawers and other articles of household furniture, because its odour is offensive to insects. A native of South America and the West Indies. Loureiro has another species which he calls *C. Rosmarinus*, a native of Cochin-China and the neighbourhood of Macao, but Willdenow is of opinion that it ought rather to be referred to the genus *Itea*. A shrub, about four feet high. *Leaves* linear. *Peduncles* axillary, one-flowered. *Seeds* not winged. It yields a fine essential oil, and a spirit not inferior to that which is drawn from rosemary.

CEDRELA, Brown, Jam. 158. See *SWIETENIA mahagoni*.

CEDRELA, in *Gardening*, comprehends a plant of the exotic tree kind, viz. the Barbadoes bastard cedar (*C. odorata*), which, in its native situation, rises with a straight stem to the height of seventy feet or more, but is small in this climate. While young, the bark is smooth, and of an ash colour; but, as it advances in age, becomes rough, and of a darker colour: toward the top it shoots out many side branches, which are garnished with winged leaves, composed of sixteen or eighteen pair of leaflets, sometimes near three feet long, and of a pale colour, emitting a rank odour in the summer season: the fruit is oval, about the size of a partridge's egg, smooth, and of a very dark colour. It is a native of the West Indies.

Method of Culture. This is effected in this plant by sowing the seeds obtained from abroad in the autumn or spring months, in small pots filled with a light earth, plunging them in a hot-bed. When the plants are of sufficient growth they should be removed with care into other small pots separately, and be placed in the bark-bed, having afterwards the management of other woody stove plants.

CEDRENUS, GEORGE, in *Biography*, a Greek monk, who flourished in the latter part of the 11th century, and wrote annals, or an epitome of general history, from the beginning of the world to the reign of Isaac Comnenus, in 1057. This work is compiled, without much judgment and critical skill, from different authors. It was translated into Latin by Xylander, and printed at Basil in 1566; and an edition appeared at Paris in 1647, with the notes of father Goar, and the glossary of Fabrot.

CEDRES, in *Ancient Geography*, a mountain of the isle of Crete, near mount Ida, according to Theophrastus.

CEDRIA, a resinous liquor issuing from the great cedar-tree, or cedar of Lebanon. The word is also written *cedrium*, *κεδριον*, and *cedrinum*, *κεδρινον*.

Cedria, when good, yields a strong smell, is transparent, of a thick, fatty consistence, so that in pouring it out, it does not fall too fast or freely, but equally drop by drop. It is possessed of two opposite qualities, viz. to preserve dead bodies, by its drying and consuming superfluous moisture, without damaging the solid parts; and to putrefy the soft and tender parts of living bodies without exciting any pain. The cedria is properly the tear of the cedar. Some call it the gum, others the pitch of the cedar. The same denomination is also given to the *cedreleon*, or oil of the cedar, which differs little from the resin, except that it is of a thinner consistence.

Pliny, speaking of the cedar, says, that the tar of it used

in embalming was forced out of it by fire, and called in Syria *cedrium*. His words are, "Cujus tanta vis est, ut in Ægypto corpora hominum defunctorum eo perfusa serventur." Dioscorides calls it the life of the dead, *νεκρὸς ζωὴς*. See Phil. Transf. vol. liv. p. 12.

CEDRINUM (*Vinum*). cedar wine; of which there are several sorts, whose qualities are said to be heating, diuretic, and gently astringent; but the *laurinum*, or bay-tree wine, is remarkably heating.

CEDRIPPO, in *Ancient Geography*, a place of Spain, in Bætica.

CEDRIS, a river of Sardinia, which flowed towards the East into the sea.

CEDRON, or KEDRON, a town of Palestine, on the borders of the Philistines, in the way to Azotus. It was rebuilt by Cedebeus, according to the book of the Maccabees.

CEDRON, KEDRON, or KIDRON, a brook or torrent of Palestine, in a valley on the east side of Jerusalem, betwixt it and mount Olivet, which discharged itself into the Asphaltite lake. Our blessed Lord passed over this brook into the garden where he was betrayed, (John, xviii. 1.) David also, when he fled from Absalom, crossed this brook, (2 Sam. xv. 23.) See also Jer. xxxi. 40. Jerom calls it a torrent or valley, and Josephus denominates it a deep valley. Into this valley was conveyed the blood poured out at the foot of the altar, which, as the blood made the river look black, derived its name from this circumstance, the word "Kiddar," denoting blackness. Others deduce its name from the cedar-trees planted on each side, whence, say they, it is still named in the plural, as by the LXX, (Jer. xxxi. 40.), *τὸν κεδρων*, from these cedar-trees.

CEDRONELLA, in *Botany*, Comm. Hort. See *DRA- COEPHALUM canariense*.

CEDROPOLIS, in *Ancient Geography*, a country of Thrace, where, according to Aristotle, they trained hawks for the chase.

CEDROSIA. See *GEDROSIA*.

CEDROTA, in *Botany*, Schreb. 660. Willd. 756. (Aniba. Aubl. 126. Juss. 438. Lam. Encyc. Bot. Nouv. Dict.) Class and order, *œanthia monogyria*.

Gen. Ch. Cal. perianth one-leaved; deeply divided into six ovate, obtuse, concave segments. Cor. none. Stam. filaments eight, short, inserted into the receptacle; anthers roundish, two-celled. Pist. germ superior, roundish, surrounded by a gland; style short; stigma obtuse. Peric. unknown.

Ess. Ch. Calyx six-cleft; segments concave. Corolla none. Germ surrounded by a gland.

Sp. C. *guianensis*, Mart. Willd. (Aniba *guianensis*, Aubl. Gui. tab. 126. Lam. Illustr. Pl. 298.) A tree, forty feet high, two feet thick. Wood yellowish, aromatic, heavy when green, becoming light when dry; bark thick, unequal, wrinkled, full of clefts. Branches near the top of the trunk, numerous. Leaves about seven inches long, two broad, either opposite, or in whorls of three or more together, oval-acuminate, entire, thin, smooth, on short petioles. Flowers small, green, loosely racemed, on a long, weak, axillary peduncle; pedicels slender, generally bearing three sessile flowers. A native of the forests of Guiana. The inhabitants call it cedar-wood, and use it for making their pirogues. It is said also to be fit for masts.

CEDRUS. See *CEDRELA*, *JUNIPERUS*, *PINUS*, and *SWIETENIA*.

CEDRUS, or CEBRUS, in *Ancient Geography*, a small river of Mysia, according to Dion Cassius.

CEESTER, in *Geography*, a town of Germany, in the duchy of Holstein; 11 miles W. of Pinnenberg.

CEESTER-Mube, a town of Germany, in the duchy of Holstein; 13 miles W. of Pinnenberg.

CEFALENSIS, in *Ancient Geography*, an episcopal see of Africa, in the Proconular province.

CEFALU, in *Geography*, a sea-port town of Sicily, in the valley of Demona, on the north coast of the island, the see of a bishop, suffragan of Messina. The harbour will not contain more than 30 or 40 vessels. The number of inhabitants is about 5000; 14 miles E. of Termini. N. lat. $38^{\circ} 5'$. E. long. $14^{\circ} 5'$.

CEGINUS, in *Astronomy*, a fixed star of the third magnitude, in the left shoulder of Bootes, marked γ by Bayer.

CEGLIA, in *Geography*, a town of Naples, in the province of Bari; 5 miles S.S.E. of Bari.

CEGOLITES, in *Natural History*, a name by which some authors have called the *lapis JUDAICUS*, or *TECOLI* of the ancients.

CEHOLOT, of Ray, in *Ornithology*, the Mexican pigeon, described by Gmelin under the title of *columba mexicana*, which see.

CEIBA, in *Botany*, Plum. tab. 32. Gært. 377. See *BOMBAX ceiba*.

CEILA, or **KEILAH**, in *Ancient Geography*, a city of Palestine, in the tribe of Judah. Joshua, xv. 44. It was attacked by the Philistines in the time of Saul; but rescued by David. Eusebius places it 17 miles from Eleutheropolis, on the side of Hebron. Sozomen says, that the tomb of the prophet Habakkuk was shewn in this place.

CEILANESE GODS. See *BUDUN* and *SAKRADWENDRA*.

CEILING, in *Architecture*, the upper part or interior covering of any room or apartment.

Ceilings are in general composed of a coating of laths and plaster, or stucco applied on the underside of a vault or timber framing: accordingly they are either flat or coved in various manners; they are also either plain or ornamented. The usual method of ornamenting ceilings is to dispose them into compartments or pannels forming various geometrical figures, either let into the ceiling, or being flush with its surface, and surrounded with one or several mouldings. The compartments frequently receive ornaments of various kinds; foliage, figures, or grotesques, and executed in relief with stucco or plaster, or painted in colours, or chiaro oscuro. Thus the ceilings have frequently constituted the greatest ornament of palaces, and other splendid buildings, and have employed the talents of the greatest artists.

In England, the custom of ornamenting ceilings has greatly declined, and indeed is scarcely at all practised in private buildings. The use of an inferior covering to the flooring-timbers of a house is considerable, as it preserves a greater equality of temperature in the apartments, and prevents the transmission of sound from one story to another. These advantages are so well understood in this country, that we see none but the oldest and meanest habitations unprovided with plaster ceilings.

CEILING, in *Sea Language*, denotes the inside planks of a ship.

CEIMELIA, from *κειμαι*, to be laid up, in *Antiquity*, denotes choice, or precious pieces of furniture or ornaments, reserved or laid up for extraordinary occasions and uses.

In which sense, sacred garments, vessels, and the like, are reputed of the *ceimelia* of a church. Medals, antique stones, figures, manuscripts, records, &c. are the *ceimelia* of men of letters.

CEIMELIARGHIUM, the repository or place where *ceimelia* are preserved.

CEIMELIOPHYLAX, from *κειμηλιου* and *φυλαττω*, I keep, the keeper or curator of a collection of *ceimelia*; sometimes also denominated *ceimeliarcha*.

The *ceimeliarcha*, or *ceimeliophylax*, was an officer in the ancient churches or monasteries, answering to what was otherwise denominated *chartophylax*, and *custos archivorum*.

CEINTURE, **MILITAIRE**, a military cincture, girdle, belt, or sash. This term, however, has been generally employed to denote a broad leathern belt, which was worn round the waist, and was ornamented with gold and silver plates. The chevaliers put on it even jewels and precious stones, as is manifest from the representations of these chevaliers on ancient tombs and monuments. These ceintures must have fatigued them, and particularly their sides, and it must have required good haunches to support them, when furnished with all their military appendages and trifes; for there were attached to this *ceinture* the two swords for combat, the great *esfocade*, or rapier, and the *braquemard*, or strong short cutting sword; as also the shield or buckler when the cavaliers were not in the act or attitude of fighting.

The marshal de Bourgogne, in 1241, left by his will to the church of St. Vincent de Chalons two *ceintures*, one of gold and the other of silver, to be wrought up into sacred vases. These sorts of *ceintures*, which ceased to be in use after armour of hammered or beaten iron made its appearance, constituted part of the cavalier's armament of honour.

The *armament d'honneur*, or armament of honour, consisted of those pieces of a warrior's armour, to the loss of which shame or disgrace was attached. A cavalier who lost through cowardice or misconduct in battle his sword or his buckler, was disgraced or dishonoured. Disgrace was equally attached to his losing his military cincture.

The conqueror in despoiling his adversary of his *ceinture* thereby manifested a complete victory over him. It was the mark or token of liberty as long as it was carried by one under arms, to which state of liberty that of servitude or slavery succeeded, on his losing it. He who despoiled another of it had power or authority to bind him with it.

Honour was so much attached to the military *ceinture*, that the grand seigniors took much delight in enriching theirs, and among the other ceremonies observed at the degradation of a cavalier, that of depriving him of the cincture was one.

Cinctures were in use before the time of Charlemagne. A young cavalier, on first taking that ornament, received it from the hands of an old one. The ceremony observed on such an occasion was a sort of introduction to the profession of arms. When *ceintures* came to be laid aside, they were succeeded by scarfs, bands, and bandoleers.

CEINTURE, in *Ornithology*, the French name of the yellow lark, *Alauda flava*. *Ceinture de prêtre ou alouette de Sibérie*, Buffon. The plumage of this bird is rufous, varied with fuscous grey above; beneath whitish; front, chin, and throat yellow; tail-feathers black, edged with grey; the exterior ones edged with white. Length five inches and three quarters. Inhabits Siberia, and is very rare.

CEINTURE d'argent, in *Ichthyology*, the name given by French authors to the fish called by Linnæus *Trichiurus lepturus*, which see.

CEINTURON, a waist-belt generally of leather, which succeeded the *baudrier*, or shoulder belt, and was smaller and lighter than it. The *ceinturon* and *baudrier* have, indeed, at times, replaced each other. The shoulder-belt is most common, and certainly gives the soldier a more military and graceful appearance than the waist belt.

CEIRA,

CEIRA, in *Ancient Geography*, a cavern in the country of the Getæ, in the vicinity of the Danube. Dion Cassius says, that Crassus stopped the avenues of this cavern in order to compel the inhabitants of the country who had taken refuge in it, to surrender.

CEIRA, in *Geography*, a town of Portugal, in the province of Beira; one league S.E. of Coimbra.

CEIRA, a river of Portugal, which runs into the Mondego, about a league S.E. of Coimbra.

CEIXUPIERA, in *Ichthyology*. The fish described by Maregrave under this name cannot easily be ascertained from the account left us by that writer. He says it is a native of the American seas, and is esteemed a fine and delicate fish, though of an enormous size. Its grows to nine or ten feet long, and to the thickness of a man's body; but is chiefly eaten while young. The body is oblong; and the head flattened. The mouth is small for the size of the fish, and it has no teeth in the jaws, but the whole mouth is thickly set with small tubercles. Its back and sides are black, and the belly of a fine bright white. Its fins are all black except the belly ones, which are white with a rim of black at their edge.

CEIZERIAT, in *Geography*, a town of France, in the department of the Ain, and chief place of a canton in the district of Bourg. The place contains 1106, and the canton 8865 inhabitants: the territory comprehends 140 kilometres, and 14 communes.

CELADON, in *Ancient Geography*, a small river of Peloponnesus, in Arcadia; which had its source in Mount Lyceus, and discharged itself into the Alphæus, according to Pausanias.

CELADONE, a town of Greece, in the Locride.—Also, the name of a small river of Spain, called also Celadus or Celandus.

CELADUSA, one of the names of the small island of *Rhenea*, situated in the vicinity of that of Delos.

CELADUSSÆ, an island of the Adriatic Sea, mentioned by Mela and Pliny.

CELÆNÆ, a large town of Asia, in Phrygia, where Cyrus had a palace and a park filled with wild beasts. The river Meander traversed this town, and also the Marfyas. Xerxes retired to Celænæ after his defeat, and built the castle and fortrefs. Xenophon mentions this city. Cyrus the younger sojourned here 30 days, and was joined by Clearchus, when exiled from Lacedæmon.—Also, a place of Greece, on the confines of Attica and Bœotia. Suidas.

CELÆNUS, a mountain of Asia, placed by Ptolemy in Galatia. It was also called *Celenus tumulus*.

CELÆTHI, a people of Greece, in Thesprotia, in the neighbourhood of Thessaly. Steph. Byz.

CELÆTHRA, an ancient town of Greece, in Bœotia, in the vicinity of the town of Arne. Steph. Byz.

CELAMA, a village of Africa, in Mauritania Cæsariensis. It lay in the interior of the country, S.W. of the grand promontory, and S.E. of Artifiga.

CELANDINE, in *Botany*. See *CHOLIDONIUM majus*.

CELANDINE, *lesser*. See *RANUNCULUS ficaria*.

CELANDINE tree. See *BOCCONIA*.

CELANO, in *Geography*, a town of Naples, in the province of Abruzzo Ultra, seated near the north shore of a lake of the same name, and the head of the earldom that comprehended at one time the greatest part of the country of the Marfi. This was the ancient name of the people that inhabited the environs of the lake, allowed by the Romans to be the most intrepid soldiers of their legions, when in friendship, and the most formidable of their enemies, when at variance. It was a common saying, that Rome

could neither triumph over the Marfi, nor without them. In the 662d year of Rome, B. C. 92, they put themselves at the head of the Social war, one of the most obstinate and dangerous oppositions ever made to the progress of the Roman power, which was terminated by a grant of the privileges for which they contended. Their name still subsists in that of the diocese, for the prelate is styled bishop of the Marfi. In ancient times, the lake was called Fucinus, and was under the protection of a god of the same appellation, whose temple stood on its banks. According to the testimony of ancient authors, it was subject to extraordinary increase and decrease. The actual circumference is 47 miles, (more than 30 miles, says sir William Hamilton, *ubi infra*); the breadth, in the widest part, 10, in the narrowest, 4; its depth, on an average, 12 feet. But these measures have been subject to great variations. Two miles up the plain, behind Avezzano, the fragments of boats, shells, and other marks of its ancient extent, have been casually discovered; and, on the contrary, there are people who remember when it did not flow nearer than within two miles of Avezzano. An immense tract of land is lost at every increase of its level; and if any means could be devised for draining it, or, at least, reducing its size, the value of the ground recovered for cultivation would be more than an equivalent for any expence incurred in the works. Round this lake rises a circle of grand mountains covered with snow, some of which are the highest in Italy, if we except the Alps: the most elevated is the Rocca di Cambio. At the foot of these are many villages, and rich, well-cultivated farms. In summer this country must be a delightful residence, for the environs of the lake are well enclosed, and the sides of the hills covered with fine woods; its waters abound with fish of various kinds, though not of the best quality, and hither, at the stated seasons, repair innumerable flocks of wild fowl. In the shallow water on the borders of the lake, sir W. Hamilton saw thousands of water-snakes, pursuing and preying upon a little fish like our thornbacks, but much better armed, though their defensive weapons seemed to avail them but little against such ravenous foes. The necessities of life are good, plentiful, and cheap. About 1½ mile from the town is the emissary or opening made by order of Clandius Cæsar for the discharge of the waters into the Liris, now the Garigliano, which runs in a deep valley on the other side of the hills. In a line from it, now choaked up, up the slope, are six perpendicular wells, and two oblique grooves to the canal, which was driven through the hill into the opposite valley, and there had a vent at Capitrelli, two miles from the lake. As the swelling of this lake was attended with incredible damage, the Marfi had often petitioned the senate to drain it; Julius Cæsar would have attempted it, if his life had been prolonged. His successor declined the project, till, at length, Clandius, who delighted in expensive, difficult enterprises, undertook it. During the space of eleven years he employed 30,000 men in digging a passage through the mountain, and when every thing was ready for letting off the water, he exhibited a superb naval spectacle on the lake, consisting of an engagement between condemned criminals, who, in separate fleets, acted the parts of Rhodians and Sicilians, and who destroyed one another for the amusement of the court, and of a multitude of spectators that covered the hills. When the emissary was opened, at the close of this savage diversion, the emperor himself, with difficulty escaped being hurried away and drowned by the sudden rushing of the waters towards this vent. However, through either the ignorance or negligence of the engineers, the work did not answer expectation, and Claudius did not live long

enough to complete it. Sir W. Hamilton went with torches into the emissary of Claudius as far as he could. It is a covered under-ground canal, three miles long, and great part of it cut through a hard rock; the other parts supported by masonry, with wells sunk to give air and light. In its present state, though filled up with rubbish and earth in many parts, and of course useless, it is a magnificent monument of antiquity. Nero abandoned the scheme projected and partly executed by Claudius, through envy. Adrian is said to have let off the waters of the Fucinus; but none now escape except through hidden channels formed by nature, but liable to frequent obstructions. As three considerable streams run into the lake, the least obstacle to a discharge must raise the level. Swinburne's Travels, vol. iv. p. 374. Phil. Trans. vol. lxxxvi. p. 368.

CELANO, a river of Italy, which runs into the gulf of Tarento, 3 miles from Rossano.

CELANTES, in *Logic*, a denomination given by the Peripatetics to the Galenical syllogism; otherwise called CALENTES.

CELARENT, among *Logicians*, a mode of syllogism, wherein the major and conclusion are universal negative propositions, and the minor an universal affirmative. E. gr.

CE *None whose understanding is limited can be omniscient.*

LA *Every man's understanding is limited.*

RENT *Therefore no man is omniscient.*

CELASTRUS, in *Botany*, (κελαστρός, Theophrast.) Linn. gen. 270. Schreb. 372. Willd. 423. Lam. Illust. 361. Juss. 378. Vent. vol. iii. 465. Gært. 593. (Evonymoides; Isnard. A. G. 1716.) Staff tree. Clas and order, *pentandria monogynia*. Nat. Ord. *Dumoseae*, Linn. *Rhamnii*, Juss.

Gen. Ch. *Cal.* very small, one-leaved, flat, semicleft; lobes obtuse. *Cor.* Petals five, egg-shaped, spreading, sessile. *Stam.* Filaments five, awl-shaped, the length of the corolla, alternate with the petals; anthers very small. *Pist.* Germ superior, very small, partly immersed in a broad, flat receptacle; style short; stigma trifid. *Peric.* Capsule inversely egg-shaped, obtuse, trigonous, three-celled, three-valved; partitions in the middle of the valves. *Seeds* few, egg-shaped, smooth, partly involved in a coloured four-cleft arillus.

Eff. Ch. *Calyx* five-lobed. *Petals* five, spreading. *Germ* immersed in the receptacle. *Capsule* trigonous, three-valved. *Seeds* calyptrated.

Obf. Gartner asserts that there is no solid generic distinction between this genus and evonymus, a difference in the number of cells and valves being, in his judgment, of no consequence, except to the mere carpologist.

* *Without thorns.*

† *Leaves entire.*

Sp. 1. *C. lucidus*, Linn. Mant. p. 49. Syst. Nat. 6. Mart. 14. Willd. 1. P'Herit. Sp. nov. Fasc. 3. 49. tab. 25. (*C. concavus*; Lam. Illust. 2695. Cassine concava; Encyc. 5. Pl. 130. fig. 2. Evonymus; Pluk. alm. tab. 280. fig. 4.) Shining staff-tree or small Hottentot cherry. "Leaves oval, acute, shining, margined; peduncles axillary." Willd. "Leaves somewhat roundish-egg-shaped, rigid, veined, concave above; capsules retuse, blunt." Lam. A shrub five or six feet high. *Stem* a little twisted, with a blackish bark. *Branches* stiff, rather long, generally simple, leafy and green. *Leaves* alternate, numerous, rather small, almost sessile, smooth. *Flowers* small, white, solitary, or three together, on short simple-peduncles. A native of the Cape of Good Hope, flowering from April to September. 2. *C. microphyllus*, Linn. Sup. p. 154. Mart. 7. Willd. 2. Thunb. prod. 42. "Leaves egg-shaped, obtuse; panicles terminal."

A shrub, native of the Cape of Good Hope. 3. *C. bulbatus*, Linn. Sp. Pl. 1. Mart. 1. Lam. Encyc. 1. Ill. 2691. Willd. 3. (Evonymoides; Isnard Aft. 1716. Evonymus; Pluk. alm. 139. tab. 28. fig. 5.) "Leaves egg-shaped, acute; panicle terminal." Willd. "Little racemes terminal." Lam. A shrub, eight or ten feet high. *Stems* generally two or three, branched. *Leaves* near three inches long, and two broad, alternate, petioled. *Flowers* white. *Fruit* scarlet, with numerous small protuberances. *Seeds* hard, covered with a thin red pulp. A native of Virginia and other parts of North America, flowering in July. 4. *C. oleoides*, Lam. Ill. 2696. (Cassine oleoides; Encyc. Celastus laurinus; Willd. 4. Thunb. prod. 42?) "Leaves ovate-lanceolate, margined; corymbs peduncled, axillary." Lam. "Leaves ovate-oblong, entire; panicles axillary." Thunb. A shrub. Smallest branches angular, smooth, leafy, greyish. *Leaves* alternate, petioled, pointed at both ends, smooth, somewhat coriaceous, an inch and half or two inches long. A native of Africa, communicated to La Marck by Sonnerat. 5. *C. corniculatus*, Mart. 18. P'Herit. fert. ang. 6. Breyn. ic. tab. 22. fig. 3. (*C. rostratus*; Willd. 5. Thunb. prod. 42? *C. tricuspis*; Lam. Illust. 2694? Evonymus, Burm. Afr. tab. 97. fig. 1. quoted both by P'Heritier and La Marck.) "Leaves oval, quite entire, perennial; capsules three-horned." P'Herit. "Leaves oblong-oval, unequal, quite entire; corymbs dichotomous, axillary; fruit thorny." Willd. "Leaves oblong-oval, shining, quite entire, reflexed at the edges; capsules tricuspidate." Lam. A native of the Cape of Good Hope. 6. *C. filiformis*, Linn. jun. Supp. Mart. 5. Willd. 8. Thunb. prod. 42. "Leaves lanceolate; branches filiform; peduncles axillary, one-flowered." A native of the Cape of Good Hope.

†† *Leaves serrated or toothed.*

7. *C. scandens*, Linn. Sp. Pl. 2. Mart. 2. Lam. Encyc. 2. Ill. 2692. Willd. 9. Gært. tab. 95. fig. 4. Thunb. Transf. Linn. Soc. vol. ii. p. 332. (*C. punctatus*; Thunb. jap. 97?) "Leaves oblong, acuminate, serrated; racemes terminal; stem twining." Willd. A shrub, twelve or fourteen feet high or more. *Stems* several, twining about other shrubs, or trees, or one another; they twine so closely about trees as to bury themselves in their bark and substance, and finally to destroy them. *Leaves* alternate, petioled, smooth. *Flowers* small, whitish green. A native of Canada and Japan. Willdenow doubts whether the *scandens* of Linnæus and the *punctatus* of Thunberg be the same plant, in opposition to the decision of Thunberg himself. La Marck in his Illustrations keeps them distinct, with the following specific characters. *C. scandens*, "Stem twining; leaves egg-shaped, acuminate, finely serrated." *C. punctatus*, "Branches climbing; dotted; leaves egg-shaped, serrated. 8. *C. paniculatus*, Willd. 10. "Leaves egg-shaped, acuminate, obtuse, serrated; panicle elongated, terminal." *Branches* brown, spotted, cylindrical. *Leaves* two inches long, one broad, alternate, smooth. *Panicle* three inches long. *Flowers* small. A native of the East Indies, described by Willdenow from a dried specimen. 9. *C. procumbens*, Linn. jun. Supp. 153. Mart. 4. Willd. 11. Thunb. 42. "Stem procumbent; leaves egg-shaped, serrated; flowers axillary, generally solitary." A native of the Cape of Good Hope. 10. *C. acuminatus*, Linn. jun. Supp. 154. Mart. 6. Willd. 12. Thunb. prod. 42. (*C. populifolius*; Lam. Ill. 2698?) "Stem erect, limber; leaves egg-shaped, acuminate, serrated; peduncles axillary, one-flowered." Linn. jun. "Leaves egg-shaped, acuminate, serrated; umbels axillary, nearly sessile, few-flowered." Lam. A native of the Cape of Good Hope. 11. *C. cassinoides*, Mart. 19. Lam. Ill. 2697. Willd. 13.

L'Herit. sert. ang. tab. 10. "Leaves egg-shaped, acute, remotely toothed, perennial; flowers axillary." A native of the Canary islands, flowering in August and September, introduced into England by Masson in 1779. 12. *C. striatus*, Mart. 10. Lam. Ill. 2702. Willd. 14. Thunb. jap. 98. "Branchlets erect, striated; leaves egg-shaped, acuminate, ferrated; peduncles scattered, one-flowered." Leaves opposite, smooth, spreading, on short petioles. A native of Japan. 13. *C. cernuus*, Willd. 15. Thunb. prod. 42. "Leaves egg-shaped, obtuse, ferrated; peduncles axillary, one-flowered, nodding." A native of the Cape of Good Hope. 14. *C. undatus*, Willd. 16. Thunb. prod. 42. "Leaves obovate, somewhat wedge-shaped, wave-toothed; flowers axillary, sessile." A native of the Cape of Good Hope. 15. *C. edulis*, Lam. Illus. 2704. Willd. 17. Vahl. Symb. 1. p. 21. (Catha edulis; Lam. Encyc. Forst. Ægypt. 63.) "Leaves opposite and alternate, elliptical, ferrated; cymes axillary, dichotomous." A tree. Leaves smooth, shining, on short petioles. Flowers white. A native of Arabia. The natives chew the green leaves, which they esteem a preservative against the plague. 16. *C. crenatus*, Mart. 17. Willd. 18. Forst. prod. 113. "Leaves egg-shaped, crenulate; cymes axillary." A native of the Marquesas islands in the South Sea. 17. *C. dilatatus*, Mart. 9. Willd. 19. Thunb. Linn. Transf. vol. ii. p. 332. (Evonymoides; Thunb. jap. 354. n. 26.) "Leaves inversely egg-shaped, acuminate, ferrated at the tip; flowers terminal." A native of Japan. 18. *C. myrtifolius*, Linn. Sp. Pl. 3. Mart. 3. Lam. Encyc. 3. Illust. 2693. Willd. 20. (Myrtifolia arbor; Sloan Jam. 2. p. 79. tab. 193. fig. 1.) "Leaves egg-shaped, slightly ferrated; flowers in racemes; stem erect." A tree from eighteen to twenty feet high. Wood white, very hard. Leaves alternate, petioled, rounded at the base, acute at the summit, smooth on both sides. Flowers white, small. A native of Virginia and Jamaica. 19. *C. tetragonus*, Willd. 22. Thunb. prod. 42. "Leaves egg-shaped, ferrated; branches tetragonous." A native of the Cape of Good Hope. 20. *C. articulatus*, Mart. 8. Willd. 23. Thunb. jap. 97. (C. orbiculatus; Lam. Ill. 2700.) "Leaves rounded, acuminate, ferrated; peduncles axillary, often trifid, sometimes bifid." A shrub. Branches polygonous, smooth, ferruginous, spotted with white. Leaves an inch and half long, smooth, nerved, spreading; petioles channelled, one third of the length of the leaves. A native of Japan. 21. *C. alatus*, Mart. 11. Lam. 2703. Willd. 24. Thunb. jap. 98. "Leaves opposite, acuminate, slightly ferrated, on short petioles; branches winged." A native of Japan. 22. *C. trigynus*, Lam. Ill. 2699. (Sonneratia; Commerf.) "Leaves oblong-egg-shaped, obtusely ferrated; umbels axillary, loose, peduncled; style scarcely any." A shrub. Flowers very small; stigmas three, or three on very short styles. A native of the isle of France.

** Thorny.

† Leaves entire.

23. *C. linearis*, Linn. Supp. 153. Mart. 15. Willd. 25. Thunb. prod. 42. "Spines leafy; leaves linear." A native of the Cape of Good Hope. 24. *C. integrifolius*, Linn. Supp. 153. Mart. 16. Willd. 26. Thunb. prod. 42. "Spines leafy; leaves egg-shaped, obtuse; cymes lateral." A native of the Cape of Good Hope. 25. *C. emarginatus*, Willd. 27. "Spines leafy; leaves inversely egg-shaped, emarginate; umbels peduncled." Branches cylindrical. Spines an inch long, rigid, thick, alternate; the younger ones bearing leaves and flowers. Leaves glaucous, smooth, obtuse, on short petioles. Flowers in umbels, at the axils of the leaves, and the tip of the spines; peduncles capillary,

long when compared with the flowers. A native of the East Indies, described by Willdenow from a dried specimen.

†† Leaves serrated or toothed.

28. *C. busifolius*, Linn. Sp. Pl. 4. Mart. 12. Lam. Encyc. 4. Illus. 2705. (Lycium, Pluk. alm. tab. 202. fig. 3.) "Spines leafy; branches angular; leaves inversely egg-shaped, obtuse, somewhat toothed; cymes lateral." A shrub, three or four feet high. Stem much branched. Spines alternate, straight, strong, some naked, often leafy. Leaves dark green. Peduncles axillary, supporting a loose cyme or umbel of about five flowers. β. with many-flowered cymes, Lam. Illus. (C. multiflorus, Lam. Encyc.) A native of Africa. 29. *C. Pyracanthus*, Linn. Sp. Pl. 5. Mart. 13. Lam. Encyc. 7. Illus. 2706. Willd. 30. Gart. tab. 95. fig. 4. (Lycium, Comm. Hort. tab. 84.) "Spines naked; leaves oblong-egg-shaped; teeth few, very short, rather spiny; cymes dichotomous." A loose, irregular shrub, two or three feet high. Branches somewhat cylindrical, brown or dark green, leafy, most of them without spines. Leaves narrowed towards the base, a little pointed at the tip, sometimes obtuse with a small spiny point. Flowers numerous, expanded; cymes loose, lateral, and terminal; terminal ones a little panicled. Fruit large, about the size of a cherry, egg-shaped with three obtuse angles, pendant. A native of Africa. 30. *C. phyllacanthus*, Mart. 20. Willd. 28. L'Herit. Sert. ang. 6. (C. Senegalensis, Lam. Encyc. 6. Illust. 2707.) "Spines leafy; branches cylindrical; leaves glaucous, unequally toothed; cymes lateral, few-flowered." A bushy shrub, two or three feet high. Young branches reddish. Spines an inch long or more, alternate, strong, generally leafy. Leaves on short petioles. Flowers very small. A native of Senegal. 31. *C. rotundifolius*, Willd. 31. Thunb. prod. 42. "Leaves petioled, roundish, toothed." A native of the Cape of Good Hope. 32. *C. parviflorus*, Lam. Illust. 2708. Willd. 32. Vahl. Symb. 1. p. 21. (Catha spinosa, Forst. Arab. 64.) "Spines naked; leaves egg-shaped, scolloped; peduncles filiform, longer than the leaves." Leaves alternate, smooth. Flowers small, white; peduncles axillary; capsules with two cells. A native of Arabia Felix.

CELASTRUS undulatus, L'Herit. Mart. Willd. See SENACIA undulata.

CELASTRUS octogonus. See SENACIA octogona.

CELASTRUS maytenus, Willd. See SENACIA maytena.

CELASTRUS Burm. Clus. See CASSINE capensis.

CELASTRUS Hort. Clif. See CEANOTHUS americanus and africanus and EVONYMUS americanus.

CELASTRUS, in Gardening, comprises some plants of the evergreen, and deciduous shrubby kinds, as the studded or evergreen Virginia staff-tree (*C. bullatus*); the climbing staff-tree, or bastard euonymus (*C. scandens*); the pyracantha-leaved staff-tree, or Æthiopian box-thorn (*C. pyracanthus*); and the box-leaved staff-tree (*C. busifolius*); of which the first in its native situation rises to the height of eighteen feet, but in this climate few of these shrubs are much more than half that height. It generally puts out two or three stems from the root, which divide upward into several branches being covered with a brown bark: the flowers come out in loose spikes at the end of the branches, and are white: the capsule is of a scarlet colour, set full of small protuberances. It flowers in July, but seldom produces good seed here.

In the second sort several woody stalks are sent out which are inflexible, and twist themselves round trees and shrubs, or round each other to the height of twelve and fourteen feet or more, girdling trees so closely as in a few years.

years to destroy them. The leaves are about three inches long, of a lively green above, but paler on the under side; the flowers, produced in small branches towards the end of the branches, are of an herbaceous colour, and succeeded by roundish three-cornered capsules, which are red when ripe, spreading open and disclosing their seeds in the same manner as the spindle-tree. It flowers in the beginning of June, and ripens seeds in the autumnal season.

The third rises with an irregular stalk three or four feet high, sending out several side branches covered with brown bark; the leaves are about two inches long, and more than half an inch broad, some pointed and others obtuse; they are stiff, of a lucid green, coming out irregularly from the branches in loose tufts, many from one point, on long peduncles, and of an herbaceous white colour: the fruit is of a fine red colour, opening into three cells, containing an oblong hard seed. It flowers the greatest part of the summer. The last rises with a slender woody stalk to the height of ten or twelve feet, is full of joints, armed with long spines, upon which grow many small leaves; the branches are slender, armed also with spines at every joint; but the whole plant is so weak as to require support: the leaves come out in clusters without order, are shaped somewhat like those of the box-tree, but longer, and of a looser texture; the flowers are on peduncled cymes from the axils, and the fruit globular. It flowers in May and June, and sometimes a little later.

Method of Culture. The two first sorts are capable of being raised either by seeds or layers, but the latter is the more ready method. And in the first mode, the seeds should be sown upon light fresh earth, either in beds or pots, as soon as they are procured from abroad, keeping them perfectly free from weeds till the plants are of sufficient growth to be planted out in nursery beds, watering them occasionally when the weather is dry. They are mostly fit for this in about two years. But in the latter method, layers from the young shoots should be laid down in the autumn, sitting them at a joint on the under sides. They are mostly sufficiently rooted to be taken off and planted out in the nursery rows by the succeeding autumn. The latter of these sorts succeeds best on rather a moist loamy soil.

In the last two sorts the culture may be in the same methods; but they should be in pots in order to their being placed under the protection of frames or other contrivances, when the weather is severe. After they have had a twelve-months' growth, they may be removed into other pots separately. And cuttings made from the young shoots in all the sorts may likewise be stricken in the early spring months in pots exposed to a hot-bed heat. These may be planted out in the following autumn, either in pots separately, or where they are to remain according to their kinds. But these sorts should not be treated too tenderly, as they are apt to be rendered weak in their branches and less verdant.

The first two sorts are of a hardy nature, being well adapted to the borders and clumps of pleasure-grounds in mixture with other shrubs of the more tall growths. The first should, however, have a warm aspect and rather dry soil. The latter succeeds in wilderness quarters, under the shade of tall trees where it winds itself about them to a great height, producing a fine effect in the autumn by the fine colour of its fruit.

The other two sorts are more tender, requiring to be kept in pots, as has been seen, to have the protection of the green-house in winter, where they afford variety in assemblage with other plants of the more hardy nature.

CELATE, in *Military Antiquity*, from the Latin word *celatus*, signifying concealed. It is of the same import as *heaume*, which is derived from the German, and was used to denote a helm, casque, or helmet for covering not only the head, but also the whole face, having an opening only opposite to the eyes, which were secured by cross bars or lattice-work of iron, forming a sort of visier. It has served for several centuries as an ornament on arms armorial, and is still preserved in heraldry as a distinguishing mark of nobility. It was worn not only by the chevaliers or knights when they went to war, but also at tilts and tournaments. Various appellations have been given to this piece of armour, such as *habillement de tete*, or covering for the head, casque, helmet. Under Francis I. it was distinguished by the name of *armet*. At tournaments it was assigned as the prize to him, who behaved best on the part of all those who presented themselves at the barrier of a tournament, and held it against all those that might enter the lists, as the first piece of defensive armour: in the same manner as the sword was given to him, who distinguished himself most on the side of the assailants, as the first arm of offence. Formerly they used to holla, call, or cry out *au heaume*, as they now do *aux armes*.

CELAVO, in *Geography*, a town of the department of Liamone (island of Corsica) and chief place of a canton in the district of Ajaccio. The canton contains 4060 inhabitants.

CELAURIA, in *Ancient Geography*, a small island of Greece, on the coast of the Peloponnesus. It belonged to the Troezenians, and was situated before the port called "Pogon" by Strabo. In this island was a magnificent temple of Neptune; and the tomb of Demosthenes, who died here, is not one of the least of its ornaments. His memory was long held in great veneration on this island, and in the time of Pausanias, strangers, as well as the inhabitants of the island, rendered distinguished honour to this illustrious defender of the liberty of Greece.

CELBRIDGE, in *Geography*, a small town of the County of Kildare, Ireland, pleasantly situated on the river Liffey, where the cotton manufacture has been carried on extensively; and also a manufacture of chip hats, which was for some years much encouraged. It is 10 miles west from Dublin.

CELCENSES, in *Ancient Geography*, a people of Spain, who inhabited the town of Celsa, seated on the banks of the Ebrus, according to Pliny.

CELE, in a general sense, denotes any tumour, but more particularly that proceeding from a rupture or hernia.

CELEÆ, in *Ancient Geography*, a town of Sicyonia, S. of Phlius. Here were celebrated in every fourth year the mysteries of Ceres, who had a new priest at every return of the festival, so that the priesthood lasted only four years. In a temple of this city was suspended from the roof a car, which was said to be that of Pelops.

CELEBANDICUM JUGUM, a promontory of Spain, in the Mediterranean sea.

CELEBATE, or **CELIBACY**, the state of a person who lives out of marriage.

Scaliger derives the word from the Greek *κοιτη*, *bed*, and *λειπω*, *linguo*, *I leave*: others say, it is formed from *cali* *beatitudo*, q. d. *the blessedness of heaven*.

Among the Spartans, though very weighty reasons might authorize them not to marry, yet in old age they could not expect to be treated with the same respect as the other citizens. As a proof of this Xenophon (Hist. Græc. l. 3. p. 490. as also Plat. in Lycurg. T. 1. p. 48.) relates an anecdote of Dercyllidas, who had commanded armies with so much glory. That general came one day into the assembly,

bly, when a young man said to him: "I shall not rise to you, because you will leave no children who may one day rise to me." Those who lived in celibacy were also subject to other humiliations. They were not allowed to be present at the exercises in which the girls engaged half-naked: the magistrates might also, in the midst of winter, command them to strip off their cloaths, and go round the forum, singing sarcastic verses on themselves, in which they acknowledged that their disobedience to the laws merited the chastisement they suffered.

The ancient Romans used all means imaginable to discourage celibacy. Nothing was more usual than for the censors to impose a fine on old bachelors. Dionysius Halicarnassensis mentions an ancient constitution, whereby all persons of full age were obliged to marry. But the first law of that kind of which we have any certainty, is that enacted under Augustus, A. U. 762, called "Lex Julia de maritandis ordinibus." It was afterwards denominated "Papia-Poppæa;" and more usually "Julia-Papia," because of some new sanction and amendments made to it under the consuls Papianus and Poppæus. By this law, divers prerogatives were given to persons who had many children; penalties imposed on those who lived a single life, as that they should be incapable of succeeding to an inheritance, except of their nearest relations, unless they married within 100 days after the death of the testator; and that they should not receive an entire legacy. What they were thus deprived of in certain cases fell as an escheat (*caducum*) to the exchequer or prince's private purse.

The celibacy of the clergy, which is still rigorously kept up among the Romanists, is of a pretty ancient standing. It was first proposed by the council of Nice, but without passing; it was, however, in some measure, admitted by the western councils of Elvira, Arles, Tours, &c. and enjoined by the thirty-third canon of the council of Elvira, held about the year 300, though it does not appear that it was either generally or rigorously observed. In the year 340 it was decreed in the council of Arles, that no man incumbered with a wife, should be admitted into holy orders, unless he promised, with his wife's approbation and consent, to abstain for ever from the conjugal duty. From these citations it appears, that those writers are mistaken who affirm, that celibacy was first imposed upon the clergy by Symon: and that it was not required of the ministers of the gospel by any council, but by the popes, in opposition to all councils and synods. Such among the priests as piqued themselves on the faculty of continence, took the hint; inasmuch that, towards the close of the fourth century, there were few but made profession of a voluntary celibacy. Symon issued a decree in 385, obliging all priests and deacons to observe celibacy: and it was soon after enjoined by the synods of each particular nation, and observed in most of the western churches. In 441, the council of Orange ordered those to be deposed who did not abstain from their wives; and Leo the Great, in a letter written about the year 442, extended the law of celibacy, which was confined by the decree of this council to deacons, and by the letter of Symon to deacons and presbyters, to sub-deacons likewise; but it was Gregory the Great, in 591, who first brought ecclesiastics to admit the celibacy as a law. In the council of Trent, it was proposed to set the clergy at liberty again from the yoke of celibacy; and this was even made an article of the Interim of Charles V.; but the pope could not be induced to acquiesce.

In Britain the celibacy of the clergy does not seem to have commenced till the arrival of Austin in the 6th century. About the middle of the tenth century, in the reign of

Edred, who surrendered himself to the guidance of Dunstan, commonly called St. Dunstan, abbot of Glastonbury, a new order of monks, called Benedictines, had sprung up in Italy, and was introduced into this country by Dunstan. These monks made a merit of the most inviolable chastity; and their principles and practices were greedily embraced and promoted by the policy of the court of Rome.

The Roman pontiff, who was every day making great advances towards an absolute sovereignty over the ecclesiastics, perceived, that the celibacy of the clergy alone could break off entirely their connection with the civil power, and depriving them of every other object of condition, engage them to promote, with unceasing industry, the grandeur of their own order. He was sensible, that so long as the monks were indulged in marriage, and were permitted to rear families, they never could be subjected to strict discipline, or reduced to that slavery under their superiors, which was requisite for procuring to the mandates issued from Rome a ready and zealous obedience. Celibacy, therefore, began to be extolled, as the indispensable duty of priests; and the pope undertook to make all the clergy throughout the western world renounce at once the privilege of marriage. The undertaking was difficult, as he had the strongest propensities of human nature to encounter: and it is therefore no wonder that this master-stroke of policy should have met with violent contradiction, and that the interests of the hierarchy and the inclinations of the priests, being now placed in this singular opposition, should, notwithstanding the continued efforts of Rome, have retarded the execution of that bold scheme during the course of near three centuries. In the year 1107, during the reign of Henry I., a synod was held by the instigation of pope Pascal II. and archbishop Anselm, at Westminster, which enjoined the celibacy of priests; and which enacted, that even laymen should not marry within the seventh degree of affinity. By this contrivance the pope augmented the profits which accrued to him from granting dispensations, as well as those from divorces. Another synod was convened at London in 1129, under the pontificate of Honorius, at which presided William archbishop of Canterbury, with the character of the pope's legate, and where all the bishops of the kingdom were present. This council was assembled chiefly for the purpose of enforcing the observance of the canons issued by other councils concerning the celibacy of the clergy: and such of them as still kept concubines, for so their wives were called, were strictly enjoined to put them away before St. Andrew's day next following. At a previous meeting of this council in 1128 the cardinal de Crema presided as the pope's legate; who after severe penalties were enacted on the marriages of the clergy, in a public harangue, declared it to be an unpardonable enormity, that a priest should dare to consecrate and touch the body of Christ immediately after he had arisen from the side of a strumpet, for that was the decent appellation which he gave to the wives of the clergy. "But it happened," says Mr. Hume (*Hist. of Engl. vol. 7. p. 343, 8vo.*) "that the very next night, the officers of justice, breaking into a disorderly house, found the cardinal in bed with a courtesan; an incident which threw such ridicule upon him, that he immediately stole out of the kingdom. The synod broke up; and the canons against the marriage of clergymen were worse executed than ever."

CELEBES, called also MACASSAR, in *Geography*, an island of the East Indian Ocean, situated under the equator, between Borneo on the west, and the Molucca islands on the east; or between 1° 20' N. lat. and 5° 40' S. lat. and 119° and 124° E. long. The form of this island is very irregular, so that it is not easy to ascertain its dimensions, as to length and breadth,

CELEBES.

breadth, in miles; but it has been usually reckoned about 500 miles long, and 350 broad; taking those parts whose dimensions are of the greatest extent. It is divided into a number of small kingdoms and states, most of which however depend on the two great kingdoms of Macassar and Boni. The king of Ternate, also, has extensive possessions, which occupy almost the whole of the northern and eastern part of Celebes. The two most powerful kings, whom the Dutch, by the preponderance of their arms, obtained as allies, are the kings of Macassar and Boni. The kings of Tello and Sandraboni are in alliance with the king of Macassar; and that of Soping, Loehoe, and Tanete, with that of Boni. Some small states, such as Wadjo, Mandhar, &c. are independent. Although the kings of Macassar and Boni are allies of the Dutch, they are always sworn enemies to each other; and the policy of the Dutch has contrived to derive great advantage from the discord of these eastern princes. The kingdom of Macassar, or Goach, lies on the western side of the island, of which it occupies the greater part. The king of Goach, and that of Tello, both bear the title of Macassar, though each has a distinct kingdom: they assume the titles of Goach and Tello from their places of residence.

Celebes is surrounded by a variety of islands, all of which may be denominated the Celebesian isles. See MACASSER, GOACH, TELLO, BONI, SANDRABONI, SOPING, LOEHOE, TANETE, MANDHAR, CURJULIA, WADJO, TOURATTEA, TOURADJA, CAJELIE, TOERONGAN, BOUTON, SUMBAWA, MAROS, LABACCAN, GALISSONG, BONTAIN, BOELECOMBA, BERA, SALEYER, BONARATTE, CALAUWE, TANAKEKE, &c. &c. According to an ancient tradition, the Macassers, like many other nations, deduce the origin of their princes immediately from the gods. Once, they say, after the death of the first sovereign of the kingdom, a beautiful female descended from heaven, suspended by a golden chain. This celestial beauty, named Toemanoerong, was immediately chosen by the Macassers to be their queen. She afterwards married a king of Bantam, and, after being pregnant three years, she brought forth a wonderful child, capable of speaking and walking as soon as it was born, but very ugly and deformed. This young prince was named Toema-Salingaberiang. When he attained to manhood, he broke the golden chain, which his mother had brought with her from heaven, and the mother and her husband instantly disappeared, and left to their son the kingdom, together with one half of the chain. This chain, which, as it is asserted, was sometimes light and sometimes heavy, and sometimes appeared of a pale colour, was long preserved as a valuable part of the regalia of the crown, until it was lost, with various other rarities, during the warlike commotions which took place in this kingdom about the middle of the last century. This Toema-Salingaberiang is considered as the chief of the family of all the kings of Goach. The Dutch were involved in violent disputes with these sovereigns before they were able to establish themselves in their kingdom. In 1778, Goach, the capital, was taken by storm and destroyed; and, in 1781, the sovereign Punduca Siri, sultan Abdal Hadja, was placed on the throne by the government of Batavia. The king of Goach does not possess unlimited power, but is subject to certain laws, which he is obliged strictly to observe. He can undertake no measure of importance without the consent of his council; nor can he inflict arbitrary punishment on criminals, who must be punished according to the laws. His privy-counsellors are called Tomani-Calangs; and every village is under the direction of a particular chief or governor, distinguished by the title

of Galarang. The Portuguese visited this island about the beginning of the 16th century, and obtained, from the sovereign then on the throne, (viz. in 1512,) permission to form an establishment. The successors of this prince introduced the weights and measures now in use, fixed the prices of merchandize, manufactured gun powder, and planted the first artillery on the walls of Goach. He also not only allowed the Malays to settle in his states, but to erect a Mahometan temple. This religion made such progress in the island, that, about the year 1588, deputies were sent to Mecca to bring from thence a hadja or priest, to instruct the Macassers in the doctrine of Mahometanism, which, in 1603, was established throughout the whole kingdom, under the 13th king, sultan Allah Oudeen; and three years afterwards they forced the people of Boni equally to subscribe to the doctrines of the Koran. The power of Macassar was at its height about the middle of the 17th century; when its princes not only ruled over almost the whole of Celebes, but had likewise rendered Loma, Mandelly, Bima, Tambora, Dampo, and Sangar, tributary to them, and had conquered Bouton, Bungay, Gapi, the Xulla islands, and Sumbawa. They, moreover, held the government of Saleyer, which had been given to Macassar by Baab Ullach, king of Ternate; they were in strict alliance with the inhabitants of Bali, and coined the first gold coins, which were probably the gold "Mas," of the value of sixty Dutch stivers. About that time also, the alliance between Goach and Tello was renewed; and these two states were so firmly united together, that it was a common saying that there were "two lords, but one people." By the articles of union it was settled, that all levies and contributions from conquered provinces, &c. should be divided into five parts, two of which were to be given to Goach, and two to Tello; while the fifth should fall to the share of the eldest of the two kings; that the eldest of the kings should always exercise the office of regent or prime minister, to his junior colleague; that they should both be equal in dignity; and, lastly, that they should both enjoy the title of "Sambaneo," signifying as much as emperor. The empire of Macassar has of late so much declined, under the influence of the powerful arms and artful policy of the Dutch company, that the king of Boni is now much superior to Goach, both in extent of territory and number of subjects; although in war a Macassar is better than three Bouginese, on account of their martial character, and undaunted courage, which, notwithstanding all the adverse events that have befallen them in the course of a century, were never subdued, till the year 1778; when a finishing stroke was given to the independence, and power of resistance, of Goach. A rebellion having been raised by the mother of the king, who governed during his nonage, with a view of emancipating the country from the yoke of the company, her forces were vanquished, the city of Goach taken by assault, its fortifications razed, and the government new modelled, conformably to the views of the conquerors. The kings of Macassar have a new name given them after their death, and their successor must be nominated before their interment. The Dutch East India Company possess the castle of ROTTERDAM (which see), called in the language of the country "Adjong Pandang," together with the surrounding district, in consequence of a treaty which they entered into with the prince of Celebes. But as the boundaries of their possessions were, perhaps, not accurately defined, the company always endeavoured to enlarge, and the Macassers, on the other hand, to confine them. The company possess also a peninsula extending from this place towards the north, and a large flat district, which, on account of its fertility, is

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considered as the granary of Celebes, together with several places lying between this plain and the mountains, and likewise a great many villages among the mountains. These places border on each other, and are bounded on the west by the sea, on the north by the kingdoms of Tanette and Maros, on the east by Tamari, and on the south by the kingdom of Macasser.

The road of Macasser is one of the most beautiful in India, and at the same time safe for ships at every season of the year. The islands of "Great Ly Ly," and "Little Ly Ly," with their reefs, defend it from south-west to north; and there is a safe anchorage close under "Great Ly Ly," in the bad monsoon, and when the N.W. winds blow violently. The entrance of the road is between the above-mentioned island of "Ly Ly," and a sunken rock, which lies full a quarter of a league S. from the point of the reef of "Ly Ly."

The environs of Macasser are very pleasant. They consist of an extensive plain, reaching to the foot of a high range of mountains, situated seven or eight Dutch miles to the eastward, and dividing this part of Celebes, that lies to the westward of the bay of Boni, and south of the gulf of Tomini, into two parts. This range is called the mountains of Bontain, because the southern part of it terminates in a district of that name. The plain is covered, as far as the eye can reach, with rice-fields and pasture grounds, which are interspersed, here and there, with small groves of fruit-bearing or shady trees, and watered by drains made out of the larger rivers, which descend from the mountains.

Captain Forrest (in his "Voyage from Calcutta to the Mergui, Archipelago, &c.") informs us, that at a place called Kyly, or Kyela, N. of Macasser, and in the Mandhar division, there is said to be a spacious harbour; and that near the harbour are hills free from wood, and covered with grass, where many sheep are bred; though they are generally scarce, whilst goats are much more plentiful. There are also two or three harbours on the east coast of Celebes, and two on the north coast, Kōandang and Amoran.

The seasons in Celebes are the same as in Java. The S.E. monsoon continues from May till November, and is reckoned favourable; the N.W. monsoon, called the bad one, continues from November till May. During the former the sky is serene, and the weather dry; but continual winds and violent rain prevail during the latter. It is singular, however, that on the east side of the above-mentioned range of Bontain mountains, the contrary takes place: for, when fine weather in the S.E. monsoon prevails on the west side of the mountains, hurricanes and rain are found on the east side: so that the boundaries of summer and winter are only eight Dutch miles distant from each other.

As this island lies under the line, the air is very hot; but the heat is moderated by frequent rains and cooling breezes, so that the climate is not upon the whole insalubrious. It abounds with mountains, but the soil is generally fertile. The chief production of the island is rice, of which it yields more than enough to supply its numerous inhabitants, although it is not so good as the Java rice. Cotton of excellent quality is likewise very much cultivated; and the inhabitants manufacture it for the women's dresses, which are held to be the finest in all India. These garments are called "Cambays;" they are red-chequered, mixed with blue, but dull-coloured; they reach from head to foot, and are often fold from 6 to 10 Spanish dollars a-piece. The Bouginese often import cotton from the island "Bali," both raw and spun into yarn. They also manufacture beautiful silk belts, in which they fix their knives; also a kind of paper, from the inner bark of a small tree, in which they wrap their fine cambays; this paper they often dye of various colours, and export much of it to Manilla, and several other places; it

resembles the cloth of Otaheite. They make fire-arms, but cannot make gun-locks; they also cast small brass guns, which they call "rantakka," the larger being about six feet long, and carrying a half-pound ball. They are curious in filagree work, both in gold and silver. Captain Forrest was informed, that they sailed in their PADUAKANS, or proas, to the northern parts of New Holland, probably Carpentaria bay, to gather sea-swallow (*biche de mer*), which they sell to the annual Chinese junk, at Macasser; they said also that gold was to be obtained there. In this island cocoa-nut trees, mangoes, bananas, melons, and oranges are cultivated in abundance, together with uby, a root used as food, and batta, a kind of buck wheat, which formerly was the chief food of the Javanese before they were acquainted with the use of rice. Here is also plenty of horses, oxen, buffaloes, deer, wild swine, and birds of all kinds, particularly a variety of beautiful parrots. The Dutch carry hither opium, spirits, lac, coarse and fine cloths, &c. and receive in exchange rice, wax, slaves, and gold. Here, as well as in many parts on the coast of Africa, the unfortunate beings doomed to slavery, are not prisoners taken in war, or criminals, but in general persons who have been kidnapped for the purpose of being sold; and it often happens, that relations do not hesitate, for the sake of gain, to deprive their kindred of liberty. Most of the eastern settlements, Batavia and Java, are furnished with slaves from Celebes. About 100 slaves are annually purchased at Macasser by the Dutch company, for their own service, and conveyed to Batavia; the whole remainder of this iniquitous traffic is in the hands of private individuals, and free inhabitants of the above-mentioned two places.

The island is well peopled: on the coast of Celebes alone there are said to be 56,000 inhabitants, 17,000 of whom are capable of bearing arms. Of the various nations who inhabit Celebes, the Bonians or Bouginese, called in general Bug-gesses by the English, and the Macassers, are the most known: the latter are the most considerable of those who have been forced by the arms of the Company to enter into alliance with them, and their lands likewise lie near those of the Company, and they are, therefore, better known in history than the more distant kingdoms and nations. See BONI and BOUGINESE. Several of the inhabitants of Celebes find employment in the gold mines of this island; and were it better peopled, and the islanders more industrious, these mines might supply a greater quantity of the precious metal. But the Indians who inhabit those parts of Celebes which produce gold, content themselves, like those of other places, with procuring sufficiency to satisfy their urgent wants in the easiest and speediest manner. Accordingly, they obtain the metal by collecting the small particles which have been carried down by the streams, or by washing the sand which they dig up, rather than by working the mines in a regular manner. The gold mines in this island are found in the kingdom of Loehoe, and in the eastern parts; and it is partly collected for the Dutch East India Company at Gorontalo. The mines commence on the southern side of Belang, and the northern side of Kottabuna, or Mogondo, and proceed thence to Dondo on the south-west, and Tamperana on the north-west side, at the bay of Tomini. Every where between these two districts gold is found in a greater or less quantity. Where the land of Celebes becomes so narrow, and the mountains so low, that a person can with ease pass from one coast to the other, in a few hours, the auriferous mountains end; and on the whole coast on the other side, as far as Macasser, a single gold mine is not to be found. The villages, however, in these gold-yielding mountains are very ill-peopled; and, besides, these treasures are neglected on account of the ignorant super-

dition of the natives; who will never venture to dig in any place for concealed riches, until they have sent thither a diviner; as he is called, to find out whether their labours are likely to be attended with success. This kind of divination, called in the language of the country "Talanga," consists in their discovering, as they pretend, by the voice of a certain bird, the probability of success, and the impediments that may occur to obstruct it. When the bird gives a favourable omen, the diviner proceeds to insure the favour of the protecting spirits of the place, by various kinds of offerings; and then the labourers commence their work, and continue it for as many days or months as the bird has prescribed. The instruments used in these mines are the following; viz. a piece of iron about $1\frac{1}{2}$ foot long and 2 inches thick, pointed and sharp at one end, and at the other furnished with a socket, into which is stuck a wooden pole, about 6 feet in length:—also, an iron hook, with a short wooden handle, which is employed for loosening and turning up the earth around stones;—a mattock and small shovels;—dulangs, or small round dishes, about 18 inches in diameter, and somewhat hollow, having a small cavity in the middle, which may be closed with a wooden cover, used for the purpose of receiving the black sand that yields gold, and washing it, by stirring it about till the heavy metal subsides into the above-mentioned cavity;—and a pair of gold scales. In many places it is scarcely necessary to go deeper than 10 or 12 feet, but in others the pits must be dug to the depth of several fathoms, and the sides must be supported by means of boards and beams. It has been remarked, that the rocks on the borders of rivers, and most of the stones which are taken up from pits where the ore is rich, have a blue, and sometimes a yellow, colour, and are so soft that they may be used as paint. Where the gold is less rich, the stones are grey or white, and either of a hard texture, or soft like limestone. By these tokens the produce of gold from any mine may be easily ascertained. The quantity and value of the gold which is found in any mine cannot be exactly estimated. In mines that are newly discovered, labourers may sometimes, in the course of 14 days, find to the value of 200 dollars; whereas in other places the value of 20 dollars is scarcely found in the course of a year. In the widely extended mines of the river Palella, which divides itself into several branches, there are some places where gold is exceedingly abundant; but in such places it is of less value, being scarcely 18 carats fine. The best gold is procured from the mines of Popajatu, Molispat, Ankahulu, Tolodinki, Lembuno, Sonfso, and Tamperana; also from the south and south-west side of Pogiamia, Wongo, Tomollas, Bevool, and Tontoly. The gold of these mines is generally above 20 carats fine. Within the extent of the gold mines of Ankahulu there is a place called Longi, which produces gold that in fineness exceeds even that of Popajatu and Ankahulu. It is, however, difficult of access, and furnishes copper, at first supposed to be gold. This is the only mine on the north and north-west side, where copper is found. Near Bevool, on the south and south-west side, there is another, where good copper is dug up in dust, which is as fine as the finest gold dust. In the mines of Bombula, Batodulang, Ankahulu, and Palella, a great quantity of rock-crystal is found; and likewise a kind of iron ore. In all the mines of Celebes, the gold, when separated from the sand, is of considerable fineness. At Pogiamia and Palella alone gold ore is found here and there, mixed among other stones; but it is not rich, and the gold must be extracted by pounding the stone, which is not very hard. Stavorinus's Voyage, vol. ii. Von Wurmb's Description of the Island of Celebes or Macassar, &c.

CELEF, a river of Africa, in the kingdom of Algiers, supposed to be the ancient Carthana, which falls into the sea about 3 leagues W. of Algiers, after a short course of 18 or 20 leagues.

CELIGERI, in *Ancient Geography*, a people of Mæsia, according to Pliny.

CELEIA, a town of Norica, mentioned by Pliny and Ptolemy, and appearing, by an ancient inscription of Gruter, to be the modern Cilley in Lower Stiria.

CELELATES, an ancient people of Italy in Liguria, who, according to Livy (l. xxxiii. c. 29), submitted to the Romans in the year of Rome 555, under the consulate of C. Cornelius and Q. Minutius.

CELEMANTIA, a town of Germania Magna, placed by Ptolemy in the vicinity of the Danube.

CELENDERIS, a burgh of the Argolide, towards the extremity of the peninsula S.E. of the Argolide, on the Saronic gulf.—Also, a sea-port town of Asia, in Cilicia.—Also, an episcopal town of Asia in Isauria, probably the same with that last mentioned.

CELENDERITIS, a small district of Asia, in Cilicia, deriving its name from Celenderis.

CELENNÆ, an ancient town of Italy in Campania, mentioned by Virgil in his *Æneid*. It was a colony, according to a medal of Vespasian.

CELENZA, in *Geography*, a town of Naples, in the province of Abruzzo Citra; 12 miles E. of Civita Borello.

CELERES, in *Antiquity*, a Latin word made use of to denote cavalry, so called on account of the quickness of their movements, and the celerity with which their service was performed. They were a sort of light-horse, about 300 in number, formed by Romulus for his body-guard, chosen out of the rest of the cavalry, and approved of by the suffrages of the curiz of the people, each of which furnished ten. In war they constituted the van-guard in advancing towards the enemy, generally beginning the engagement, and the rear-guard in retreating.

Though the celeres were a body of horse, yet they usually dismounted, and fought on foot; their commander was called *tribune*, or *prefect of the celeres*. They were divided into three troops, of one hundred each, commanded by a captain called *centurio*; their tribune was the second person in the kingdom. See CAVALRY, &c.

Plutarch says, Numa broke the celeres: if this be true, they were soon re-established; for we find them under most of the succeeding kings: witness the great Brutus, who expelled the Tarquins, and who was the tribune of the celeres.

CELERINA, in *Ancient Geography*, an ancient episcopal town, in the proconsular Africa.

CELERINUS, in *Ichthyology*, a name by which some authors have called the pilchard, *clupea pilcardus*; called also *agua membras*, and *chalcis*.

CELERITY, in *Mechanics*, is the velocity of a moving body; or that affection of a body in motion, whereby it is enabled to pass over a certain space, in a certain time. See MOTION and VELOCITY.

CELERY, in *Botany and Gardening*. See APIUM.

CELERY, wild, *Apium antarcticum*, in *Botany*, was found in considerable quantities by Mr. (Sir Jos.) Banks and Dr. Solander on the coast of Terra del Fuego. It is like the garden *celery* in the colour and disposition of the flowers, but the leaves are of a deeper green. The taste is between that of *celery* and parsley. It is a very useful ingredient in the soup for seamen, because of its antiscorbutic quality. Hawke's Voyages, vol. ii. p. 60, &c.

CELESTI,

CELESTI, ANDREA, called *Cavalier CELESTI*, in *Biography*, a painter of history and landscape, was born at Venice in 1637, and acquired the principles of design and colouring from Cavalier Matteo Ponzoni. He was much applauded for a beautiful style of painting, in history as well as landscape: but he principally employed himself in the latter. His beautiful views about Venice, and other cities of Italy, were painted both in a large and small size; and his works are very highly prized, but not easily procured. Two of his historical compositions are preserved in the chapel of Madonna della Pace at Venice; the one is St. Luke painting the portrait of the Virgin; and the other, the Adoration of the Magi, which are reckoned excellent performances. Another of his pictures in the chapel of Spedalletto, representing St. Jerom, with the Virgin and some saints, is well designed, soft, and delicately coloured, but rather too ruddy. This master used a purplish tint, resembling the manner of Rubens; but he sometimes erred in the extreme. Pilkington.

CELESTIAL GLOBE. See **GLOBE**.

CELESTIAL SPHERE. See **SPHERE**.

CELESTINE, in *Biography*, the name of several of the popes.

CELESTINE I., a native of Rome and the son of one Prifeus, was elected bishop of Rome, upon the demise of Boniface, in 422. Soon after his election an appeal was made to him against Antony, appointed bishop of Fussala in Africa by St. Auslin; in consequence of which he concurred in the sentence of the prelates of Numidia, who deprived him of all jurisdiction on account of his scandalous conduct. On occasion of another appeal by Apiarius, presbyter of Sicca, against his bishop, who had degraded and excommunicated him for several crimes, of which he had been convicted, and which appeal had been in a state of suspense during the pontificates of his two predecessors, the African bishops confirmed a canon that prohibited appeals beyond sea on any pretext, under penalty of excommunication; and Celestine thought it most expedient to give way for the present to the zeal with which they resisted the supremacy of the Roman see. In the year 428 he remonstrated, in a long letter addressed to the bishops of the provinces of Vienne and Narbonne against several abuses that prevailed in the churches of Gaul; and towards the close of the year 429 he concurred with the Gallican bishops, in sending two missionaries into Britain for the purpose of suppressing the Pelagian heresy. But the principal act of his ecclesiastical administration was the part he took in the condemnation of Nestorius. A violent dispute having commenced in 430, between Nestorius, bishop of Constantinople, and Cyril, bishop of Alexandria, concerning the distinction of two natures in Christ and the refusal of the title of mother of God to the Virgin Mary, an appeal was made by both the disputants to Celestine. The Roman bishop convened a council at Rome; which condemned the opinions of Nestorius, as heretical, degraded him from his episcopal office, and allowed him only ten days for recantation; on the failure of which he was to be deposed and excommunicated; and Cyril was appointed to be the vice-gerent of Celestine in the execution of this sentence. An oecumenical council was afterward summoned by the emperor Theodosius at Ephesus, in order finally to decide concerning the subject in dispute. To this council Celestine sent legates, and he approved its condemnation of Nestorius; upon which he wrote a pressing letter to the emperor, requesting him to banish the heresiarch Nestorius to some uninhabited place, where he would have no power to spread the infection of his doctrine.

For this instance of zeal on behalf of what was then deemed orthodoxy, Celestine has been ranked among the saints of the Romish church. In 431 the pope addressed the bishops of Gaul in a letter, warmly supporting the doctrine of St. Augustine concerning grace and free will. He also sent Palladius into Ireland, in order to propagate the Christian religion among the rude inhabitants of that island; and as this first mission was not attended with much success, he employed, after the death of Palladius, in the same mission, Succathus, a native of Scotland, whose name he changed into that of Patrick, and who arrived among the Irish in the year 432. The success and fame of this missionary are recorded in the annals of that country; and he has been acknowledged and honoured, under the appellation of "The Apostle of the Irish," as the father of the Hibernian church. Celestine died in 432. Several of his letters relating to the Nestorian controversy are extant; and others on various subjects of discipline have been falsely attributed to him. Bower's Hist. of the Popes, vol. i. Mosheim's E. H. vol. ii. p. 8.

CELESTINE II. a Tuscan, cardinal of St. Mark, and in 1140 legate of the apostolic see in France, and called before his election to the papal chair Guido de Castello, succeeded Innocent II. in 1143. The chief act of his administration was that of absolving the king of France from the interdict which he had been put under by Innocent. He had been a disciple of Abelard, and was respected for his humanity and other good qualities. He died in 1144, after having been in possession of the see of Rome about half a year. Bower.

CELESTINE III. was elected to succeed Clement II. in 1191, in the 85th year of his age. His name was Hyacinth, and he had been cardinal-deacon for 65 years. After some delay he consented to crown Henry V. emperor of Germany, together with his wife Constantia, the emperor having previously stipulated on oath that he would give up the lands and territories that belonged to St. Peter, and restore Tusculum to the apostolic see. He caused the enemies of William, bishop of Ely, and high chancellor of England, who had been appointed governor of the kingdom by Richard I. on his departure to the holy land, to be excommunicated, and the bishop to be restored to the government from which he had been excluded; and he also excommunicated the duke of Austria for having imprisoned Richard on occasion of his shipwreck in his return from the crusade. As Philip Augustus, king of France, had married Ingelburga, daughter of Canutus IV. king of Denmark, within the forbidden degrees of consanguinity, he divorced her under this pretext soon after the consummation of the marriage; and the divorce was declared lawful by the Gallican bishops. The decree of the bishops assembled in council was confirmed by the pope's legates; but it was afterwards reversed on a discovery of the fallacy of the king's plea, by the pope. Philip, however, disregarding the prohibition of the pope, took another wife, and Celestine gave himself no concern in the matter. Being informed that in Poland and Bohemia most of the clergy were either married or publicly kept concubines, he sent, in 1197, a cardinal legate to reform this abuse; and he succeeded in restoring celibacy in Poland, but the opposition in Bohemia was such as to endanger his life. On the death of the emperor Henry, he granted leave to crown his son Frederic as king of Sicily, on condition of the payment of 1000 marks of silver to himself, and the same sum to the cardinals. As his infirmities increased, he wished to resign the papal chair, but the cardinals would not allow him to retire. At length he died in 1198, after a pontificate of nearly seven years. By a particular

ticular bull, he absolved those who had been devoted, while children, to particular monasteries, from the obligation of confirming their vows at mature age. Bower.

CELESTINE IV. was elected, after a contest among the cardinals, to succeed Gregory IX. in 1241. His name was Godfrey; he was of the illustrious family of Castiglioni of Milan, and his mother was the sister of Pope Urban III. From his retirement among the Cistercians, he was drawn into public life, and created cardinal by his predecessor. It was his declared wish to establish a lasting peace between the church and empire, but his death, on the 18th day of his pontificate, in a very advanced age, prevented his receiving an answer from the emperor to his pacific proposal. Bower.

CELESTINE V. was, before his advancement to the pontifical dignity in 1294, a poor hermit, called Peter de Murrhone, from the name of a mountain near Magella, about two miles from Sulmona in the Further Abruzzo, who was born at Isernia in 1215, and there lived a retired and austere life. When he was acquainted with his election, which took place at Perugia, he at first declined the pontificate; but by the urgent persuasion of Charles, king of Apulia, and his eldest son, Charles Martel, king of Hungary, enforced by Cardinal Latinus, he was prevailed upon to accept it, and made his entry into Aquila mounted on an ass, one of the kings on each side holding his stirrup. Soon after his consecration at Aquila, he made a promotion of 12 cardinals; and before he left the city he confirmed the constitution of Gregory X. by which the cardinals were directed, on a vacancy, to be shut up in conclave till they should agree in a new election. The place of his residence was Naples, which, by the recommendation of Charles, he preferred to the papal dominions, though the old cardinals wished him to remove thither. Totally unfit by his former habits for the papal office, he was persuaded by cardinal Cajetan at the close of the year of his election to resign it. His resolution to this purpose was, however, strongly opposed by Charles and the people of Naples; and a doubt was suggested, whether or not a pope could abdicate. A constitution having been established, empowering all sovereign pontiffs to resign at their pleasure, Celestine availed himself of it; and after reading his act of renunciation, divested himself of the pontifical ornaments, resumed his monk's habit, and sat down at their feet. Cajetan, who succeeded him under the title of Boniface VIII., fearing his future interference, resisted his earnest request of returning to his solitude, and carried him to Rome. He contrived, however, to make his escape, and connected himself for some time with other hermits, in a wood in Apulia, till he found an opportunity of embarking in a small vessel for Dalmatia; but being driven back by contrary winds, he was arrested by the governor of Capitanata. From thence he was conveyed by order of Boniface to Anagni, amidst the blessings of the people, who crowded round him, and plucked the hairs of the ass upon which he rode, as relics. Boniface confined him in his palace at Anagni, and after some time committed him to close custody in the castle of Fumoni, where he died in 1296, aged 81 years. Clement V. canonized him in 1313; and the religious order which he established under the name of *Celestines* still subsists. The writings attributed to him are merely collections of passages from the Scriptures, the fathers, the popes, and the canonists. Bower. Du Pin. Mosheim.

CELESTINES, in *Ecclesiastical History*, an order of religious, called also the *congregation of St. Damian*, reformed from the Bernardines in 1224, by pope Celestine V. then only Peter de Murrhone, of Isernia in Naples; and established

in 1264, by pope Urban IV. and confirmed by Gregory X. in 1274. They were introduced into France by Philip the Fair, who requested a dozen of them from the general of their order, by his ambassador at Naples, in 1300. This order still subsists in France and Italy.—It is a kind of proverb with them *Voila un plaisant Celestin*.

CELESTINI, an excellent performer on the violin, whom the late duke of Dorset brought from Rome in the year 1770. His style was pleasing, elegant, and correct; and such were his manners and conduct: so that while he remained in England, he at once did honour to his noble patron, to his profession, and to himself.

CELETÆ, in *Ancient Geography*, a people who inhabited part of mount Hæmus and part of mount Rhodope, and who are called by Pliny the most savage of all the Thracians. Livy tells us, that they fell upon Cn. Manlius, as he was returning out of Asia into Europe, and took from him great part of the booty which he had gotten by plundering some rich cities of Gallo-Græcia. Liv. decad. iv. lib. viii.

CELETES, or CELETÆ, from κελος, a race horse, in *Antiquity*, denote single or saddle horses, by way of contradistinction from those yoked or harnessed together, called *bigarii*, *quadrigarii*, &c.

The same denomination is also given to the cavaliers, or riders on horseback; and hence some deduce *celeræ*, the name of Romulus's guard.

CELETRUM, in *Ancient Geography*, a small town of Greece, in the north of Illyria, seated on a peninsula, with its walls encompassed by a lake.

CELETTE, in *Geography*, a town of France in the department of the Loire and Cher, and district of Blois; 4 miles south of Blois.

CELEUSMA, or CELEUMA, in *Antiquity*, the shout or cry of the seamen, whereby they animated each other in their work of rowing.

The word is formed from κελειν, to call, to give the signal.

CELEUSMA was also a kind of song or formula rehearsed or played by the master or others, to direct the strokes and movements of the mariners, as well as to encourage them to labour. See CELEUSTES.

Aquions, without much foundation, extends the *celeusma* to the military shouts in land armies.

When Christianity got footing, hymns and psalms were sung in vessels by way of *celeusma*, in which the words *amen* and *hallelujah* were frequently repeated.

CELEUSTES, in *Ancient Navigation*, the boatswain or officer appointed to give the rowers the signal when they were to pull, and when to stop. See CELEUSMA.

He was also denominated *epopeus*, and by the Romans *portifculus*; sometimes simply *hortator*.

CELEUSUS, in *Ancient Geography*, a place of Germany between Germanicus and Arufena, at the mouth of a small river which runs into the Danube.

CELEZENE, a country of Asia in Armenia, according to Suidas; called *Celyne* and *Celtzena* by Eustathius.

CELIA, a town of Italy, situate in the interior of the Peucetian district, according to Ptolemy and Strabo: thought to be the present *Ceglia*.—Also a place of Italy in Campania, taken by Quintus Fabius, according to Diodorus Siculus.

CELIAC *Passion*, in *Medicine*. See COELIAC.

CELIBATE. See CELEBATE.

CELIDA, in *Ancient Geography*, a town of Africa, placed by Ptolemy in the Cyrenaica.

CELIDOGRAFIA, the description of the spots which appear on the faces of the sun and planets.

The word is formed from *κηλίς*, *macula*, *spot*, and *γράφω*, *I describe*.

Signor Bianchini has published a *celidographia*, or description of the spots of the sun.

CELIMEOS, in *Ancient Geography*, an episcopal see of Asia, under the metropolis of Edeffa.

CELIMIA, in the *Materia Medica*, a name given by the modern Greeks to the calamine, or *lapis calaminaris*. The Arabians called this substance *climia*, and sometimes *calimia*; and *celimia* was but a very small change from this.

CELL, *Cella*, in *Ancient Writers*, denotes a place or apartment usually under ground, and vaulted; in which were stored up some sorts of necessaries, as wine, honey, wheat, and the like; according to which it was peculiarly denominated *cella vinaria*, *oleria*, *mellaria*, *penaria*, &c.

The word is formed from *celare*, *to conceal*. See CELLS.

CELL, in *Botany*, (*loculamentum*), the hollow part of a pericarp in which the seeds are lodged. According to the number of these, a pericarp is said to be one-celled, two-celled, &c.

CELLA, in *Ancient Writers*, was used for the lodge or habitation of a common woman or prostitute, as being under ground; hence also denominated *fornix*.

“Intravit calidum veteri centone lupanar,
Et cellam vacuum.” Juv. Sat. vi. ver. 121.

On which place an ancient scholiast remarks, that the names of the whores were written on the doors of their several cells, by which we learn the meaning of *inscripta cella*, in Martial, lib. xi. ep. 46.

CELLA was also applied to the bed-chambers of domestics, and servants; probably as being low and narrow.

Cicero, inveighing against the luxury of Antony, says, the beds in the very *cellæ* of his servants were spread with pompous purple coverlets.

CELLA is also applied to the members or apartments of baths.

Of these there were three principal, called *frigidaria*, *tepidaria*, and *caldaria*. To which may be added a fourth, called *cella assa*, and sometimes *sudatoria*. See BATH.

CELLA was also applied to the *adyta*, or inmost and most retired parts of the temples, wherein the images of the gods to whom the edifices were consecrated, were preserved. In this sense we meet with *cella Jovis*, *cella Concordiæ*, &c. Pub. Victor calls them *delubra*; and Pliny, by a more comprehensive name, *ædes*. Hist. Nat. lib. xxxv. cap. 10.

The Roman capitol, we are told by Dionysius, had three such *cellæ*, or chapels; the middlemost of which was sacred to Jupiter, that on the right hand to Minerva, and that on the left to Juno.

CELLA, is also used for a lesser or subordinate sort of monastery, dependant on a great one, by which it was erected and continues still to be governed. The great abbies in England had most of them *cells* in places distant from the mother-abbey, to which they were accountable, and from which they received their superiors.

The alien priories in England were *cells* to abbies in Normandy, France, Italy, &c.

The name cell was sometimes also given to rich and considerable monasteries not dependant on any other. Such was that called *cella vetus*, erected by Otho, surnamed the Rich, marquis of Misnia, in the middle of the twelfth century, the most splendid abbey in that country.

CELLÆ, in *Ancient Geography*, sometimes called *Callæ*, a town of Africa, in Mauritania.—Also, another town of Africa in Byzacene, upon the Lesser Syrtis; called by D’Anville

“*Cellæ Picentinæ*.”—Also, a town of Europe, in Thraee, upon the Hebrus, at a small distance E. from Philippopolis.—Also, a place in Macedonia, between Heraclea to the north, and Edeffa to the south.

CELLAR, *Cellarium*, in *Ancient Writers*, denotes the same with *cella*, viz. a conservatory of eatables, or drinkables.

Cellar differs from vault, as the latter is supposed to be deeper, the former being frequently little below the surface of the ground.

In which sense, *cellarium* only differed from *penus*, as the former was only a store-house for several days, the latter for a long time. Thus it is, the *Bractroperatæ*, a sort of ancient Cynics, are said by St. Jerome to carry their *cellar* about with them. Hier. n. in Matth. cap. x.

CELLARIA, in *Zoology*, a section of the *Sertularia* genus, including those species which have the stem crustaceous, inclining to the nature of stone, and composed of rows of cells: no vesicles, but small globules instead.

CELLARIUM, in *Ancient Writers*, denoted an allowance of bread, wine, oil, or other provision, furnished out of the *cella*, to the use of the governor of the province, and his officers, &c. In which sense, the word amounts to much the same with *ANNOA*, which see.

CELLARIUS, CHRISTOPHER, in *Biography*, was born at Smalcald in 1638, and having studied at various German Universities, was invited at the age of 30, to teach moral philosophy and the Oriental languages at the college of Weisfelden. In 1673, he became rector of the college of Weimar, and afterwards occupied the same post at Zerts and Merzburg. At the university of Halle in Saxony, founded by the king of Prussia, he was professor of eloquence and history. His assiduous application, at length, brought on the disorder of the stone, with which he was long tormented. He died at Halle in 1707, in his 69th year. His numerous publications comprised original works and editions of ancient authors. Of the former are, “*Notitia orbis antiqui*,” 2 vols. 4to. Leips. 1701, 1706, 1731, and Cambr. 1703, acknowledged the best work on ancient geography extant, which brings it down to the time of Constantine; “*Atlas Cœlestis*,” fol.; “*Historia Antiqua*,” Jen. 1698, 12mo. an abridgment of ancient history; “*De Latinitate mediæ et infimæ ætatis*.” The works edited by Cellarius are “*Ciceronis Epist. ad Familiares*,” “*Plinii Epist.*,” “*Corn. Nepos*,” “*Quintus Curtius*,” “*Eutropius*,” “*Sextus Rufus*,” “*Vellius Paterculus*,” “*Duod. Panegy. Antiq.*,” “*Lactantius*,” “*Minutius Felix*,” “*St. Cyprian. de Vanit. Idol.*,” “*Sedulius*,” “*Prudentius*,” “*Silius Italicus*,” “*Pici Mirandul. Epist.*,” “*Zosimus*,” “*Pæanius*,” the “*Theaurus of Faber*,” with large additions. A collection of his letters, and some other pieces, was published after his death. Nouv. Dict. Hist.

CELLARS, in *Modern Building*, are the lowest rooms in a house, the ceilings of which usually lie level with the surface of the ground on which the house is built.

Cellars, and other places vaulted under ground, were called by the Greeks *hypogæa*; the Italians still call them *fundi delle case*.

As to the situation of cellars, sir Henry Wotton says they ought, unless the whole house be cellared, to be situated on the north side of the house, as requiring a cool fresh air.

In order to estimate the number of cubic yards in the digging of cellars, multiply continually together the three dimensions of length, breadth, and depth in feet, and divide the product by 27, the number of cubic feet in a yard; and
the

the quotient will give the cubic yards. Suppose the length 54 feet, the breadth 28, and the depth 8; then $54 \times 28 \times 8 = 12096$; and $\frac{12096}{27} = 448$.

CELLARER, or CELLERER, *Cellerius*, or *Cellularius*, an officer in monasteries, to whom belong the care and procurement of provisions for the convent.

The denomination is said to be borrowed from the Roman law, where cellarius denotes an examiner of accounts and expences. Ulpian defines it thus: "Cellarius, id est, ideo præpositus ut rationes falvæ sint."

The cellarius was one of the four *obedientiarum*, or great officers of monasteries; under his ordering was the *pistrinum*, or bakehouse, and the *bracium*, or brewhouse. In the richer houses there were particular lands set apart for the maintenance of his office, called in ancient writings, *ad cibum monachorum*. The cellarius was a great man in the convent. His whole office in ancient times had a respect to that origin: he was to see his lord's corn got in, and laid up in granaries; and his appointment consisted in a certain proportion thereof, usually fixed at the thirteenth part of the whole; together with a furred gown. The office of cellarer then only differed in name from those of bailiff and minstrel; excepting that the cellarer had the receipt of his lord's rents through the whole extent of his jurisdiction.

CELLARER was also an officer in chapters, to whom belonged the care of the temporals, and particularly the distribution of bread, wine, and money to canons, on account of their attendance in the choir. In some places he was called cellarer, in others *burser*, and in others *currier*.

CELLE, in *Geography*, a town of France, in the department of the two Seves; and chief place of a canton, in the district of Melle; 10 miles S.E. of Niort. The place contains 1102, and the canton 8263 inhabitants; the territory includes 167½ kilometres and 12 communes.

CELLE, or *Marcen Celle*, a town of Germany, in the duchy of Lower Stiria, on the confines of Austria, with a celebrated abbey to which the empress Maria Theresa presented a silver image of the Virgin, after the birth of the emperor Joseph II.; 12 miles N. of Pruck.

CELLE sur Thiers, a town of France, in the department of the Puy de Dôme; 2 leagues E. of Thiers.

CELLEFROUIN, a town of France, in the department of the Charente, and district of La Rochefoucauld; 9 miles N. of La Rochefoucauld.

CELLENÉ, in *Entomology*. Cramer calls the Fabrician *Papilio Delila* by this name.

CELLENSIS, in *Ancient Geography*, an episcopal see of Africa in the Byzacene.—Also, another in Mauritania Sitenfis.

CELLEPORA, in *Zoology*, a genus of zoophytes, the animal of which is an hydra, or polype, and the coral somewhat membranaceous, and composed of round cells. The eight following species of cellepore are described by writers.

CELLEPORA *ramulosa*. This species is dichotomous, fasciculate, with round obtuse ramifications, and very crowded cylindrical tubes. Müll. Zool. Dan. Inhabits the North Sea.

CELLEPORA *spongites*. Fragile, with rows of tubular top-shape cells, in single layers, with marginate openings, irregularly uniting into masses. A native of the Mediterranean and North Sea, called by Linnæus *cellepore spongites*; by Ellis and Solander *millepora spongites*; *adance* of Mercat.; *porus anguinus*. Imperat. Hist. Nat. *Lapis spongia*. Bell. Mus.

CELLEPORA *verrucosa*. With ovate cells in a round mass; mouth usually with three teeth. Fabr. *Tubipora verrucosa*. Linn. Inhabits the Mediterranean and Norway seas.

CELLEPORA *pumicosa*. Dichotomous, very brittle; nearly erect, with gibbous mucronate crowded cells. Resembles pumice stone; inhabits the Indian, Atlantic, and European seas. Pallas, Ellis, &c.

CELLEPORA *ciliata*. With convex cell; mouth fringed with teeth.

Fabricius describes this species as having seven teeth in the mouth of each cell, and the like number is mentioned by Pallas; other writers speak of them as varying in point of number in different specimens. This kind is found on fuci in the Mediterranean and North Sea.

CELLEPORA *hyalinata*. Cells subglobular, and diaphanous; mouth oblique and simple, or unarmed. Fabr. Fn. Græn. Frequent on fuci, and shells in the Northern seas of Europe.

CELLEPORA *nitida*. Cells subcylindrical, pellucid, and annulated; mouth terminal and simple, or unarmed. Fabr. Inhabits the Greenland Sea.

CELLEPORA *annulata*. Cells oval, ventricose and annulated; mouth ringent and armed with about four teeth. Fabr. Found attached to fuci, stones, &c. in European seas.

CELLES, in *Geography*, a town of France, in the department of Jemappe, and chief place of a canton, in the district of Tournay. The place contains 1950, and the canton 12,835 inhabitants. The territory includes 157½ kilometres, and 13 communes.

CELLIER, ROMI, in *Biography*, a learned Benedictine, was born at Bar-le-Duc in 1688; and having cultivated in early life an attachment to literature and piety in the congregation of the Benedictines of St. Vanne and St. Hidulphe, he assumed the habit of the order in more advanced age, and filled several posts in it, particularly that of titular prior of Flavigny. He died in 1761. His great work was written in French (though begun in Latin), and entitled "A general History of Sacred and Ecclesiastical Authors," in 23 vols. 4to., published from 1709 to 1763. It comes down no lower than to St. Bernard. This work is an useful compilation, but rendered tedious by its diffuseness. He also published "An Apology for the Morality of the Fathers, against Barbeyrac," 1718, 4to. His habits were studious and retired, and his temper singularly mild and condescending. Dict. Nouv. Hist.

CELLINI, BENEVENUTO, a celebrated artist, was born at Florence in 1500; and though he discovered an early taste for design, was obliged by his father to learn music. Afterwards he was bound apprentice to a jeweller and goldsmith; but his temper being restless and ungovernable, he passed through various vicissitudes, and at length settled at Rome, where he was taken into the service of pope Clement VII., both as a musician and goldsmith. In the latter department he practised drawing, seal-engraving, damasking steel, medalling, working in grotesque, and a variety of other ornamental arts. He was also an expert engineer, and was entrusted by the pope with the defence of the castle of St. Angelo, when Rome was sacked by the constable Bourbon. On this occasion he claims the honour of having shot the constable while scaling the walls, and of directing the cannon which killed the prince of Orange. As he was employed by Clement in making stamps for the Roman mint, the coins of that period are reckoned singularly beautiful. His medals, and jewellery works, are also highly

highly extolled as the finest specimens of the art. At the death of the pope, he returned to Florence. and was patronised by the grand duke Alexander. The coins which were struck from the heads of this duke prepared by Cellini for the mint at Florence have been held in such estimation, that they have been preserved by the curious like ancient medals. The roving disposition of this admirable artist led him to visit France; but being tired of that country, notwithstanding the gracious reception of Francis I., he returned to Italy. At Rome he was committed to prison under a charge of having robbed the castle of Angelo of considerable treasure, while the Spanish army was in that city; and though he made his escape in a wonderful manner, he was retaken, and again confined, till at length he was delivered from the hardships he endured by the intercession of the cardinal of Ferrara. On his return to France, he entered into the service of Francis, and employed himself in sculpture, and in casting large figures of metal, by which he obtained great reputation. But by his turbulent and quarrelsome disposition he incurred the displeasure of the favourite Mad. d'Estampes, and was obliged, after a residence of 5 years, to quit the country and return to Florence. In the service of the grand duke Cosmo, he displayed his astonishing genius, not only by smaller works, but by some large pieces of sculpture, particularly a statue of Perseus and Andromeda, and a crucifix, which placed him on a level with the first sculptors. In this art he had received instructions from the greatest genius of his time, Michael Angelo Buonarrotti. He wrought in marble as well as in metal, and as he was a powerful competitor to the famous Baccio Bandinelli, there subsisted between them a great degree of mutual jealousy and hatred. He died at Florence in 1570. In 1568 Cellini published two treatises; one on the goldsmith's art, the other on sculpture, and the casting of metals. He also composed the history of his own life, which has been translated into English by Dr. Nugent, in 2 vols. 8vo. 1771. In this work he delineates his own character without disguising his faults, whilst he makes a boastful recital of his bravery, address, and professional skill. In the latter respect, the testimony of his contemporary, Vafari, places him among the most ingenious men of that flourishing period of the arts. Life of Benvenuto Cellini by himself. Gen. Biog.

CELLINO, in *Geography*, a town of Naples, in the province of Abruzzo Ultra; 7 miles E. of Teramo.

CELLITES, *CELLITÆ*, in *Ecclesiastical History*, an order of religious, founded at Antwerp in the beginning of the fourteenth century, whose patron was Alexius, a Roman; and therefore, in Italy they are called *Alexians*; but in Germany, and the Low Countries, where they have monasteries, *Cellites*, i. e. people inhabiting cells. See LOLLARDS.

CELLON, in *Ancient Geography*, a canton of Asia, in the Palmyrene territory, mentioned in the history of Judith.

CELLONÆANSES, a people of Scythia, mentioned by Phavorinus.

CELLS, *CELLÆ*, *CELLULÆ*, are little houses, apartments, or chambers; particularly those wherein the ancient monks, solitaries, and hermits, lived in retirement.

Some derive the word from the Hebrew *סֵלֶם*, i. e. a prison, or place where any thing is shut up.

The same name is still retained in divers monasteries. The dormitory is frequently divided into so many cells, or lodges.

The Carthusians have each a separate house, which serves them as a cell.

The hall wherein the Roman conclave is held is divided, by partitions, into divers cells, for the several cardinals to lodge in.

CELLS are also the little divisions, or apartments, in honey-

combs, where the honey, young bees, &c. are distributed: these are always regular hexagons.

CELLULÆ ADIPOSÆ, in *Anatomy*. See CELLULAR SUBSTANCE.

CELLULÆ, in the colon, a sort of spaces wherein the excrements continue some time before they are voided.

CELLULANUS, a monk inhabitant, or resident in a cell, or cella. He is also denominated *concellaneus*, and *syn-cellista*, by which are imported the relation of fellow-monks, or those who live in the same cell or convent.

CELLULAR SUBSTANCE, in *Anatomy*, or *cellular membrane*, *tela cellulosa*, or *mucosa*, of Latin writers, *tissu muqueux* of the French, is the medium which connects and supports all the various parts and structures of the body. It is composed of an assemblage of fibres, and laminæ of animal matter; connected to each other, so as to form innumerable cells, or small cavities, from which its name of cellular is derived. This substance pervades every part of the animal structure. By joining together the minute fibrils of muscle, tendons or nerve, it forms obvious and visible fibres; it collects these fibres into larger fasciculi; and by joining such fasciculi to each other, constitutes an entire muscle or nerve. It thus forms an investment common to the whole muscle, and beflows on each bundle of fibres, nay, on each fibre, down to the most minute threads, peculiar sheaths, delicate and tender in proportion to the subtilty of the fibre. It joins together the individual muscles, and is collected in their intervals. It surrounds each vessel and nerve in the body; often connecting these parts to each other by a firm kind of capsule; and in a looser form joining them to the neighbouring muscles, &c. When condensed into a firm and compact structure, it constitutes the various membranes of the body; which, by long maceration in water, may be resolved into a cellular texture. Its general condensation on the surface of the body constitutes the cutis, or true skin. In the bones, it forms the basis and groundwork of their fabric; a receptacle, in the interstices of which the earth of bone is deposited. Maceration in diluted acid dissolves this earth, and leaves, if one may use the expression, a skeleton of the bone, representing its figure, its processes, and its texture, in a kind of cellular substance. The only parts of the body in which the cellular texture seems to be wanting, are the proper substance of the brain, the crystalline lens, enamel of the teeth, and the insensible integuments of the body; viz. the epidermis, nails, and hair. As the cellular substance is entirely soluble in boiling water, it is ascribed by chemists to the peculiar modification of animal matter, termed gelatine. Its watery solution assumes, when cold, the appearance of jelly; and, after a particular mode of preparation, constitutes glue.

The interstices of the cellular substance are lubricated and moistened by a serous or watery fluid, poured out from the exhalant arteries, and again taken in by the absorbents. It thus acquires a pliancy and softness, which adapt it particularly to serve as a connecting medium for parts, which have motion on each other. The importance of this property will be best understood by observing the effects of its loss. Inflammation or abscess often causes an induration and consolidation of the cellular texture, by which the integuments are fixed to the muscles; the muscles are firmly united to each other, and to the surrounding parts; in short, a kind of ancylosis ensues, by which the motions of the whole are considerably impaired.

From the universal extent of this cellular texture, two conclusions may be drawn. 1st. It forms the basis of the whole animal fabric, in such a way, that if we conceive every part removed, except this, the form of the whole would still be expressed in cellular substance. 2dly. It forms a connection

tion and passage between all parts of the body, however remote in situation, or dissimilar in structure. For the cells of this substance every where communicate; as we may collect from facts of the most common and familiar occurrence. The air in emphysema spreads rapidly from the chest to the most remote parts of the body; it has been known in such a case to gain admission into the eye-ball. (Littre in Mem. de l'Acad. des Sciences, an. 1713.) A similar diffusion of this fluid may be effected by artificial inflation, which is commonly practised by butchers on the carcases of calves. In anasarca, or preternatural accumulation of fluid in the cellular substance, the most depending parts are the most loaded; and scarifications in these drain the water off from the whole body.

The structure of the cellular substance varies considerably in different parts; it is very delicate, and possesses peculiarly short fibres, where it unites the different coats of the hollow viscera of the body; also where it joins the minute fibrils of muscular fasciculi. It is very loose in the scrotum, and integuments of the penis; and it is found in every intermediate stage. In these various states of density and looseness, it bestows on every part the required degree of firmness and strength, defines its form, and determines its mobility.

A peculiar power of contraction is attributed to the cellular substance; and is mentioned by Blumenbach, under the term *contractilitas*. (Institut. Physiol. sect. 4.) This is widely different from irritability, and consists in a slow and gradual motion, which is exemplified in the corrugation of the scrotum, and in the similar effect produced by cold on the surface of the body in general.

The cells of the cellular substance, in many parts of the body, are destined for the reception of a fluid termed fat, adeps, or adipous substance. This substance is of an unctuous nature, inflammable, lighter than water, usually inodorous, and, generally speaking, similar to the vegetable oils. In addition to the carbon and hydrogen, which it possesses in common with these oils, it abounds with oxygen, and a peculiar acid termed the sebatic. It is white in young animals, and becomes yellower as they advance in age. It is always more or less fluid in the living subject; in carnivorous animals and in man it retains much of its oily appearance after death; but in herbivorous animals it constantly assumes a concrete form. Dr. Hunter gave the name of adipous to that portion of the cellular substance which contains the fat; and distinguishes the rest by the term reticular.

As the fat is deposited in cells, it assumes, in general, a kind of granular form. It varies considerably in consistence. That of the orbit is the softest in the body. The fat about the kidneys becomes particularly hard after death, and is called suet; the globules or portions of this are very large, and it contains on the whole less cellular substance than any fat in the body. There is, generally speaking, a layer of fat under the skin; whence a *membrana adiposa* has been sometimes enumerated as one of the common integuments of the body. This is connected to the subjacent muscles by a portion of the reticular substance. Some parts of the body never contain fat: even in subjects, who have the greatest accumulation of this fluid. This is the case with the scrotum, the integuments of the penis, and the eyelids; it is obvious that the functions of these parts must be completely destroyed, if they were subject to the enormous accumulations of fat, which occur in the other parts of the body. Several of the viscera also never contain any of this substance, probably for the same reason, viz. the brain and lungs.

The quantity of fat varies according to the age, the state of health, and the peculiar habit or disposition of

the individual. It is not found in the early periods of foetal existence; and cannot be distinguished with any certainty, sooner than the fifth month after conception. In the foetus, and for some time after birth, the fat is confined to the surface of the body; it is only found in a stratum under the skin. It begins, however, gradually to be deposited in the intervals of the muscles, and on the surface of some viscera. In old subjects, however thin they may seem on an external view, there is always much fat, penetrating even the substance of the muscles; the bones are greasy throughout; the heart is more or less loaded, as are also the parts in the abdomen. Hence a young subject should always be selected for dried anatomical preparations. There is considerable difference in the quantity of fat in different individuals; and in some there is a propensity or disposition to its accumulation. A sedentary life, copious food, and tranquil state of the mind are particularly favourable to the increase of fat, which sometimes proceeds to such a pitch, from the continuance of these causes, that it must be considered as a disease, and is attended with the greatest inconvenience to the individual. General diseases of the frame are commonly attended with an absorption of the fat from the cellular substance: acute diseases cause a very rapid emaciation. In no case is the adipous substance more completely removed from the whole body than in anasarca, where its place is supplied by a serous fluid.

Dr. Hunter thought that the fat was contained in cells peculiar to itself and different from those which are distended by water in anasarca; and he distinguishes the two kinds of cells by the names of adipous and reticular cellular substance. C. A. a Bergen had already made a similar distinction (*Diff. de Membrana Cellulosa* in Haller's *Disput. Anat.* tom. 3.) He observes, in proof of this opinion, that fat is never accumulated in certain parts of the body, which parts are the most particularly distended by the water of anasarca. He thinks that the cells of the adipous substance do not communicate together like those of the reticular; because the fluid fat does not drain into the depending parts like the water of anasarca: nor does the skin pit where fat is collected under it.

The same great anatomist also thought that there was a glandular apparatus for secreting the fat. "Wherever there is fat in the human body, I apprehend that there is a particular organization, or glandular apparatus superadded to the reticular membrane, consisting of vesicles, or bags for lodging the animal oil, as well as vessels fitted for its secretion; so that I would compare the marrow in the bones to the glandular or follicular parts of the fat or adipous membrane; and the net-work of bony fibres and laminae, which support the marrow, to the reticular membrane, which is mixed with, and supports the adeps." Medical Obs. and Inquiries, vol. ii. p. 33. Malpighi seems to be the first who ascribed the secretion of fat to a glandular apparatus: he has described the follicles or cells, in which this structure resides; and even tubes, which he considers as excretory ducts of his glands. (*De Omento et adiposis Ductibus*.) His opinions were adopted in a greater or less extent by several anatomists; as Glisson, Havers, Perrault, Fanton, Littre, and even Morgagni. It appears to us more probable, that the fat is a simple secretion from the arteries, like the serous fluid of the cellular membrane. We cannot discern any thing deserving the name of gland in the adipous substance of the body. We subscribe, in short, to the opinion of Haller: "*Simplicissima et facillima secretionis adiposae historia.—Inter arterias, et adiposos loculos, nullum aliud receptaculum interesse. Neque oculus, aut microscopium in tenuissimis laminis cellulosis crassiorum* aliquam

aliquam particulam discernit, quam pro glandulâ habeas." (Elem. Physiolog. tom. i. lib. i. sect. 4.) We see preternatural collections of fat, (forming fatty tumours,) in those parts which are naturally the most free from adeps: can we suppose that glands are formed or created in this case? Is it not more congenial to our opinions on the formation of tumours in general to ascribe the phenomena to a peculiar action of the arteries?

The uses of the fat seem to be, in part, common to it with the cellular substance: it connects contiguous parts, and at the same time prevents their coaction. It admits of their moving on each other with freedom and facility. Its deposition under the integuments gives a roundness and convexity to the surface, on which the beauty of the human form principally depends. Indeed, its accumulation in particular situations immediately influences the outline of the part; viz. the orbit, the cheek, and the buttocks. The effect of its loss is most disagreeably manifested in the lank cheek and hollow eye of an emaciated patient. The fat is also said to defend the surface of the body from cold; and, indeed, it is accumulated very copiously under the integuments of such animals, as are exposed to the rigour of high northern latitudes; as the whale, the seal, &c. It has been likewise supposed that the fat, which is absorbed under certain circumstances, is applied to the nutrition of the body.

When we consider the extent and importance of the cellular substance in the animal body, we shall perhaps be surprised that there have only been ascertained within a comparatively short period of time. With the exception of a few vague notices in preceding writers, Malpighi, Ruyfch, Douglass, and Winslow, gave the first correct descriptions of this substance in particular parts. It is to Haller that the merit belongs, of first shewing the great share which it has in the composition of the body in general, and particularly in the formation of membranes. The reader will peruse with advantage on the whole of this article, the 1st book of Haller's "Elementa Physiologie." He may likewise consult "Bordeu Recherches sur le tissu muqueux et l'organe cellulaire," Paris, 12mo.

CELME, in *Geography*, a town of Spain, in the province of Galicia, on the river Lima; 6 leagues south of Montefura.

CELNIUS, in *Ancient Geography*, a river of Britain, mentioned by Ptolemy, and supposed to be the river Spay, in the shire of Elgin.

CELONÆ, a town of Asia, supposed to have belonged to the Persian empire, and to have been situated towards Media.

CELONZA, in *Geography*, a town of Naples in the province of Capitanata; 5 miles N.W. of Volturara.

CELORICO, a town of Portugal, in the province of Beira, containing three churches, and about 1100 inhabitants; three leagues N.W. of Guarda.

CELOSIA, in *Botany*, Linn. gen. 289. Schreb. 405. Lam. Illuf. 442. Willd. 463. Juss. 88. Vent. vol. ii. 265. Gært. 737. (Stachyarpagophora, Vaill. A. G. 1722. Paffivelours, Lam. Encyc.) Class and order, *pentandria monogynia*. Nat. Ord. *Holeraceæ*, Linn. *Amaranthi*, Juss. *Amaranthoidæ*, Vent.

Gen. Ch. *Cal.* Perianth of two or three leaves, lanceolate, acute, dry, shining, permanent. *Cor.* Petals five, lanceolate, acuminate, erect, permanent, rigid, resembling the leaves of the calyx. *Neñ.* Surrounding the germ, quinquefid. *Stam.* filaments five, awl-shaped, conjoined at the base to the plaited nectary; anthers versatile. *Pist.* Germ globular; style awl-shaped, straight, the length of the stamens; stigma one, two, or three. *Peric.* Capsule globular, surrounded

by the corolla, one-celled, separating transversely into two parts (circumscissa). *Seeds* several, roundish, emarginate.

Ess. Ch. Calyx two or three-leaved; leaflets similar to those of the five-petalled corolla; stamens conjoined at the base to the plaited nectary; capsule opening horizontally.

Obf. Jussieu, Ventenat, La Marck, and Gærtner understand the fructification differently. According to them the plants of this genus have no corolla, a five-leaved calyx, and an involucre of two or three scales resembling the leaflets of the calyx. It is nearly allied to *Amaranthus* and *Gomphrena*; differing from the former chiefly in its hermaphrodite flowers, and from the latter in having more seeds than one.

Sp. 1. *C. argentea*, Linn. Sp. Pl. 1. Mart. 1. Poir. Encyc. 1. Willd. 1. (*Amaranthus*, Mart. Cent. 7. tab. 7. Belutta adca manjen, Rheed. Mal. 10. tab. 38.) "Leaves lanceolate; stipules somewhat falcate; peduncles angular; spikes scarious." β . "Leaves nearly linear." *Tierra belutta*, Rheed. tab. 39. *Root* annual, whitish, fibrous. *Stems* almost woody, green, smooth, striated; branches, slender. *Leaves* alternate, narrow, often very acute, entire, smooth, narrowed into a petiole; stipules caducous, narrow. *Flowers* in a terminal, oblong spike, either simple or closely branched, of a white silvery colour, sometimes reddish at the summit; leaflets of the calyx thin, transparent, shining; anthers red. *Seeds* three or four in each capsule, small, orbicular, flattened, smooth, shining. A native of China and the coast of Malabar. 2. *C. albidâ*, Willd. 2. Poir. 3. (*C. pyramidalis*, Burm. ind. 65. tab. 25. fig. 1.) "Leaves linear-lanceolate; stem without stipules; spikes egg-shaped; bractes the length of the corolla." Poir. doubts whether it be sufficiently distinct from the preceding, and suspects that by bractes Willdenow means the leaflets of the calyx. A native of the East Indies. 3. *C. margariticea*, Linn. Sp. Pl. 2. Mart. 2. Poir. 2. Willd. 3. (*Amaranthus simplicipanicula*, Bauh. pin. 12.) "Leaves egg-shaped; stipules falcate; peduncles angular; spikes scarious." This also is scarcely more than a variety of *C. argentea*. It has thicker stems, broader and shorter leaves, and shorter spikes; in other respects not different. 4. *C. cristata*, Linn. Sp. Pl. 3. Mart. 3. Poir. 4. Willd. 4. Gært. tab. 128. fig. 8. Lam. Ill. Pl. 168. fig. 1. (*Amaranthus panicula conglomerata*; Bauh. pin. 22. *A. vulgaris*, Rumph. amb. 5. tab. 84.) Cock's comb. "Leaves lanceolate-egg-shaped, recurved, somewhat waved; peduncles angular; spikes oblong, crested." *Root* annual. *Stems* angular, striated. *Leaves* alternate, acute, various in breadth in different plants, narrowed into a petiole at the base, sometimes a little curved. *Spikes* sometimes branched at the base, various in their form and size as well as colour, which is yellow, or yellowish white, red, or purple, and sometimes variegated with two or three colours. A native of Asia. 5. *C. comosa*, Willd. 5. Poir. 10. Retz. Obf. 6. p. 26. "Spikes cylindrical, comose; leaves lanceolate." *Stem* upright, naked, branched. *Leaves* quite entire, smooth. *Spikes* cylindrical, barren in the upper part, often much divided, consisting of minute, imbricated bractes. *Flowers* solitary, longer than the bractes, rising among them at some distance from each other. *Style* slightly triid, permanent, twice as long as the petals. *Capsule* operculate, containing two seeds. A native of the East Indies. 6. *C. paniculata*, Linn. Sp. Pl. 6. Mart. 4. Poir. 7. Willd. 6. Swartz. Obf. p. 100. (*C. major farmentosa*, Brown Jam. 179. *Blitum album majus scandens*, Sloan jam. 49. hist. i. tab. 91. fig. 2. "Leaves ovate-oblong; stem rising, panicled; spikes alternate, terminal, remote." *Root* annual. *Stem* feeble, prostrate, cylindrical,

lindrical, branched. *Leaves* alternate, acuminate. *Flowers* alternate, distinct; stamens shorter than the corolla; stigma trifid." A native of dry rocky ground in Jamaica. 7. *C. nitida*, Willd. 7. Vahl. symb. 2. p. 44. (*Amaranthus fruticosus* erectus, Sloan. hist. 1. tab. 91. fig. 1.) "Leaves ovate-deltoid, attenuated; spikes terminal, branched; flowers distinct; stem somewhat shrubby." In habit resembling *Achyranthes farmentosa*, but placed by Vahl under *Celosia*, on account of its calyx, corolla, and the number of its seeds. A native of the West Indies. Poiret suspects that it is one and the same plant with the preceding. But his doubt appears to have arisen from a blunder made by Willdenow, in quoting at full length, as a synonym of both, the *Amaranthus fruticosus* erectus, spica viridi laxa & strigosa of Sloane, which belongs only to the present species; Linnæus having referred the preceding to another of Sloane's plants. Willdenow indeed under *nitida* refers to pl. 91. fig. 5. not fig. 1. as it stands in Vahl, but this, as Poiret observes, must be an error of the press, there being no fig. 5 in that plate. 8. *C. coccinea*, Linn. Sp. Pl. 5. Mart. 5. Poir. 5. Willd. 8. (*Amaranthus panicula incurva*, Bauh. p. 121.) Scarlet or Chinese cock's-comb. "Leaves egg-shaped, stiff, not auriculated; stem furrowed; spikes manifold, crested." Root annual. Stem four or five feet high, branched. Leaves very large, narrowed into a petiole, ending in a long point, a little waved at the edges, smooth, entire, soon falling off. Spikes axillary and terminal, large, branched, tufted, of a beautiful scarlet colour; stamens shorter than the corolla. A native of the East Indies. 9. *C. castrensis*, Linn. Sp. Pl. 4. Mart. 6. Poir. 6. Willd. 9. (*Amaranthus cristatus*; Cam. Epit. 792.) A minor. Barrel ic. rar. tab. 1195. Bocc. Mus. 2. tab. 66.) "Leaves lanceolate-ovate, marked with lines, very much acuminate; stipules falcated; spikes crested." Root annual. Stems erect; branches axillary, almost from the bottom to the top of the stem. Leaves alternate, petioled, smooth, marked underneath with reddish veins; stipules two, sessile, embracing the stem. Spikes slender, axillary, sometimes a little branched. A native of the East Indies; less beautiful than many of the other species. 10. *C. monsonia*, Willd. 10. Poiret 10. Mart. 12. Hort. Kew. 1. p. 288. Retz. Obs. 2. p. 13. (*Illecebrum monsonia*; Linn. jun. Supp. 161. *Amaranthoides*; Pluk. alm. tab. 334. fig. 4. Amal. tab. 357. fig. 4.) "Leaves awl-shaped, whorled; stem branched, divaricated; spikes compact, cylindrical." Root annual. Stems prostrate, branched, ending in more elongated branches, a span long, and hoary. Lower leaves almost crowded into a tuft. Spikes opposite and terminal, reddish and whitish, very beautiful. A native of the East Indies. 11. *C. corymbosa*, Linn. Sp. Pl. 7. (excluding, according to Willdenow, the last two synonyms, which belong to *Achyranthes corymbosa*.) Willd. 11. Retz. Obs. 2. p. 13. (*Paronychia*; Burm. zeyl. tab. 65. fig. 2.) "Leaves linear, whorled, smooth; flowers corymbose-dichotomous." Root perennial. Willdenow asserts that it may easily be distinguished from *Achyranthes corymbosa* by its stem ascending at the base, by its broader leaves and longer stipules, and by its flower; but Poiret is of opinion that the difference is very problematical. 12. *C. trigyna*, Linn. Mant. 212. Mart. 7. Poir. 9. Willd. 13. Jacq. Hort. 3. tab. 15. Lam. Illust. Pl. 168. fig. 2. "Leaves egg-shaped, acuminate, flat; stem herbaceous; raceme loose; bractes scarious; pistil trifid." Root annual. Stem a foot and half high, erect, simple, somewhat angular, striated, stiff. Leaves alternate, petioled, even, acute; stipules in pairs, crescent-shaped, horizontal, embracing the stem. Flowers in terminal racemes, a few clustered together at different distances, white, on short peduncles; bractes silvery, egg-shaped, distant; calyx two-

leaved; petals egg-shaped, acute, scarious, permanent; stamens purplish, only slightly connate at their base, shorter than the petals; germ globular; style very short; stigmas longer than the style, purple. Capsule globular. Seeds three. A native of Senegal. 13. *C. caudata*, Willd. 12. Vahl. Symb. 1. p. 21. (*Achyranthes paniculata*; Forsk. desc. 48. "Leaves egg-shaped; racemes compound, loose, very long; pistil bifid; stem without stipules." Poiret thinks it only a variety of *C. trigyna*. A native of Arabia Felix. 14. *C. virgata*, Poir. 11. Willd. 14. Jacq. ic. 2. tab. 339. Collec. 2. p. 279. "Leaves egg-shaped, acuminate, waved; stem somewhat shrubby; raceme loose; bractes membranous; pistil trifid. Root perennial. Stem four feet high, almost woody, smooth, preserving its verdure all the year; branches slender. Leaves four or five lines long, petioled, alternate, quite entire; upper ones smaller, lanceolate; stipules acute, falcated. Flowers greenish, in short axillary and terminal spikes; bractes resembling the leaflets of the calyx, which are shorter than the corolla, whitish, and end in a blackish point; petals lanceolate, acute, a little concave. Capsule membranous. Seeds about six, lenticular. After impregnation the calyx and corolla unite and enclose the fruit, giving it a conical form. Native country unknown. 15. *C. polygonoides*, Mart. 14. Poir. 13. Willd. 15. Retz. Obs. 2. p. 12. "Leaves heart-shaped, stem hispid; raceme spiked, loose; flowers trigynous." Root perennial. Stem herbaceous, almost upright, striated. Leaves obtuse, petioled, alternate, scabrous. Racemes consisting of alternate, remote, sessile, even, generally two-flowered, little clusters. Capsule pitcher-shaped, with a contracted mouth covered by a lid, longer than the calyx, many-seeded. 16. *C. madagascariensis*, Poir. 14. "Stems somewhat farmentous; leaves lanceolate, sinuated, obtuse; flowers raceme-spiked." Stems furrowed, limber; branches distant. Leaves petioled, alternate, smooth. Flowers small, cinereous white. Gathered in the isle of Madagascar by Commerçon and J. Martin, and described from a dried specimen in the herbarium of La Marck, but too imperfectly preserved to make it quite certain that the plant belongs to this genus and not to *Achyranthes*. 17. *C. baccata*, Mart. 14. Poir. 15. Willd. 16. Retz. Obs. 5. p. 23. "Leaves heart-shaped, acuminate; racemes spiked, loose, flowers trigynous; fruit berried." Stems upright. Leaves alternate, entire. Flowers small, on very short peduncles; calyx-leaflets two, small; petals oval, a little concave; filaments dilated at the base, entirely surrounding the germ. Fruit a blackish berry, not corresponding with the generic character. Seeds three, large, shining, convex on one side, concave on the other. A native of the East Indies. 18. *C. graphaloides*, Mart. 9. Willd. 17. Linn. jun. Supp. p. 161. "Shrubby, woolly; leaves opposite, egg-shaped, white underneath; head globular, peduncled. Found by Thouin in Brazil. Poiret suspects it to be an *Illecebrum*. 19. *C. nodiflora*, Linn. Sp. Pl. 8. Mart. 10. Poir. 12. Willd. 18. Retz. Obs. 4. 24. n. 70. Jacq. Hort. tab. 98. (*Amaranthoides*; Burm. zeyl. tab. 5. fig. 2. Pluk. Almag. tab. 133. fig. 2.) "Leaves wedge-shaped, rather acute; spikes globular, lateral." Root annual. Stems angular, grooved, even. Leaves like those of purslane, obtuse with a point, quite entire, smooth, on very short petioles. Spikes solitary, peduncled; peduncles commonly shorter than the leaves. Instead of the calyx there are from one to three linear bractes; stamens fixed to the nectary at the base; stigma twin-capitate. Seed single; lens-shaped. It varies; 1. with oblong leaves and peduncled heads; 2. with short roundish leaves ending in a point and sessile heads; the first from Sumatra; the second from Malabar. Retz. According to this

this description it is surely an *achyranthes*. It is also a native of the island of Ceylon.

CELOSIA lanata, Linn. Sp. Pl. 7. See *ILLECEBRUM javanicum*.

CELOSIA procumbens; Murray Jac. See *GOMPHRENA interrupta*.

CELOSIA Gronov. virg. See *IREGINE celosoides*.

CELOSIA, in *Gardening*, comprehends some flowery ornamental annual plants, as the amaranth, or cock's-comb.

The species commonly cultivated are the crested amaranth, or cock's-comb (*C. cristata*); the pearly-spiked celosia, or cock's-comb (*C. margaritacea*); the scarlet celosia or Chinese cock's-comb (*C. coccinea*); and the woolly celosia (*C. lanata*). Of the first sort there are many varieties, differing in form, magnitude, and colour, from the same seed. In the dwarf kinds, they vary, with large purple heads of flowers, with red heads, with scarlet heads, and with yellowish heads: in the giant kinds, with very large purple heads, with red heads, with scarlet heads, with yellowish heads, with white heads, and with variegated heads: and in the branching kinds, with purple, with red, and with buff-coloured flowers. And the able editor of Miller's Dictionary has raised great varieties from seeds from China and other countries, but generally found them alter in a few years, notwithstanding great care was taken in saving the seeds. The principal colours of their heads were red, purple, yellow, and white, but he has had some whose heads have been variegated with two or three colours. He also raised some, he says, from seeds from Persia, whose heads were divided like a plume of feathers, and were of a beautiful scarlet colour, but which degenerated in a few years. Linnæus has found it to vary, with narrow and broad leaves; and Thunberg asserts that the crests or heads of flowers are often a foot in length and breadth in Japan, and extremely beautiful, but that they degenerate in other situations.

In the second sort there are varieties with oblong spikes of equal thickness, with pyramidal spikes, with entire white spikes, and with white and red spikes of flowers.

The third kind also varies, with crested spikes, with incurved crested spikes, and with plumed spikes of flowers.

Method of Culture.—It is observed that in order to produce fine flowers of this sort, it is necessary to be particularly careful in collecting the seed, so as to have it good and well ripened. In regard to the method of raising all the different sorts, it is by sowing the seeds of each separately in the early spring, as in the beginning of March, either upon a hot bed, or in pots to be plunged in one; in the first case, the surface being covered with fine, light, dry mould, four or five inches in thickness. When the plants have attained a few inches in growth they should be carefully taken up, and pricked out upon another hot-bed prepared and moulded for the purpose, at the distance of six inches; and should remain in this situation till they begin to be crowded, which is mostly the case in six or seven weeks. At this period another hot-bed should be put in readiness, with very deep frames.

Where the plants have been raised without pots on the beds, as many as are necessary should now be put in pots, care being taken to remove them from the former bed, with good balls of earth about their roots, by means of a trowel, placing one in each pot without disturbing the mould about them, filling up the spaces about them with good rich earth. Some water should then be given, and the pots be plunged to their rims in the bed, and as close together as possible, the openings between the pots being filled up well with mould to prevent the rising of steam so as to injure the plants.

And the glasses in these cases should be so managed as to preserve the heat in such a state as may keep the plants in a constant vigorous state of growth, being matted up in the nights, and having linings applied when there may be occasion for it from the state of the weather. When the weather is fine and calm, air should, however, be admitted rather freely by lifting up the ends of the frames, and water be moderately sprinkled over them as there may be occasion for it.

For the large sorts, the frames should have sufficient depth to draw them up to three or four feet in height, being raised, when necessary, as the plants advance in growth; but for the dwarf kinds the common frames are sufficient, as their heads should be constantly kept near to the glasses. See *HOT-BED* and *GARDEN-FRAME*.

As the summer advances the plants should be gradually hardened by more free admission of air, till the glasses are wholly removed, and the plants set out where they are to remain, in which it is proper to support the tall sorts by handsome sticks. In this situation water should be freely given every day, to prevent the leaves from shrinking and keep the flower-heads full and fine. It is remarked that plants of these sorts may be removed from the second hot-bed into the beds, clumps, or borders; but that they never grow so strongly as in the above method.

The seeds in all the different species become in a state of perfection about the beginning of the autumn, when attention should be had to select them from the best and finest plants of each kind, sheltering the heads when necessary from rains, &c. and keeping the different sorts of seed separate and in a dry situation.

The perfection of the cock's-comb chiefly consists in its having a regular, upright, straight stem without any side branches, but well furnished all the way with leaves, and the large flower-head erect, close, and regular, in its form.

These are all plants of the fine ornamental kind, which have a good effect in the more conspicuous parts of gardens or pleasure grounds in mixture with others of the flowery kinds. The cock's-combs are well calculated to be placed in the courts and other places about the house, from the variety of effect which is afforded by their fine showy heads of flowers.

CELSA, in *Ancient Geography*, a town of Hither Spain, towards the south-west, seated on the Iberus. It was a Roman colony, and had a port on this river. Ptolemy has erroneously placed this town at the foot of the Pyrenées.

CELSA, in *Geography*, a town of Naples, in the province of Principato Citra; 25 miles S.W. of Cangiano.

CELSIA, in *Botany*, (so named by Linnæus in honour of his friend Olaus Celsius, D.D. professor of the Greek language, and afterwards of theology in the university of Upsal). Linn. gen. 757. Schreb. 1015. Willd. 1153. Gært. 327. Juss. p. 124. Vent. vol. 2. p. 367. Class and order, *didynamia angiospermia*. Nat. Ord. *Lurida*, Linn. *Solaneæ*, Juss. Vent.

Gen. Ch. *Cal.* Perianth five-parted; segments lanceolate, permanent. *Cor.* monopetalous, wheel-shaped; tube very short; border flat; segments roundish, unequal. *Stam.* Filaments four, capillary, a little inclined, unequal, bearded; anthers roundish. *Pist.* Germ superior, roundish; style filiform, the length of the stamens; stigma obtuse. *Per.* Capsule, roundish, compressed at the tip, acuminate, surrounded at its base by the calyx, two-valved, two-celled; partition simple, contrary to the valves. *Seeds* numerous, small, angular.

Eff. Ch. Calyx five-parted, corolla wheel-shaped. Filaments bearded. Capsule two-celled.

Sp. 1. *C. orientalis*, Linn. Sp. Pl. Mart. 1. Lam. 1. Willd. 1. Gært. tab. 55. fig. 7. Lam. Illuf. Pl. 532. (*Verbascum Sophiæ folio*; Tourn. Cor. 8. Buxb. Cent. 5. p. 17. *Blattaria*; Buxb. Cent. 1. tab. 20.) "Leaves bipinnated." Linn. *Root* annual. *Stem* a foot and half high, upright, herbaceous, cylindrical, simple or furnished with short branches, leafy from the bottom. *Leaves* alternate, scattered, bipinnatifid, not bipinnate as they are described by Linnæus in the specific character, green, entirely smooth: segments slender toothed: those from the root oblong, finely divided almost to the midrib, lying flat on the ground. *Flowers* pale yellow, small, solitary, sessile, axillary; segments of the calyx narrow, sometimes bifid or trifid. A native of the Levant, flowering in June, sent to Paris from Armenia by Tournesort, in 1701, and cultivated in Chelsea-garden in 1739. 2. *C. arcturus*, Murray Syst. Veg. p. 469. Vahl symb. 3. p. 79. Mart. 2. Lam. 2. Willd. 2. (*Verbascum arcturus*; Linn. Sp. Pl. V. humile creticum: Bauh. pin. 240. Alp. exot. tab. 122. Colum. ecphr. 2. p. 82. "Root-leaves lyrate; upper ones oblong; peduncles longer than the bractes; segments of the calyx linear, quite entire." Vahl. *Root* biennial. *Stem* a foot high or more, slender, weak, often simple, leafy, villous. *Leaves* generally alternate, sometimes opposite, petioled, toothed, a little villous, dark green. *Flowers* yellow, in a loose spike on the upper part of each stem; peduncles from six to nine lines long; filaments covered with red or purple hairs. A native of Candia, first cultivated at Kew about 1780. 3. *C. coromandelina*, Willd. 3. Vahl Symb. 3. p. 79. "Root-leaves lyrate; stem ones egg-shaped; peduncles shorter than the bractes; segments of the calyx linear-oblong, quite entire. *Root* annual. *Flowers* distant, about the size of those of *C. arcturus*. A native of the East Indies. 4. *C. cretica*. Murr. Syst. Veg. p. 469. Linn. jun. Sup. p. 281. Mart. 3. Lam. 3. Willd. 4. (*Verbascum*; Mill. Ic. tab. 273. *Blattaria*; Morif. 2. 488.) "Root-leaves lyrate; stem ones oblong; flowers nearly sessile, the length of the bractes; segments of the calyx egg-shaped, serrated." Vahl. *Root* biennial. *Stem* two feet high, herbaceous, simple, upright, cylindrical, pubescent. *Leaves* alternate, embracing the stem, wrinkled, serrated, pubescent underneath. *Flowers* large, yellow, with a ferruginous spot at the base of each of the upper divisions; in a long terminal raceme; bractes heart-shaped, acuminate, somewhat acutely serrated, one-flowered; segments of the calyx pubescent on the outside; two upper filaments very short, with a dark purple beard, and kidney-shaped anthers; two lower ones the length of the corolla, smooth, inclined, with linear anthers. A native of Candia and the East Indies. 5. *C. betonicifolia*, Willd. 5. Desf. atl. 2. p. 58. (*Blattaria*; Dodart. ic. Shaw afr. 4. 78.) "Leaves ovate-oblong, wrinkled, scolloped; bractes lanceolate, shorter than the peduncle." *Root* biennial. *Stem* two or three feet high, erect, somewhat hairy, generally branched; branches rod-like, bearing the flowers. *Leaves* alternate, smooth or slightly hairy, obtuse, often pinnated near the base; upper ones sessile, embracing the stem, lanceolate, acute, toothed. *Flowers* yellow, with a dark purple spot at the base of each of the two upper divisions; segments of the calyx egg-shaped, acute, nearly equal, serrated or entire; two upper filaments shorter, hairy; two lower ones smooth, declined, incurved upwards. *Capsule* roundish, covered with the calyx. A native of waste ground about Algiers.

Celsia linearis and *urticifolia*, Jacq. and Curt. Bot. Mag. See HEMIMERIS.

Propagation and Culture.—If the seeds of the first species

be sown on a warm border as soon as they are ripe, the plants will come up and live through the winter provided the soil be poor; but in rich ground they are apt to grow rank, and are generally destroyed by the first frosts, or rotted in rainy seasons. They do not bear transplanting, and require only to be thinned, and kept free from weeds. Plants sown in the spring seldom produce ripe seeds. The second and the fourth species require the protection of the green house, Millar.

CELSINA, in *Ancient Geography*, an island situate between Italy and Sicily, according to the Itinerary of Antonine.

CELSIONUS Mons, a mountain supposed to have been in the isle of Chios.

CELSITA, a small town of Spain, in Bætica.

CELSITANI, a people placed by Ptolemy in the island of Sardinia.

CELSUS, in *Biography*, an early adversary of Christianity, is supposed to have been born towards the close of the reign of Adrian, who died A. D. 139; and he is placed by Dr. Lardner, with his friend Lucian, in the year of Christ, 176, not far from the end of the reign of Marcus Antoninus, who died in March, A. D. 180. Although he sometimes recurs to Platonic and Stoic modes of reasoning, he is expressly ranked by Lucian, who inscribed to him his "Alexander," or "Pseudomantis," as well as Origen, who wrote against him, among the Epicureans; and this supposition best accounts for the violence with which he opposed the Christian religion; for an Epicurean would of course reject, without examination, all pretensions to divine communications or powers. The book which he wrote against the Christians was entitled *λογος αληθης*, or "The true Word." Of this work we have no other remains besides the quotations made by Origen in his refutation of it. The extracts from his writings, preserved by Origen, have given occasion to various opinions concerning his talents as an objector to Christianity. Celsus, says Mosheim, was a trifling caviller, as is manifest from the answer of Origen; nor do his writings against Christianity serve any other purpose than to shew his malignant and illiberal turn of mind. Cave observes, that Origen has powerfully refuted the futile calumnies and arguments of Celsus. On the other hand, Du Pin reckons him one of the most artful and acute of the opponents of Christianity; and Brucker says, that while the extracts of Origen prove him to have been an inveterate enemy to Christianity, they shew that he was not destitute of learning and ability. The answer of Origen was written at the desire of his friend Ambrose; and was published, as some think, in the year 246, and according to others in 249. It was greatly esteemed and celebrated, as an excellent work, not only by Eusebius and Jerom, but also by many judicious moderns, particularly Du Pin; who says, it is polite and methodical; not only the best work of Origen, but the completest and best written apology for the Christian religion, which the ancients have left us. Origen's apology consists of eight books, which have been divided by the Benedictines into sections for the convenience of perusal and reference. As Celsus, personating a Jew, undertook a laboured argument against the Christians, and wrote so lately as the time of Marcus Antoninus, when the Christians were openly persecuted, and their affairs were better known by the persecution itself, and by the apologies then made for them; we may reasonably expect to find in his work many things that are useful to us in the vindication of our religion; and his testimony to the books of the New Testament is peculiarly valuable. From several passages in Celsus, it appears, that the Jewish expectation of a Messiah was a thing well known; and that this

this expectation subsisted before the appearance of Jesus in the world. And, indeed, their having such an expectation in the time of Celsus, is an argument that they had it before the coming of Jesus; for they would not have taken up such a notion from his followers. Many passages are cited by Lardner from Celsus, which contain references to the books of the New Testament. To the cavils of Celsus, grounded on the passages which he has cited, Origen has given very satisfactory answers. To the facts recorded in the New Testament, Celsus has borne testimony; though he has misrepresented and perverted them. With regard to the miracles of our Lord, it is not easy to determine whether Celsus believed them or not. But it is not more easy to see how he could disbelieve them; and he was at a loss how to account for them. "I think," says Dr. Lardner, "Celsus could not or would not allow our Lord's great works to have been done by the power of God, because he would not admit the consequence, which was, that Jesus had a divine commission, and acted by authority from heaven; and rather than admit that just and necessary conclusion, he has recourse to shifts and evasions, which are absurd and inconsistent." Accordingly, Origen says, "Celsus not being able directly to deny the great works which Jesus is recorded to have done, asperseth them, and calls them juggling tricks." With regard to the moral doctrine of the New Testament, it appears, from passages of Celsus, that no just exception could be made to it. Although he does not allow it to have any superior excellence above the doctrine of the philosophers, he does not deny it to be like their doctrine, and equal to that of the best sort of the philosophers. From other passages it sufficiently appears, that Celsus allowed the progress and spread of the Christian religion; and that he acknowledges the sincerity and steadiness of those who embraced it amidst the difficulties and hardships to which they were subject. As to his charge of magic against the Christians, this affords an argument, that there were some uncommon things done by them at this time, as Origen and other ecclesiastical writers have often asserted; but not to the detriment of mankind, as Celsus insinuates, but for their benefit. From passages relating to Christian worship, it appears, upon the authority of Celsus, that they worshipped the one God, creator of all things, and had a high veneration for Jesus Christ; nor would they worship demons, or join in the public sacrifices and festivals of heathen people. Celsus likewise speaks of Christian presbyters; though they had not then any altars, or temples, nor other sumptuous buildings to meet in. He also reproaches them with holding their religious assemblies privately, and contrary to law; nor was it without reason that they aimed at privacy; for, as he owns, they were then fought for to be put to death. Celsus appears not to have been unacquainted with the absurd opinions of some who went under the Christian name; whom he introduces with a view of casting the greater reproach on those who were more rational in their belief. All the attacks of Celsus are against the more sober part of the believers: those others were fought for in order to disparage and expose them, if possible. It is well known, that, soon after the rise of Christianity, the followers of Jesus were loaded with many calumnies: they were said to kill infants, and eat them; and when the lights were put out, to practise promiscuous lewdness in their assemblies. Celsus, in whose time these charges were not extinct, seems, however, to have thought them absurd and incredible; and to mention them with any marks of countenance and approbation, he supposed would be a prejudice to his argument. But though he has omitted these, he has introduced divers in-

jurious reflections upon the Christians, and thus shown his disposition to expose them to general and public resentment. If Christians, therefore, derive any advantage from the work of Celsus, which is undoubtedly the case, and the advantage is very considerable, it is altogether beside the intention of the author; who evidently wished to disgrace Christianity, and prevent its subsistence and diffusion.

We have three summaries of the fragments of the work of Celsus preserved in Origen, in our own language, besides the copious extracts, with appropriate remarks, made by Dr. Lardner, of which we have above availed ourselves; one by Dr. Doddridge, for a summary of which, see Lardner's Works, vol. viii. p. 62, &c.; one by Dr. John Leland of Dublin, in his Answer to Christianity as old as the creation, vol. ii. ch. 5. p. 150—154; and another by Dr. Sherlock, supposed to be the ingenious author of the "Evidence of the Resurrection cleared up," p. 19 and 20, from which we shall extract the following observations. "Celsus lived at no great distance from the apostolic age, at a time when all religions were tolerated but the Christian; when no evidence was stifled, no books destroyed, but the Christian. And yet Celsus laboured under the same want of evidence, as Woolston and his auxiliaries, and had only the gospel to search (as Origen more than once observes), for evidence against the gospel. A strong proof that there never had been any books of credit in the world, that questioned the gospel facts, when so spiteful and so artful an adversary as Celsus made no use of them.

"Celsus admits the truth of Christ's miracles. The difference between him and Origen lies in the manner of accounting for them; the one ascribing them to the power of God, the other to the power of magic. So that, if the considerer will stand to the evidence of his own witness, the question will not be, whether the miracles are true in fact (for that is granted on both sides), but whether the truth of the miracles infers the divine authority of the performer. Nor can it be supposed, that Celsus would have admitted the miracles of Christ as real facts, had he not been compelled to it by the universal consent of all men in the age he lived? The truth is, that the objections of Celsus are preserved in his own language. Origen's answer is not a general reply to Celsus, but a minute examination of all his objections, even of those which appeared to Origen most frivolous. For his friend Ambrosius, to whom he dedicates the work, desired him to omit nothing. In order to this examination, Origen states the objections of Celsus in his own words, and that nothing might escape him, he takes them in the order in which Celsus had placed them. Celsus then, as it happens, is safe; and the considerer need not to lament over him any more." See also Paley's "View of the Evidences of Christianity," vol. i. p. 294, &c.

Celsus, besides his book against the Christians, wrote a piece "On the life to be led by those who meant to follow the rules of philosophy;" and another "Against Magic" is ascribed to him both by Origen and Lucian. Du Pin, vol. ii. p. 454. Brucker's Hist. Phil. by Enfield, vol. ii. p. 141. Mosheim's E. H. vol. i. p. 163. Cave's H. L. vol. i. p. 96. Fabr. Bib. Græc. l. iii. c. 33. t. ii. p. 809. Lardner's Works, vol. viii. ch. xviii. p. 6—69.

CELSUS, A. CORNELIUS. The memoirs for the life of this elegant writer are very scanty. Even the knowledge we pretend to of his family, his rank in life, or of the age in which he lived, is rather probable conjecture than derived from certain information. It has been disputed whether he practised any branch of medicine; and if we determine in the affirmative, it is only because we cannot conceive that a mere amateur would have been at the pains of acquiring such perfect

perfect knowledge as he appears to have had of the dogmas of the different sects of physicians, or would have been able to describe the diseases he treats of with so much accuracy, or laid down the most approved methods for curing them that were then known. All this he has done; it is therefore reasonable to suppose he practised the art, in which he was so complete a proficient. Friend, whose opinion we may safely follow in every thing relating to the early history of medicine, and its professors, produces, as a proof that he practised surgery, a passage from that part of his work, where he treats "*De Oculorum Vitiis*," reproving the method used by Heraclides in curing adhesion of the eyelids; "*Ego sic restitutum esse neminem memini.*"

Friend agrees with Le Clerc, that Celsus was a Roman by birth, probably of the Cornelian family; that he was born in the latter part of the reign of Augustus Cæsar, and was living in the time of Caligula. The work by which he has been rendered famous is entitled "*De Medicina Libri Octo.*" The great number of editions this book has passed through sufficiently indicate the high esteem in which it is held. It contains, in an epitome, every thing that is valuable in the works of Hippocrates. In medicine he seemed to have approved and followed the doctrine of Asclepiades; but the most valuable part of the work is that which treats of surgery, in which we find methods of practice laid down, and modes of performing several operations described, in the manner still used. The language also in which the precepts are contained, is so pure and elegant, as to have contributed in no small degree to the celebrity of the work. He is said to have written on rhetoric and on other subjects, but his works on those subjects, if they ever existed, are lost. Le Clerc, *Hist. de Med.* Friend's *History of Physic.* Haller, *Bib. Anat. Chir. et Med.* in which most of the editions of the "*De Re Medicina Lib.*" are noticed. The earliest was at Florence, 1478, fol. One of the best is Almeloveen's, edited at Padua, 1722, 8vo. by Vulpianus, and reprinted in 1750. There have been also translations of Celsus into French, English, and other modern languages. The short abridgment of rhetoric, which has been ascribed to him by some, was printed at Cologne in 1569.

CELTES, CONRAD, named also PROTUCIUS, and MEISSEL, a modern Latin poet of some eminence, was born at Schweinfurt, in Franconia, in 1459. After having acquired a large stock of literary and scientific knowledge in his studies at Cologne and Heidelberg, he visited many of the German universities, and supported himself as a private lecturer. He was thus enabled to make a tour for improvement through all the principal cities and universities of Italy. The reputation he thus gained was the means of introducing him to the elector of Saxony; and the emperor Frederic III., to whom he was recommended by the elector, conferred upon him the poetical laurel at Nuremberg in 1491. Having terminated his rambles, he settled at Vienna; where he was made professor of eloquence and poetry, and librarian to the emperor Maximilian. Here he died in 1508. Celtes deserves to be ranked among the restorers of polite literature in Germany. Of all the various writings which he left, the poetical were the most distinguished. Whilst he possessed some vigour of imagination and brilliancy of expression, he was deficient in good taste and correct judgment. Some of the best of his pieces, containing amatory elegies, odes, epigrams, &c. were published at Strasburgh in 1515, by the care of a literary society of which he was the founder. He wrote also a poem on the manners of the Germans, on the river Vistula, an historical account of the town of Nuremberg, the cosmography of Aristotle and Apuleius, orations, and several other pieces. Moreri, *Gen. Biog.*

CELTI, in *Ancient Geography*, a place of Spain, between Astigi and Regiana, according to the Itinerary of Antonine. Pliny makes it the chief of the towns in the jurisdiction of Hispalis.

CELTIBERIA, the ancient name of a country of Spain, in the Tarragonensis, and to the east of Carpetania, according to Pliny and Ptolemy. The latter places in it 18 towns. It was originally of large extent; but the wars of the Romans reduced it to a narrower compass.

CELTIBERIANS, a powerful and celebrated people who occupied the greatest part of the interior of Spain. Polybius, when he relates that T. Gracchus had subdued 300 towns in this country, seems to have exaggerated the number, in order to flatter the vanity of Gracchus, who had made this conquest in the year of Rome 575. Livy makes the same report; but Strabo very justly observes, that these authors had raised mere villages to the rank of towns. According to this author, Celtiberia produced a great number of plants, the roots of which served the purposes of dyeing. He adds, that the part of it which was near the Mediterranean abounded with vines, olives, figs, and other trees which yielded excellent fruits. Their principal towns were Castantum, Turiaso, Bilbilis, Ergavica, and Valeria. The Celtiberians, according to Diodorus Siculus, were a people composed of two nations, the Iberians and the Celtes. Accordingly, the inhabitants of Celtiberia, or Spain, might be designed to distinguish those Celtes on that from those on this side of the Pyrenæes. For thus we find Galia or Gaul divided into Cis and Trans-Alpina; and the word Iberia seems to be derived from the old Celtic and Teutonic "*iber*," which signifies over; and thus Spain, which is sometimes found in the plural number, was divided into Citerior and Ulterior. The Celtes and Iberians made war against one another, with a view to the possession of their respective territories; but as neither the one nor the other prevailed, they negotiated a peace on condition that they should possess both countries in common. From this condition, followed by intermarriages and various alliances, resulted the name of Celtiberians, which they assumed. These people, thus formed of two distinct people, equally valiant, and possessing a rich and fertile country, acquired great reputation by their long resistance to the Roman arms; though at length they were subdued. The cavalry of the Celtiberians, says Diodorus, are excellent; but their infantry was less distinguished. All the Celtiberians, except their chiefs, bore a "*fagum*" of wool so large, that it resembled the hair of a goat. Some of them were armed with a Gaulish buckler, and others with a round "*cyrta*," of the size of a buckler, and "*cuisse*," or armour for the legs, made of horse-hair. All of them wore helmets of iron with red plumes, a two-edged sabre of steel, and a cutlass, a foot long. The cavalry of the Celtiberians were so well skilled in the use of arms, that they fought equally well on foot or on horseback. The Celtiberians had a singular custom of washing their bodies every day, and their teeth with urine, pretending that nothing contributed so much to health. Whilst they treated their enemies with severity, they were very hospitable to strangers, and contended for the privilege of entertaining them, as the means of engaging the favour of their gods. Their food consisted of various delicacies, and their drink of a sort of sweet wine, mixed with honey. Their mules were in high estimation, and yielded them great profit. The Celtiberians regarded as impious the custom established among the Iberians of causing the bodies of those who died to be devoured by vultures. Strabo says, that these people celebrated a feast at every full moon, in honour of an anonymous god; it commenced with the beginning of the night and lasted the whole of the next day.

CELTICA,

CELTICA, a spacious country, which, according to Plutarch, extended from the ocean and the northern climates as far as the Palus-Mæotides to the east, touching on one side on Pontic Scythia.

CELTICI, a people of Spain, who, according to Strabo and Pliny, dwelt on the confines of Lusitania.

CELTICI Mirobrigenfes, were, according to Pliny, the inhabitants of Mirobriga, a town of Spain.

CELTICI Neria, a people of Spain, placed by Pliny on the promontory of Nerium, the present Finisterre.

CELTICI Præfumarii, a people of Spain, in whose country were the rivers Tamafis and Sars.

CELTICUM PROMONTORIUM, a name given to the promontory of Artabrum, called also Nerium, on the western coast of Spain, to the N.W., now Finisterre.

CELTIS, in *Botany*. (Celtis, Plin. 13. 17.) Tourn. Clafs 21. feft. 2. gen. 1. Linn. gen. 1143. Schreb. 1591. Juff. p. 408. Vent. vol. iii. p. 553. Gært. 487. Lote or nettle-tree, Eng. Micacoulier, Fren. Loto, Ital. Clafs and order, *polygamia monæcia*, Nat. Ord. *Scabridæ*, Linn. *Amentaceæ*, Juff. Vent.

Gen. Ch. Hermaphrodite. *Cal.* perianth one-leaved, five-parted; segments egg-shaped, spreading, withering. *Cor.* none. *Stam.* filaments five, very short, at first concealed by the anthers, but after the shedding of the pollen growing longer; anthers oblong, thickish, quadrangular, marked with four furrows. *Pist.* germ superior, egg-shaped, at least as long as the calyx; styles two, spreading, variously inflexed, awl-shaped, pubescent, very long; stigmas simple or bifid. *Peric.* drupe globular, containing one round nut or stone, with a single kernel. Male. *Cal.* sometimes six-parted. *Cor.* none. *Stam.* filaments sometimes fix. *Pist.* none.

Eff. Ch. Hermaph. Calyx five-parted. Corolla none. Stamens five. Styles two. Drupe one-seeded. Malc. Calyx five or six-parted. Corolla none. Stamens five or fix.

The two kinds of flowers are sometimes separate, and sometimes on the same raceme; in the former case the male flowers are situated below the others.

Sp. 1. *C. australis*, European nettle-tree, Linn. Sp. Pl. 1. Mart. 1. Lam. 1. Pallas. Ros. 1. 19. (*C. fructu nigricante*, Tourn. Inst. p. 612. Lotus fructu cerasi, Bauh. Pin. 447.) "Leaves ovate-lanceolate, acuminate; fruit solitary." A tree. *Trunk* from 40 to 50 feet high; branches numerous, spreading, long, flexible, pubescent near the summit. *Leaves* near four inches long, and about two broad in the middle, dark green, serrated, obliquely nerved, veined, rather scabrous above, slightly villous on both sides, especially when young; stipules rather long, linear, narrow, caducous. *Flowers* axillary all along the branches, small, of an herbaceous colour, perishing before the leaves have attained to half their size; peduncles solitary, generally simple, about three-fourths of the length of the young leaves; styles villous, divaricated. *Fruit* about the size of a small cherry, blackish, round, a little fleshy. A native of the south of Europe. The flowers open at the beginning of April. The fruit comes to maturity in the ensuing January, and continues on the tree till the sap rises in spring; it is rather astringent, and is eaten not only by birds, but by children, in Spain. Its wood is of a dark colour, remarkably hard, compact, and heavy; tough and flexible, and therefore excellent for making the shafts of carriages and hoops of barrels and tubs; next to ebony and box in durability, strength, and beauty; capable of receiving a fine polish, and, when sawed obliquely, is said to be a good substitute for the fattinwood of America. The ancients used it for flutes and other musical instruments, and as it is not subject to crack, it is particularly fit for the purposes of the carver. The root is less compact than the trunk, but of a darker colour,

and suitable for the hafts of knives and other utensils. Scopoli obtained from the expressed seeds an oil with a flavour similar to that of oil of sweet almonds. As an ornamental tree, it merits the attention of the planter, having a fine regular spreading head of a cheerful green colour, coming early into leaf, and retaining its foliage late in the autumn. It has not, however, been much cultivated in England, and is less common than the next species. 2. *C. occidentalis*, Linn. Sp. Pl. 3. Mart. 2. Lam. 2. Gært. tab. 77. fig. 3. Lam. Illuf. Pl. 844. fig. 1. (*C. fructu obscure purpurascente*, Tourn. Inst. p. 612. *C. procera*, Gronov. Virgin. p. 158. Lotus arbor Virginiana, Rai Hist. p. 1917.) "Leaves obliquely egg-shaped, serrated, acuminate; fruit solitary." β . "Leaves more slender, less acuminate." A tree. *Trunk* straight; in young trees even, and of a dark colour; in older ones rough, and lighter green; branches spreading. *Leaves* alternate, broader and shorter than those of the preceding species, tender, quite entire at the base and tip, serrated in the middle, obliquely nerved, veined; petioles slightly villous from three to six lines long. *Flowers* opposite the leaves; segments of the calyx oblong, obtuse, concave, spreading, ciliated at the edges; stamens nearly the length of the calyx; germ conical, surrounded at its base by a ring of fine, short, whitish hairs, which continue on the young fruit. *Fruit* the size of a small cherry, oval, appearing like a berry, of a deep purple colour and sweet taste; stone globular, not dividing, white, hard, a little wrinkled. A native of Pennsylvania, first brought into England by John Tradescant; flowering in May, and ripening its fruit in October. There are many large trees of this species in the English gardens, which, in favourable seasons, ripen a great quantity of fruit; and there are few years in which the fruit is not sent from America. It comes out late in the spring, but retains its leaves longer than any other deciduous tree. Its wood is tough and pliable, and esteemed by coach-makers for the frames of their carriages. The variety β is a native of Louisiana, and was cultivated in the royal garden at Paris, but as it was killed down to the root every winter by the frost, La Marck never saw its fruit or flowers, and, therefore, could not determine whether it be merely a variety or a distinct species. 3. *C. crassifolia*, Lam. 3. "Leaves somewhat heart-shaped, serrated, acuminate; peduncles often with two flowers." Branches woody, cylindrical, pubescent in the young shoots, with a reddish brown bark. *Leaves* in young plants five inches long, and three and a half broad, alternate, petioled, generally enlarged on each side with a kind of roundish ear, so as to appear somewhat heart-shaped, but, with the inequality, observable in the other species, rough on both sides, with short hairs, especially on the upper surface; petioles short, slightly villous. *Peduncles* axillary, generally two or three-flowered, longer than the petioles. *Fruit* round, smooth, about the size of a small cherry. A native of North America: cultivated at Paris; and described by La Marck from a living plant. 4. *C. americana*, Mart. 4. Plum. Cat. 18. "Leaves oblong-egg-shaped, obtuse, nerved, smooth above, golden underneath." *Trunk* near twenty feet high, covered with a grey bark, and dividing at the top into many branches. *Leaves* near four inches long, two and a half broad, rounded at their extremity, of a thick texture, very smooth on their upper surface, and on their under, of a lucid gold colour. *Fruit* round and red. Found by Plumier in the French West India islands, and by Houston in Jamaica, and cultivated by Miller. Nearly allied to the preceding, if not the same species, differing chiefly in the surface of the leaves. 5. *C. Tournefortii*, Lam. 4. (*C. orientalis minor*, Tour. Cor. 42. Voyage,

vol. ii. p. 425, with a figure.) "Leaves egg-shaped, crenate-ferrated; younger ones somewhat heart-shaped; fruit yellow." *Trunk* twenty-five or thirty feet high, much branched; branches smooth, alternate, cylindrical. *Leaves* about two inches long, and sixteen lines broad, alternate, acute, obliquely truncate at the base so as to be obscurely heart-shaped, firm, rather thick, nearly smooth, green on both sides, a little scabrous on the upper surface, marked underneath by projecting branched nerves which proceed from the midrib. *Fruit* smooth, round, yellow, but tending to brown, when quite ripe, about the size of a pea; peduncles axillary, solitary, simple, more than twice the length of the petioles, beset with short white hairs on their upper part at the base of the young fruit, as in *C. occidentalis*. A native of the Levant: introduced into France by Tournefort. 6. *C. orientalis*, Linn. Sp. Pl. 2. Lam. 5. (Mallam toddali, Rheed. Hort. Mal. vol. iv. p. 83. tab. 40. *Papyrus spuria*? Kämpf. Am. Æn. Exot. tab. 472. *Salvifolia arbor*, Pluk. Alm. tab. 221. fig. 4. Ghæduba, Burm. Zeyl. 26. Herm. Zeyl. 14. *Baccifera indica*, Rai Hist. 1597.) "Leaves ovate-acuminate, obliquely heart-shaped at the base, finely serrated, villous underneath; panicles axillary." Lam. A tree of a moderate size, with a smooth bark. *Branches* slightly villous. *Leaves* about four inches long, more than an inch and half broad, alternate, oblique, green, paler underneath, wrinkled on the upper surface, and rough, with stiff hairs, directed towards their summit, clothed on their lower surface more abundantly with finer and softer hairs; petioles from two to four lines long. *Flowers* small, greenish, on very short pedicels; in axillary, twice or thrice dichotomously branched racemes, forming a kind of compound corymb, furnished at the divisions with very short oval bractes. *Fruit* small, greenish, of a bitter taste. A native of the East Indies, and of the isles of France and Bourbon. This species has been confounded with the preceding by Miller and other authors. 7. *C. micrantha*, Mart. 5. Lam. 6. Hort. Kew. vol. iii. p. 437. Swartz. Prod. 53. (Muntingia, Plum. gen. p. 41. ic. vol. 6. tab. 77. Burm. amer. ic. 206. fig. 1. *Rhamnus a ziziphus*? Brown. jam. tab. 12. fig. 1. *Rhamnus micranthus* of Linnæus is usually quoted as a synonym, but we have the decisive authority of Dryander for stating, that, though the synonyms annexed to that plant belong to this species, the specimen in the Linnæan herbarium from which the specific character, and the description in Amen. Acad. were formed, is *Boemehria ramiflora*. See Linn. Transf. vol. ii. p. 226.) "Leaves obliquely heart-shaped, ovate-lanceolate, finely serrated, rather scabrous on the upper surface." Swartz. Very nearly allied to the preceding species. A tree of a moderate size with a cinereous bark. *Branches* very compound, pubescent towards the extremity; some vertical, others more or less horizontal. *Leaves* alternate, petioled, three or four inches long, about fifteen lines broad, green, paler underneath, beset with short stiff hairs rising from the scabrous protuberances, marked on the under surface with projecting oblique nerves proceeding from the midrib, three of them immediately from the insertion of the petiole. *Flowers* small, greenish, spreading, scarcely pedicelled; in small, axillary, twice or thrice dichotomously divaricated corymbs, furnished with short bractes at the divisions: segments of the calyx oval, concave, villous on the outside; in the centre of the male flowers there is a tuft or circle of whitish hairs. *Fruit*, according to Plumier, red, fleshy, not bigger than the seed of a vetch. A native of the Antilles. 8. *C. lima*, Mart. 7. Lam. 7. Swartz. prod. 53? (Muntingia folio ulmi aspero, Plum. gen. 41? Burm. Am. ic. 206, fig. 2? *Loti arboris folio angustissimo*, Sloan. jam.

2, 80?) "Leaves ovate-lanceolate, finely serrated, very scabrous; racemes axillary, small." *Branches* cylindrical, cinereous, smooth; smaller ones clothed with numerous, upright, awl-shaped, short hairs, which render their surface a little scabrous. *Leaves* an inch and half or two inches long, about half an inch broad, alternate, on short peduncles, narrow, acute, coriaceous, firm, light green; sprinkled on both surfaces, but especially on the upper one, with a multitude of small whitish tubercles, each terminated by a short stiff hair, which render their surface as rough as a file or the skin of a shark; the intervals between these tubercles are smooth and shining, appearing as if they were varnished. *Flowers* very small, on short pedicels; in axillary, nearly simple racemes, either solitary, or two or three together, furnished at each of their divisions with a short bract. *Fruit*, when young, green, smooth, surrounded at the base by the permanent calyx. Described by La Marck from a dried specimen sent from Martinico by Joseph Martin. The identity of Swartz's plant appears dubious. According to him it is fifteen feet high. *Trunk* straight, with a smooth, reddish or light brown bark, and several branches spreading towards the top. *Leaves* alternate, half an inch distant from each other, two inches long, and half as broad near the base, dark green, petioled. *Flowers* axillary, small, greenish. *Fruit* orange-coloured, not bigger than a pin's head, oval, insipid, having an orange-coloured pulp and a black round stone within. 9. *C. trinervia*, Lam. 8. "Leaves egg-shaped, serrated, three-nerved, nearly smooth; flowers fascicled; fertile one with a longer pedicel." *Branches* cylindrical, greyish, slightly villous at the extremities. *Leaves* two inches, or two inches and a half long, little more than an inch broad, alternate, slightly acuminate, soft, thin, of a fine green colour; petioles about two lines long, pubescent. *Flowers* small, greenish; from three to six together, on a common axillary, solitary peduncle, much shorter than the petioles; generally only one fertile flower in a fascicle; stamens scarcely longer than the calyx; styles slightly villous. A native of St. Domingo. 10. *C. integrifolia*, Lam. 9. "Leaves roundish, ovate, acuminate, quite entire; styles bifid." *Branches* alternate, cylindrical, slightly villous. *Leaves* about two inches and a half long, an inch and half broad, alternate, firm, thickish, slightly scabrous above, green on both sides but paler underneath; with four or five elevated, branched, longitudinal nerves proceeding from their base; clothed, when young, with a few short hairs, which gradually disappear, and finally remain only on the nerves; petioles a quarter of an inch long, villous like the nerves, slightly channelled on the upper side. *Flowers* small, greenish; in dichotomously branched panicles, solitary, or one or two together from the axils of the leaves; the male ones with very short pedicels. *Fruit* when young villous. Brought from Senegal by Adanson. 11. *C. aculeata*, Mart. 6. Swartz. prod. 53. (*Rhamnus iguaneus*, Jacq. amer. 74. 1. *ziziphus iguaneus*, Lam.) "Leaves cordate-egg-shaped, blunt at the tip, almost entire, very smooth; branches prickly; styles bifid." An inelegant little tree. *Branches* very long, pliant, reclining, not much divided, frequently with alternate, distich branches the whole length, the upper ones gradually shorter. *Leaves* commonly three or four, sometimes eight inches long, alternate, distich, smooth, petioled. *Spines* in the axils of the leaves and branches, awl-shaped, very sharp, strong, and short, recurved, solitary, or in pairs. *Flowers* small, yellow; in small axillary racemes, growing one, two, or three together; segments, with hardly any tube and no scales; in the male flowers instead of the pistil, there is an oblong truncate body only half the length of the calyx. *Fruit* yellow, double the size of a pea, containing a sweet pulp

pulp which is eaten by the natives; stone or nut wrinkled, thick, bony, white, one-celled. A native of the Caribbee islands, and the neighbouring continent. Swartz observes that *Rhamnus igneus* of Linneus should be placed in this genus on account of its calyx without petal-like scales, its two styles, and its fruit; but he doubts whether it be the *igneus* of Jacquin here described. It derived its trivial name from its growing in rocky places frequented by the Iguana.

Propagation and Culture. These trees are all propagated by seeds, and most of them are hardy enough to endure the open air in England, when they are become strong; but for the first two winters after they come up from seeds, they require to be protected from frost. It is best to sow the seeds in autumn soon after they are ripe; and they ought by all means to be sown in pots or boxes, that they may be shifted into different situations according to the season. In the following spring they may be removed into nursery beds prepared for the purpose, in a sheltered situation, and if possible in a gentle loamy soil. If the surface of the ground be covered with old tan or rotten dung, it will keep it moist, and prevent the drying winds from penetrating to the roots of the plants. After the plants have remained in the nursery beds two years they may be transplanted to the situations where they are intended to remain.

CELTO-GALATIA, in *Ancient Geography*, a name given by Ptolemy to Celtic Gaul; and which he divided into four provinces, viz. Aquitania, Lugdunensis, Belgica, and Narbonnensis. See GALLIA.

CELTOS or CELTUS, a marsh or lake which seems to have been lost in the Euxine sea, according to Lycophron. Ortelius conjectured, that it was one of the marshes at the mouth of the Danube.

CELTS, or CELTÆ, in *Ancient History*, the name of a very ancient people, whose descendants were the aboriginal inhabitants of Gaul and Britain. It was, however, more particularly given to a part of the Gauls, whose country, called *Gallia Celtica*, was situated between the Seine and Marne and the Garonne.

The remoteness of their early history, and the obscurity in which it rests, make every effort to elucidate the first origin of the Celts of no avail. The opinions both of the ancient and the modern writers who have mentioned them, are equally vague and indeterminate; and it is perhaps enough to say, they appear to have been the most ancient inhabitants who can be traced in this quarter of the globe. Herodotus (*Melpomene*, xlix.) speaking of the Danube, says, "it commences with the *Celtæ*, who, except the *Cynetæ*, are the most remote people in the west of Europe.

The little knowledge which the earlier Greek and Roman writers had of the barbarous nations round them, and the small pains they took to gain accurate information about their peculiar differences and distinctions, led many of them to confound the *Celts*, the *Goths*, and the *Sarmatians*. Strabo (*Geogr.* lib. ii. p. 93.) particularly states, that the writers before his time were both ignorant and uncertain in all that they related of those countries which formed the more immediate residence of the Celts. Nor can we allow more credit to the writers of a later date, who have rather guessed at the ancestry of the Celts, than given authentic materials for their history. One of the earliest on the continent was Picard, whose work "*De Præca Celtopædia*," appeared at Paris in 1556. The next writer of authority was Reineccius, who, in the second volume of the "*Historia Julia*," treated amply of them, as far as they were supposed to be related to the Gauls and Germans. Van Srieck was the next, who in the early part of the 17th century wrote ex-

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pressly on their origin. Another writer was Pezron. The hallucinations, reveries, and etymologies of the generality of those who followed, with the exception perhaps of Keysser, appear almost to have involved their history in fable. It was rescued by Pelloutier. Yet though some of the most authentic and curious particulars in this article are obtained from his work, we cannot acquiesce in one of its leading features. This will appear presently.

The great source of mistake and confusion to many learned writers on the history of Europe has been the idea that the ancient Gauls and Germans, Britons and Saxons, were originally but one and the same people; thus confounding the antiquities of the Gothic and the Celtic nations. This crude opinion was long maintained with uncommon erudition. Cluverius, in his "*Germania Antiqua*," and Keysser in the "*Antiquitates selectæ Septentrionales et Celticæ*," incautiously adopted it, and even Pelloutier, in the last and best work which has appeared on the history of the Celts, has endeavoured to confirm it with great diligence and skill. In short, says bishop Percy (*Pref. to the North. Antiq.* p. iii.), so much learning and ingenuity have scarcely ever been more perversely or erroneously applied, or brought to adorn and support a more groundless hypothesis.

The ancient and original inhabitants of Europe, according to these writers, consisted only of two distinct races of men; the Celts and the Sarmatians. The Sarmatians, or Sauro-matæ, they make the ancestors of the *Slavonian* tribes; and represent the old inhabitants of *Gaul, Germany, Scandinavia, Britain, and Spain*, as the uniform descendants of the Celts. These last they state were all included by the ancients under the general name of Hyperboreans, Scythians, and Celts; having all the same common language, religion, laws, customs, and manners.

From Herodotus we have already shewn, that the source of the Danube, in the Black Forest, in Suabia, was originally among the *Celtæ*; and it seems probable that at that remote period the *Sacæ* and the *Massagetæ*, the probable ancestors of the Saxons and the Goths, had not penetrated so far westward as they did afterwards. The *Persians* are spoken of by the same writer as a *Persian* people (in *Clio*.) It may likewise be worthy of observation, that, having mentioned the commencement of the Danube, he adds, "This river passes directly through the centre of Europe, and by a certain inclination enters Scythia." In this passage he seems expressly to distinguish the Scythians from the Celts; although it is no proof they were not confounded by subsequent historians: or, that the fluctuations of territory might prove a consideration which would in fact reconcile the different writers.

Cluverius, Keysser, and Pelloutier have uniformly supported their hypotheses by obscure quotations from ancient authors, and arguments derived from etymology, leaving the precise and positive testimony of Cæsar relating to the Celts, and of Tacitus, relating to the Germans, almost entirely neglected. Cæsar, in the very first page of his Commentaries, expressly assures us that the Celts, or common inhabitants of Gaul, in his time, differed "in language, customs, and laws" from the Belgæ, on the one hand, who were a Teutonic people, and from the inhabitants of Aquitain on the other, who, from their vicinity to Spain, were probably of Iberian race. His words are remarkable: "*Gallia est omnis divisa in partes tres; quarum unam incolunt Belgæ, aliam Aquitani, tertiam, qui ipsorum lingua CELTÆ, nostri GALLI appellantur. Hi omnes, lingua, institutis, legibus, inter se differunt. Gallos ab Aquitanis Garumna flumen, a Belgis Matrona et Sequana dividit.*" The text here quoted is Oudendorp's; but in a note subjoined, Cæsar stands corrected, and the theory of Cluverius admitted.

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But in the sixth book of his Commentaries, Cæsar is still more particular; and his remarks are worth minute attention. He draws the characters of both nations at length, in an exact and well-finished portrait, and states every essential difference by which the Gauls were distinguished in their laws, their customs, and their religion from the Germans; and closes with an observation, which we cannot but repeat, as we gain from it by inference that both nations had a separate origin. There was a time, he observes, when the Gauls were superior to the Germans in valour; when through the increase of their tribes or the scarcity of land they *sent colonies across the Rhine*. (Cæsar de Bello Gallico, lib. vi. c. 24.)

Such appears to be the true history of the Celts. The love of what is ancient, however, or the belief of fable, has led the historians of almost every period into the labyrinth of more remote antiquity. They have considered *Celta* as the generic name of a vast people, known in different tracts of territory by a variety of names and characters. Of Cymmerians, Cymbrians, or *Comarians*, by which they relate them to have been sometimes called in the north of Europe, they have made GOMERIANs, and pretend to trace them even to *Gomer*, the grandson of Noah. (See Pezron Antiquites de la Nation et de la Langue des Celtes. Ancient Univ. Hist. vol. iv. p. 1. 8vo. Davies's Celtic Researches.) The folly and the fallacy of such inquiries need hardly be exposed: they are only equalled by the *history* of their migrations from Asia to Europe; and the chronology of the *Titan princes*. They who would indulge their curiosity farther on the subject may consult Mr. D. Jones's translation of Pezron, published in this country, 1706; whence it may not only be learnt "that Saturn, the son of Uranus, was the first king of the Titans;" but "that the Titans were true *Celta*."

In the difference of opinions which has been already mentioned, it is not easy to fix the exact boundaries which have at all times divided the Celts from the other inhabitants of Europe: it is on this account that we cannot but consider the work of Pelloutier, otherwise so excellent, as a perpetual source of mistake and confusion: in consonance with this idea he asserts (liv. i. ch. viii. &c.) not only the Germans, but all the people settled along the banks of the Danube to the Black Sea, the Goths, the Dacians, Bastarnes, (or Germans beyond the Vistula,) Visigoths, Herulians, and other tribes, to have been *Celts*. The ancient inhabitants of Greece, according to him, were either Celts or Scythians: under the same denomination he includes the Ligurians and the people between the Alps and Apennines. The Venetians, he says, were originally Gauls: and the Romans half Celts, half Greeks.

After such assertions, we shall probably err very little in confining ourselves to the testimonies of Cæsar, and a few of the more rational historians; who, without torturing etymology, afford us facts; and, though they may circumscribe the *territory* of the Celts, at least give us something which may be relied upon as history.

Mr. Pinkerton, in his "Dissertation on the Origin and Progress of the *Scythians* and Goths," has discriminated them from the Celts in a very clear and masterly manner. Cluverius, Keyser, and Pelloutier, have undoubtedly made many quotations from the ancient classics, which seemed to give their theory indisputable countenance. To produce all their authorities would be to fill a volume. From Herodotus to Cæsar, passages may be found with very little trouble, which shew the uncertain and confined ideas of the ancients, in regard to the nations which lay round them. Arrian (book i. ch. 1.) particularly mentions the warlike

tribes on the banks of the Danube; τα μεν πολλὰ ΚΕΛΤΙΚΑ, "and more especially the *Celts*." But he describes them in a manner which shews he included the *Teutonic* tribes; and expressly enumerates the Marcomanni and the Quadi, so particularly spoken of by Tacitus. (De Morib. Germ. cap. xlii. xliii.) Suidas also, who lived so late as the 11th century, makes Κελτοι to have been the general appellation of the German tribes. There is a passage, however, in Diodorus Siculus, one of the best informed and most judicious of the Greek historians, (who not only wrote after Cæsar, but profited by his discoveries,) which the modern antiquaries on the continent ought to have consulted. He tells us (Diod. Sicul. lib. v. p. 355, edit. Wesseling.), it is particularly necessary, in describing the Gauls, to make a distinction, of which the generality of the world were ignorant. That the people who inhabited the country from above Marfeilles, and at the Alps, and on this side the Pyrenean mountains, were called Celts. But that those who inhabited beyond this region and the parts towards the south, and situated on the ocean, and those toward the Hercynian mountains, and all onward, even to Scythia, were called *Gauls*; a name, he adds, which the Romans gave generally to all these nations. We give the passage in the original. Χρησιμον δ' ἐστι διαρίσαι το παρὰ πολλοὺς ἀγνοούμενον τὴν γὰρ ὑπὲρ Μασσαλίας κατοικήσας ἐν τῷ μασσηνίῳ, καὶ τὰς παρὰ τὰς Ἀλπεῖς, ἐπὶ δὲ τῆς ἐπὶ ταύτῃ τῶν Ἰουερηνίων ὁρίων, ΚΕΛΤΟΥΣ ὀνομαζέσθαι τὴν δὲ ὑπὲρ ταύτης τῆς Κελτικῆς εἰς τὰ πρὸς νότον νεωτέρα μέρη παρὰ τὴν αἰκάνην καὶ τὸ Ἐρκινον ὄρεα καθιδρυμένους, καὶ πάντας τὰς ἐξῆς μέχρι Σκυθίας, ΓΑΛΑΤΑΣ προσκαγομένους· οἱ δὲ Ρωμαῖοι πάντων ταῦτα τὰ ἔθνη συλλαβόντι μιᾷ προσκαγορίᾳ περιλαμβάνουσιν, ὀνομαζόντες ΓΑΛΛΟΥΣ ἀπαντες.

Diodorus, says Mr. Pinkerton, (Dissert. on the Scyth. p. 125,) no doubt knowing that the Celts were not those Gauls celebrated in Roman history, but quite a distinct people, possessing the inner or further part of Gaul, with propriety puts them as different nations. Indeed Polybius, by the very enumeration of the different tribes, by which Rome was pillaged under Brennus, convinces us that *those* Gauls were Belgic: and that their irruptions have nothing to do with any history of Gallia *Celtica*. Cæsar, observes Mr. Pinkerton, (Dissert. p. 123,) by shewing the Celts to be confined to such small bounds, palpably marks that other nations had gained ground on them; so as to confine them to such a contracted space. Of their *early* history then, we are still in that uncertainty which we seem to have inherited from the first writers among the Greeks and Romans; and excepting what we gain from Cæsar and Diodorus, we know but little of their manners. The region they retained at that period was small. And even in Britain, an island which may, perhaps, rank among their earliest possessions, they seem to have been in part exterminated by their Belgic neighbours. The Belgæ, as Cæsar shews, had all the south-east of present England. (See Cæsar de Bello Gallico, lib. v. c. 12, and Pinkerton's Dissert. p. 121.)

After these preliminaries, we proceed to their more special history, as it is detailed by Cæsar. In the account of his second expedition into Germany (lib. vi. c. 7,) he draws the contrast we have already mentioned between the Germans and the Celts: a picture which, with the addition of a few touches from the pencils of other masters, will be found the most correct, in regard to the Celts, we are possessed of. Previous to his time we have nothing that can be called authentic information.

The Gauls, says Cæsar, are, every where, from provinces, to families, divided into factions. On his first arrival the *Ædui*, who were the Autunois, and the *Sequani*, who lived

in Upper Burgundy, were at variance. The latter had always been the weakest, and the former the strongest tribe: "quod summa auctoritas antiquitas erat in *Æduis*." (Bell. Gall. lib. vi. c. 12.) But the Sequani, assisted by the Germans, defeated their opponents; while the *Ædúi* sought the friendship of the Romans. Cæsar changed the face of affairs. He restored the *Ædúi* to their lost preponderance, and, by artfully employing one faction against another, was enabled to reduce them all. This, upon his own authority, is the introduction to the contrast.

Throughout Gaul, he says, (and it was the same in Britain,) there were only two orders of men in any high degree of honour or esteem: the *Druids* and the *Nobles*. The common people were nearly all upon a level: so submissive to the will, and so dependent on the power of the nobles, that their condition was little better than that of slaves. In the lowest rank, were such as had been taken in war, or by some other means reduced to actual slavery. These persons were the property of their respective masters.

The *Druids* had the supreme and sole direction in every thing relating to religion. By them, as the favourites of the Gods, and the depositaries of their councils, the people offered all their sacrifices, thanks, and prayers: they educated the greater part of the youth; were held in the highest honour; and determined all causes and controversies, whether of a public or a private nature. (See also Diod. Sic. lib. v. § 31.) If any crime was committed, or a murder perpetrated; if any disputes arose either about the division of inheritances, or the boundaries of estates; they alone dispensed both rewards and punishments. Whoever refused to submit to their decrees, whether tribes or individuals, were interdicted from the sacrifices: and the interdict of the *Druids* was most dreadful. They against whom it was pronounced, were held in universal detestation, as impious and abominable; their company was avoided as dangerous and contaminating; they were declared incapable of any trust or honour; put out of the protection of the laws; and exposed to injury of every kind.

Over all these *Druids*, one, who had the greatest authority, presided. On the demise of the Arch-Druid, if there was any one more eminent than the others in the ordinary class, he succeeded: but, in general, the high priest was elected from among the remaining *Druids* by a plurality of votes: though sometimes this office was an object of ambition; not obtained but by the force of arms. Once in the year, at a certain appointed time, they assembled on a consecrated spot, in the country of the Carnutes (the *Pais Chatrain*), which was thought the centre of Gaul. Hither all who had law-suits came, and implicitly submitted to the decision of the *Druids*.

The doctrines of Druidism, it was the received opinion, had their origin in Britain; and were thence transferred to Gaul. And even in Cæsar's time, they who were desirous of becoming adepts in its mysteries, went to Britain for the purpose.

The *Druids* were exempted from taxes and military services; and enjoyed many immunities. Numbers, allured by the honours and privileges of the profession, embraced the discipline of their own accord; while many more were dedicated to it by their parents. The *Druids* were said to commit an infinite multitude of verses to memory; and some of them passed no less than twenty years in becoming living repositories of their doctrines; since it was not lawful to entrust them to writing; though, in almost all other public transactions, and private accounts and computations, they made use of Greek letters.

The immortality of the soul, and its transmigration into other bodies, were among their leading doctrines; by which they excited an undaunted courage, and a sovereign contempt of death. Beside these, they entered into disquisitions and disputations in their schools, concerning the stars and their motions, the form and magnitude of the universe in general, and the earth in particular; on the operations of nature; and on the powers of the immortal gods.

The second description of men, enumerated by Cæsar, were the *Nobles*, who, in war time, appear to have assumed the command of their respective tribes. They were skilled in the arts of fighting, and were readily followed by their dependants into actual service.

From the mention of these, he proceeds to the religious principles and opinions which the Celts maintained. Gaul, as a nation, he says, was addicted to superstition. They who laboured under disease, or expected to be called to battle, either offered, or promised the future sacrifice of human victims. For it was an article in their creed, that nothing but the life of man could atone for the life of man. For this purpose they used the ministry of the *Druids*. At more important times, however, they formed colossal images of wicker, filled them with victims, set fire to them, and destroyed the whole. On these occasions, such as had been guilty of theft, robbery, or other crimes, were deemed the most acceptable offerings to the gods. But when criminals were scarce, the innocent supplied their place.

Mercury, according to Cæsar, was regarded as their chief deity; they honoured him with images, and esteemed him as the inventor of arts, and as the protector both of the public ways and commerce. After him, Apollo, Mars, Jupiter, and Minerva were worshipped; of whom their notions, he says, were much the same with those of other countries. They considered Apollo as the curer of diseases; Minerva as the guardian of works of art; Jupiter as the governor of heaven; and Mars as the god of war. To Mars, before they entered on a war, they usually vowed a great part of the expected spoil; and when they had sacrificed all the animals taken, they deposited the rest apart. In many of their states, says Cæsar, these spoils are seen piled up in heaps in their consecrated groves. Nor did it often happen that any one neglected the performance of his vows, or secreted his share of spoil, or having once devoted it withdrew it. Such persons were punished with the severest tortures.

The Gauls considered themselves as the progeny of *Dis*, for so the common people were told by the *Druids*; and on this account they reckoned time not by days but nights. In the institutions of ordinary life, they differed materially from other nations in this respect; that till their children arrived at a manly age they were not suffered to appear in public before their parents. It was accounted a shame for a father to be seen in company with his son.

Whatever fortune the wife brought, the husband was obliged to equal; and the principal and produce of both were laid up for the survivor. The husband had power both of life and death, not only over his children but his wife. When any one of distinction died, his nearest relations were assembled, and if there appeared any cause of suspicion as to his death, they had power to put the wife to the same torture as the meanest slave, and if found guilty, she was burnt to death in the most excruciating manner. The funerals of the Gauls, he adds, considering their circumstances, were sumptuous and magnificent. It was their custom to throw into the funeral pile on which the body was burnt, those things, and even those animals, in which the deceased had most delighted; at a remoter period, however, they threw into the flaming pile such of his servants and friends as had

been his greatest favourites, and all were reduced to ashes together in the same fire.

With those states which were esteemed the best administered, it was a law, that whosoever should receive intelligence from any neighbouring state, of public importance, should communicate it only to a magistrate; lest they who might be alarmed by rumours, should, by rash resolutions, raise a ferment. The magistrates concealed what part of the intelligence they pleased; informing the public of the rest. Except in the general assembly, it was not allowable to talk of state affairs.

Thus far we have the direct words of Cæsar. From a few other writers we obtain additional points of information, which throw as much, if not more light upon a large portion of the early inhabitants of Britain, as upon the *Celts* in general. The particular history of the *DRUIDS* will form a separate article hereafter. *Hesus*, according to Boxhorn (*Orig. Gall. c. i. p. 11*), was the name by which Mars was worshipped by the Gauls and Britons, although there appears some reason to believe that he does not mean the *Celtic* but the *Belgic* Gauls. Dis answered to the Pluto of the Greeks. The sun is said to have been worshipped under various names, principally expressive of the nature and properties of light and heat. To this object of idolatrous worship, the circles of stones described by Dr. Stukely and others, are supposed to have been chiefly dedicated. Saturn, of the worship of whom in the western parts of Europe we have the evidence of some of the classic writers, is stated to have been another of their deities (see Henry's Hist. of Britain, vol. i. p. 107.); and others are indistinctly mentioned by Roman appellations, of whose history we have no clear intelligence. It is to be regretted that Cæsar did not give us the Celtic names of the several deities worshipped in Gaul, as well as the names in use among the Germans. In some resemblance of the attributes ascribed to *Hesus* and *Teutates*, the Greeks and Romans saw Mars and Mercury, and thence inferred that their own modes of worship extended to barbarous nations. "The Greek and Roman travellers and conquerors," says Mr. Hume (*Hist. of Natural Religion*), "without much difficulty found their own deities every where; and said, this is *Mercury*, that *Venus*; this is *Mars*, that *Neptune*;" by whatever title the strange gods might be denominated."

What were the *hymns* either of the Gauls or Britons we are ignorant. The Druids, as we have already seen, instructed their disciples in a poetical system of divinity; but as their verses were never committed to writing, they were lost.

Their *offerings*, which constituted so important a part of their religion, have been described by Cæsar; and their *arts of divination*, with some minuteness, by Diodorus Siculus (*lib. v. c. 35*). Pliny, in his *Natural History* (*lib. xvi. c. 44*), says, the Druids held nothing so sacred as the mistletoe of the oak. As it was very scarce, when any of it was discovered they went with great pomp and ceremony on a certain day to gather it. When they had got every thing in readiness under the oak, both for the sacrifice and the banquet which they made on this great festival, they began by tying two white bulls to it by the horns. Then one of the Druids, clothed in white, mounted the tree, and with a knife of gold cut the mistletoe, which was received in a white sagum. This done, they proceeded to their sacrifices and feasting. The Druids, he adds, had so high an esteem for the oak, that they did not perform the least religious ceremony without being adorned with garlands of its leaves. They believed that every thing that grew upon it came from heaven, and that God had chosen that tree above all others. There are, however, one or two circumstances which lead us to doubt whether Pliny here describes the *Celtic* Druids.

The sacred groves in which their religious ceremonies were performed, were surrounded by a ditch or mound, to prevent the intrusion of improper persons. In the centre of these, a circular area was inclosed with one or two large rows of stones. This was the temple. Close at hand was the *carnedde*, or sacred mount; the cromlech, on which the sacrifice was prepared; and all other things which were necessary for their worship. Stonehenge, if it really was a Druid temple, is the most magnificent of all that are remaining.

In regard to the state of society and government among the Celts, we find that both Gaul and Britain were divided into petty states, each composed of two, three, four, or even more clans or tribes. The king of which was commonly the head of the chief clan of which the state was composed. (See Henry's Hist. of Britain, vol. i. p. 161.) Those into which Britain was divided need hardly be enumerated here. The rule of succession to the throne is supposed to have been hereditary; as well among the Celtic as the Belgic Gauls. (Compare Cæsar de Bell. Gall. lib. v. c. 20. Sueton. Vit. Calig. c. 44. Tacitus Hist. lib. iii. c. 45. and Dio Cassius, l. lx.) And the chief prerogative of the Celtic kings was that of commanding the forces of their respective states in time of war. In every thing else they seem to have been inferior in their power to the Druids.

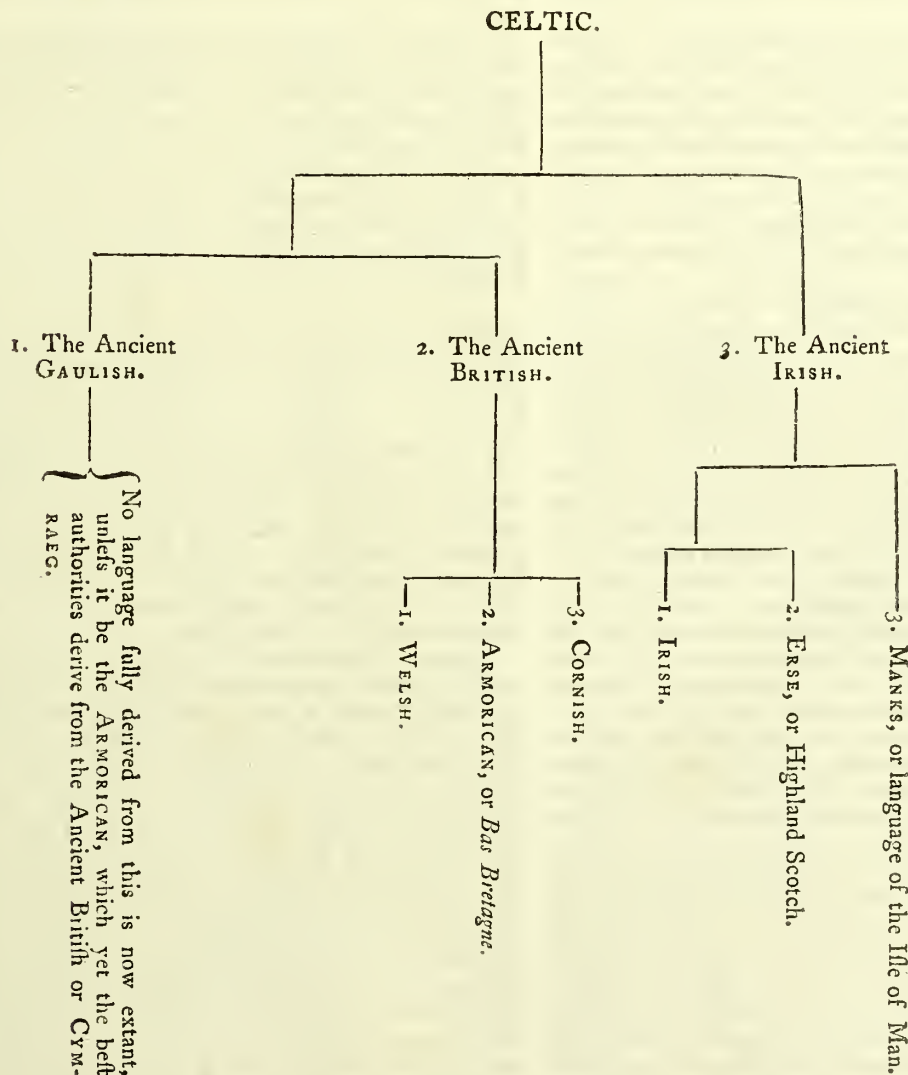
The little knowledge which we have of their theology, philosophy, and jurisprudence, is gathered with difficulty, and only from the scattered notices of ancient writers. Strabo informs us, (*lib. iv. p. 197*), that it was one of their physiological opinions that the universe should never be entirely destroyed or annihilated, but should undergo a succession of great changes and revolutions, which were to be produced sometimes by the power and predominancy of fire, and sometimes by that of water. They were acquainted with a year, apparently exact enough for the purposes of life, but not fitted for astronomical calculations. Pliny (*Nat. Hist. lib. xvi. c. 44*) says, "they began both their months and their years not from the change, but from the sixth day of the moon." The particulars and extent of their knowledge in this part of astronomy are not farther preserved. If they used Greek letters in their ordinary calculations, as Cæsar has recorded, we must conclude they were acquainted with *arithmetic*: and the rocking-stones alone are sufficient to evince that they had some knowledge of *mechanics*. The houses of the Britons, as Cæsar saw them, are particularly described to us in the Commentaries. (*De Bell. Gall. lib. v. c. 12*.) They were like those of the Gauls, though little more than wretched cabins. (*Zonaras, p. 189*.) Their clothing was usually a skin (*Bell. Gall. lib. v. c. 14*), cast about the shoulders like a mantle. "Those," says Diodorus Siculus (*lib. v. p. 347*), "who dwell near the promontory Belerium (or Land's end), are very hospitable, and, by their great intercourse with foreign merchants, much more civilised in their way of living than the other Britons. They dig tin ore out of their mines, and prepare it with great dexterity and art. Though this ore is naturally of a hard substance, like stone, yet it is mixed and incorporated with much earth, from which they separate it with great care, and then melt and cast it into blocks or ingots of a square form like dice." This was the only metal they were acquainted with as the produce of the island. In the *art of war* all the young men among the Celtic nations were regularly trained; and their troops, it should appear, were chiefly composed of infantry. The military cars of Britain (the *Effede* of Cæsar, and the *Covini* of Tacitus) seem rather to have belonged to the Belgic than the Celtic inhabitants. War-chariots, says Mr. Pinkerton, were not known among the Celts. Their early trade was with

with the Phœnicians (the foreign merchants spoken of by Diodorus Siculus), who appear to have laboured with a very anxious care to conceal the knowledge of their commerce. A singular anecdote of their jealousy of this exclusive trade is mentioned by Strabo. Afterwards, however, the Greeks, and latterly the merchants of Gaul, obtained a share, whose information finally led to the Roman expeditions. Polybius, who was by birth a Greek, and flourished near 200 years before the Christian æra, is said to have written a distinct work concerning Britain; which appears to have been first described, about 130 years earlier, by Pythias of Marseilles. What was the general medium of exchange, or what were the coins of the Celtic nations, it is impossible at this period to say. The principal of those which are acknowledged by our antiquaries as *British*, are not of *Celtic* but *Roman* origin. They have almost all the Roman letters, and many

of the Roman deities. Of the *manners*, virtues, vices, remarkable customs, or diversions of the Celts, our information is extremely scanty. Nor are we certain that the peculiar characteristics of the Britons, spoken of by Cæsar, attach either inclusively or exclusively to the Celtic population of the island.

The last subject to be mentioned here is the *language* of the Celts, which is now no longer doubted to have been one of the original dialects of Europe. What it was at a remote period we have no means to ascertain, but we are assured by Tacitus that, even in his time, the ancient British differed very little from the Gaulish. *Sermo haud multum diversus.* (Vit. Agri. cap. xi.)

Bishop Percy, in the Preface to Mallet's Northern Antiquities (p. xxv.), has given the following genealogical table of the languages descended from the Celtic.



The study of the *Welsh* language was first encouraged in this country by Henry VIII. But the best body of materials for the knowledge of the Celtic dialects will be found in Lhwyd's *Archæologia Britannica*.

CELYDNUS, in *Ancient Geography*, a river of Macedonia, in the Orestide territory. It had its source in the Cecroce-

raunian mountains, and served as a boundary between Orestides and Chaonia, according to Ptolemy.

CEMA, a mountain of the Gauls, forming a part of the chain of the Alps. "Amnis Varus," says Pliny, "ex Alpium monte Cemâ profusus." The mountain whence this small river flows, is at present called *Caillole*.

CEMAS, Cemas Aeliani et Herodoci, in *Zoology*, synonymous with Antilope Rupicapra of modern writers. Bochart, &c. Belon conceives the Cemas, or Kemas of the Greeks to be this species.

CEMBALO, Italian, in *Musie*, at present implies a harpsichord; but in the time of Boccaccio, it was the title given to the tambour de basque: *istrumento da donne*; which in the Crusca dictionary is defined, *istrumento da sonare*; che è un cerchio d'asse sottile alla larghezza d'un sommessio, &c.—covered with parchment like a drum, surrounded with bells or bits of tin, and beaten with the hand. Madonna, *Pio avesse un Cembalo, io direi*, &c.

We not only meet with *Arpicordo* and *Clavicembalo* in Zarlino, 1564; but among keyed instruments, described by Ottomarus Luscinus in 1536, under the three several Latin names of *Claviciterium*, *Clavichordium*, and *Clavicembalum*; but in the coarse wooden cuts by which he represents them, the shape seems only that of a spinet or virginal; which see.

In Varchi, the contemporary of Zarlino, the harpsichord is called *Gravicembalo*. And in another Italian writer of a more early period, we are told, that Tintoret the painter had a daughter called *Marietta*, who, besides other accomplishments, played on the *Gravicembalo*, or harpsichord, and painted extremely well. See ORGAN, HARPSICHORD, SPINET, and PIANO-FORTE.

CEMBANI, in *Ancient Geography*, a people of Arabia Felix, who dwelt in the vicinity of the Agreeans, according to Pliny.

CEMBRA, in *Botany*. See PINUS *Cembra*.

CEMELANUM, CEMENELLUM, or CEMENALIUM, CEMELION and CEMELUM, *Cimiez*, in *Ancient Geography*, a town of Gallia Narbonensis, N. N. W. of Nicæa, and near it. It continued to be the capital of the Maritime Alps to the close of the 4th century, and was very considerable for the number and quality of its inhabitants, and the beauty of its edifices. The first officers of this province made this the place of their residence. It had three colleges, one of which was probably that of the priests; and a senate which allowed an assembly for deliberating on the construction of a monument in honour of M. Aurelian Masculus, president of the Maritime Alps. This Roman had supplied the city with corn in a time of famine, and re-established the ancient aqueducts, the ruin of which had occasioned a want of water. The town of Cimiez was destroyed by the Lombards towards the year 737. The inclosure of its amphitheatre is still in good preservation. It was the capital of the Veditii, and was situated on the Aurelian way. M. D'Anville discovered this ancient name in that of the church, called "Notre-Dame de Cimies" to the right of Paillon, and $1\frac{1}{2}$ mile N. of Nice.

CEMENTATION, in *Chemistry*. *Cementiren*, Germ. This term is applied to a process in the dry way, similar to digestion in the moist, and means the exposure of any substance to a regular furnace-heat in a crucible, stratified or otherwise covered with some kind of powder which is intended to produce a chemical change. Thus iron bars are converted into steel by being cemented with a powder of bone-ash, and other materials: copper into brass by cementation, with a powder of calamine and charcoal; and the like. The powder is, in this case, called *Cement-powder*.

CEMENT-COPPER. The copper procured from the sulphat by precipitation with iron is so called. See COPPER.

CEMENTS and LUTES. Under this article may be mentioned the receipts for preparing some of the most use-

ful substances of this kind, that are required in common chemical operations.

The uses of lutes and cements are either to close the joinings of chemical vessels to prevent the escape of vapours and gasses during the processes of distillation, sublimation, and the like, or to protect vessels from the action of the fire which might crack, or fuse, or calcine them: or sometimes to repair flaws and cracks, and for a variety of other smaller purposes.

The subject of *calcareous cements*, such as mortar, tarras, and other substances used to close the joinings of bricks or stones in buildings, will be mentioned in the following article.

When a lute is applied over the whole surface of a vessel, (as to a glass retort when it is intended to be heated red hot) the process is termed, *lorication* or *coating*. Iron furnaces are also *lined* or *coated* on the inside with earth, to prevent the iron from being destroyed by the constant action of the fire.

From the vast variety of receipts for lutes and cements of different kinds, the following may be selected, which will answer most of the purposes of the experimental chemist.

To prevent the escape of the vapours of water, spirit, and liquors not corrosive, the simple application of slips of moistened bladder will answer very well for glass, and paper with good paste for metal. Bladder, to be very adhesive, should be soaked some time in water moderately warm, till it feels clammy; it then sticks very well. If smeared with white of egg, instead of water, it adheres still closer.

Another very convenient lute is linseed meal, moistened with water, to a proper consistence, well beaten, and applied pretty thick over the joinings of the vessels. This immediately renders them tight, and the lute in some hours dries to a hard mass. Almond paste will answer the same purpose.

The use of the above lute is so extensive, that no other is required in closing glass vessels in preparing all common distilled liquors; and it will even keep in ammonia, and acid gasses, for a longer time than is required for most experimental purposes. It begins to scorch and spoil at a heat much above boiling, and therefore will not do as a fire lute. It is still firmer, and dries sooner when made up with milk, or lime water, or weak glue.

A number of very cohesive cements impervious to water and most liquids and vapours, and extremely hard when once solidified, are made by the union of quick-lime with many of the vegetable or animal mucilaginous liquors. The variety of these is endless. We may first mention the following, as it has been extensively employed by chemists for centuries. Take some whites of eggs with as much water, beat them well together, and sprinkle in sufficient slaked lime, to make up the whole to the consistence of thin paste. The lime should be slaked by being once dipped in water and then suffered to fall into powder, which it will do speedily with great emission of heat, if well burnt. This cement should be spread on slips of cloth, and applied immediately, as it hardens or sets very speedily. While hardening it may be of use to sprinkle over it some of the lime in fine powder. This cement is often more simply and as conveniently managed, by smearing slips of linen on both sides with white of egg, and when applied to the joining of the vessels shaking some powdered lime over it. It then dries very speedily.

Another lute of the same kind, and equally good, is made by using a strong solution of glue to the lime instead of the white of egg. It sets equally soon, and becomes very hard. A mixture of liquid glue, white of egg, and lime, makes the

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the *lut d'ane*, which is so firm, that broken vessels united with it, are almost as strong as when sound. None of these lutes, however, will enable these vessels to hold liquids for any great length of time. Milk or starch, with lime, make a good, but less firm lute.

A very firm and singular lute of this kind is made by rubbing down some of the poorest skimmed milk cheese with water, to the consistence of thick soup, and then adding lime, and applying as above. It answers extremely well. Lime and blood, with a small quantity of brick-dust, or broken pottery, stirred in, is used in some places as a very good water-cement for cellars and places liable to damp.

Paris-plaster, mixed with egg, milk, glue, starch, or any mucilaginous liquor, also makes a good lute.

Some artists mix other earths with the above materials. Thus a very good cement is made with equal parts of clay and lime, about $\frac{1}{2}$ of flour and white of egg; or, as is used by many of the aqua fortis-makers, a mixture of colcothar lime and white of egg.

All the above-mentioned cements, with lime, become very hard, by drying, inasmuch that they cannot be separated from glass vessels without the help of a sharp knife and some violence: and hence delicate vessels, and long thin tubes cemented with it, are apt to break, when the apparatus is taken down, and sometimes even by the mere force of contraction in setting. It is a great advantage, however, that they may be applied immediately to any accidental crack or failure of the lute already on, notwithstanding a stream of vapour is bursting through; and in large distillations it is of advantage always to have some of the materials at hand.

These lutes will not confine very corrosive acid vapours perfectly, for a great length of time, but will answer for other purposes, particularly where a complicated apparatus is to be kept steadily united and air tight. They will bear nearly a red heat without material alteration.

Another kind of lute, which is the most perfect for confining acid vapours for any length of time, and which never hardens to an inconvenient degree, is the *fat lute*, as it is called. This is made by taking any quantity of good clay, tobacco-pipe clay, for example, thoroughly dry, but not burnt, powdering it in an iron mortar, mixing it gradually with drying linseed oil, and beating them together for a long time to the consistence of thick paste. Much manual labour is required, and it should be continued till the mass no longer adheres to the pestle. Then make the edges of the glass or other vessel, where it is to be used, perfectly dry, and apply the lute carefully, and it will stand the longest process without failing. This grows firm enough to retain its place, and to hold the vessels together, but may readily be separated by a knife. This lute much improves in adhesiveness by long keeping, which should be in a covered pan in a cool cellar. When wanted, it regains sufficient ductility, merely by beating for a minute or two, or by the help of a few drops more of the oil. Good glaziers' putty, which is made of chalk, beat up with drying linseed oil, much resembles the fat lute in quality.

Another species of lute is that which is commonly applied round glass retorts, when distillation with a full red heat is wanted, to protect them from the sudden action of the fire, and to give them firmness, and to enable them to bear this heat without flattening or falling together, when red-hot, or melting with the fuel. A glass vessel, so prepared, with a thick earthen coating, may be considered as an earthen vessel glazed on the inside. The substance used is a mixture of sand, with just sufficient clay to make it adhere together, beat up with some kind of fibrous matter, so as mecha-

nically to increase the tenacity. A natural earthy mixture of the kind is Windfor loam, or an equally good one may be formed with coarse sand and clay, or better with fragments of pottery coarsely ground, (the fine part being separated by sifting, and rejected,) mixed with more or less clay, according to the quality, so that it will just mould together when wet. For the fibrous matter, some use horse-dung, which appears to be the best, others chopped straw or chaff, others chopped horse, or cow-hair, or tow, all of which answer the same purpose. A small quantity of these will suffice. Beaumé recommends about an ounce of cow's hair to five pounds of the earthy mixture. A good deal of water should be added, when the materials are mixed, and much manual labour is required to diffuse the hair equally through the mixture. To apply it to a glass vessel, a retort, for example, take a sufficient quantity of the lute, spread it out flat on a table, lay the bottom of the retort on the middle of the mass, and then turn up the edges of the flat cake, and bring it over the rest of the glass, pressing it down with the fingers, till it applies uniformly and closely. By this method the lute is without seam, and is much more likely to dry in the fire without cracking. Or else, bring the lute, with sufficient water, to the consistence of thick soup, dip the retort in, and it will come out thinly coated. Turn it round before the fire, and, when dry, dip it again in the lute, to give a second coating, and so on, to the required thickness, which may be from $\frac{1}{4}$ to $\frac{1}{2}$ an inch. A lute similar to this is used as a lining to iron furnaces, to confine the fire, and prevent the iron from consuming by the constant heat. This lute is just so fusible as to begin to agglutinate in a full red heat; and hence, if it remains found till thus hot, it will form an impenetrable coating to the glass within, from which it cannot afterwards be detached. The covers of crucibles and other vessels intended to bear fire may be luted with this earthy mixture. It is rendered still less liable to crack on the first heating, if, when thoroughly dry, it is smeared with linseed oil.

Sometimes, however, a still more fusible compound is wanted, particularly where very volatile and penetrating substances are distilled from an earthen vessel. These vessels are necessarily porous, to a certain degree, independent of any casual cracks, from which the larger earthen vessels are seldom entirely free. When phosphorus, for example, is prepared, by strongly heating charcoal and phosphoric acid in one of these retorts, the vapour of the phosphorus penetrates through the pores, when thoroughly red hot, and much of it is lost. Nor will the last-mentioned luting entirely prevent this, so that it is a great saving to cover the retort first with a thin coat of a fusible glazing, which will melt on the surface as soon as red-hot, and close every opening. This glazing may be made by a variety of fluxes added to the proper dose of clay and earth, and mixed into a thin paste and applied to the retort with a brush. The following management is recommended by Mr. Willis, a practical chemist, (Repertory, vol. i.) in distillation with large earthen retorts. Dissolve one ounce of borax in half a pint of boiling water, and add as much slaked lime as will make it into a thin paste. Spread it over the retort with a brush, and, when dry, apply over the whole a lute of slaked lime and linseed oil, beaten till it is perfectly plastic. This becomes dry in a day or two, and is then fit for use. Stone retorts may thus be used several times with safety, (always renewing the oil and lime-lute); whereas, in the common way, and even with the clay and hair-lute, they generally crack when cooling, or on being heated a second time. If, during the operation, the retort should crack, Mr. Willis advises to spread some of the oil composition thickly on the

part,

without any addition of water; and afterwards being suffered to dry in the air, it set to a stony hardness, and appeared as good mortar as any which that part of the country produced. Pliny informs us, that the ancient Roman laws prohibited builders from using mortar that was less than three years old; and to this circumstance he expressly attributes the remarkable firmness of the oldest buildings in the city. A similar custom prevailed, and we believe still prevails in Vienna, requiring the mortar to be a year old before it is employed. But there is nothing which shows, in so striking a point of view, the advantage and necessity of beating mortar, and that the effect produced is owing to something more than a mere mechanical mixture of the ingredients, as the preparation of *grout*, or liquid mortar. This differs from common mortar only in containing a larger quantity of water, so as to be sufficiently fluid to penetrate the narrow irregular interstices of rough stone walls, and is generally made by diluting common mortar with water, either cold or hot. It not unfrequently happens, that this grout refuses to set, and at all times it is a long while in acquiring the proper hardness; but if, instead of common mortar, that which has been long and thoroughly beaten is employed, the grout will set in the space of a day, and soon after acquires a degree of hardness much superior to what is made in the common manner.

§ 2. *Water Cements.*

Although a well made mortar, composed merely of sand and lime, if allowed to dry, becomes impervious to water, so as to serve for the lining of reservoirs and aqueducts; yet if the circumstances of the building are such as to render it impracticable to keep out the water, whether fresh or salt, a sufficient length of time, the use of common mortar must be abandoned; for lime and sand, if mixed together in any proportions, and put, while soft, into water, will in a short time fall to pieces.

Among the nations of antiquity the Romans appear to have been the only people who practised building in water, and especially in the sea, to any great extent. The bay of Baiz, like our fashionable watering places, was the summer resort of all the wealthy in Rome; who, not content with erecting their villas as near the shore as possible, were accustomed to construct moles, and form small islands, in the more sheltered parts of the bay, on which, for the sake of the grateful coolness, they built their summer houses and pavilions. They were enabled to build thus securely in the water by the fortunate discovery, at the neighbouring town of Puteoli, of an earthy substance, which, from this circumstance, was called *pulvis Puteolanus* (powder of Puteoli.) Puteolan powder, or as it is now denominated puzzolana, is a light, porous, friable mineral, of a red colour, and is generally supposed to derive its origin from concretioned volcanic ashes, thrown out from Vesuvius, near to which mountain the town of Puteoli is situated. It seems to consist of a ferruginous clay, baked and calcined by the force of volcanic fire, and when mixed with common mortar, not only enables it to acquire a remarkable hardness in the air, but to become as firm as stone, even under water. The only preparation which puzzolana undergoes, is that of pounding and sifting, by which it is reduced to a coarse powder; in this state being thoroughly beaten up with lime, either with or without sand, it forms a mass of remarkable tenacity, which speedily sets under water, and becomes at least as strong as good free-stone.

It has been before observed, that a composition of pure lime and sand alone will not harden under water, but limes containing a portion of clay possess this property in a considerable degree, and are therefore generally used in water

building. The cement used by Mr. Smeaton, in the construction of the Eddystone lighthouse, was composed of equal parts by measure of flaked Aberthaw lime and puzzolana. The peculiar difficulties of this undertaking, exposed to the utmost violence of the sea, rendered these proportions advisable; but for works that are less exposed, such as locks and basins for canals, &c. the quantity of puzzolana may be considerably diminished. A composition of this kind, which has been found very effectual, is 2 bushels of flaked Aberthaw lime, 1 bushel of puzzolana, and $\frac{3}{4}$ of clean sand; the whole being well beaten together will yield 4.67 cubic feet of cement.

The Dutch have practised building in water to a greater extent than any other nation of modern Europe; and to them is due the discovery of a cement admirably well adapted for this purpose, and called *tarras* or *trafs*. This is nothing more than wakke, or cellular basalt, and is procured chiefly from Bockenheim, Frankfort on the Maine, and Andernach, whence it is transported down the Rhine in large quantities to Holland. This substance being, by grinding and sifting, reduced to the consistence of coarse sand, is used in the composition of mortar, with the blue argillaceous lime from the banks of the Scheldt, in the following method. They take of the quick-lime about the quantity which will be wanted during a week, and spread it in a kind of basin in a stratum of a foot thick, and sprinkle it with water. It is then covered with a stratum of about the same thickness of *tarras*, and the whole suffered to remain for two or three days, after which it is very well mixed and beaten, and formed into a mass, which is again left for about two days; it is then taken in small quantities, as it is wanted for daily consumption, which are again beaten previous to using. Thus is composed the celebrated *tarras* mortar with which the mounds and other constructions for the purpose of protecting the lowlands of Holland against the sea are cemented.

Tarras is frequently used in this country, being imported from Holland for that purpose. The proportions of the materials of the *tarras* mortar generally used in the construction of the best water works is the same as the Dutch practice. One measure of quick-lime, or two measures of flaked lime in the dry powder, is mixed with one measure of *tarras*, and both very well beat together, to the consistence of a paste, using as little water as possible. Another kind, almost equally good, and considerably cheaper, is made of two measures of flaked lime, one of *tarras*, and three of coarse sand; it requires to be beaten a longer time than the foregoing, and produces three measures and a half of excellent mortar. When the building is constructed of rough irregular stones, where cavities and large joints are to be filled up with cement, the pebble mortar may be most advantageously applied; this was a favourite mode of construction among the Romans, and has been used ever since their time in those works in which a large quantity of mortar is required. Pebble mortar will be found of sufficient compactness if composed of two measures of flaked argillaceous lime, half a measure of *tarras*, or puzzolana, one measure of coarse sand, one of fine sand, and four of small pebbles, screened and washed.

It is only under water that *tarras* mortar acquires its proper hardness; for if suffered to dry by exposure to the air, it never sets into a substance so firm as if the same lime had been mixed with good clean common sand, but is very friable and crumbly. Ash mortar is reckoned to be superior for works that are sometimes wet and sometimes dry, but *tarras* has the advantage when constantly under water. *Tarras* mortar when kept always wet, and consequently in a state most favourable to its cementing principle, throws out a

CEMENTS.

substance something like the concretions in limestone caverns called *stalactites*, which substance acquires a considerable hardness, and in time becomes so exuberant as to deform the face of the walls.

Although the cellular basalt is the only kind admitted into the preparation of Dutch tarras, yet it appears from some good experiments of Morveau on the subject, that the common compact basalt, if previously calcined, will answer nearly the same purpose. Great Britain is at a considerable annual expence in purchasing tarras from Holland; it may be worth while, therefore, to point out some of our domestic treasures of the same material. The compact basalt abounds in all the districts where coal is raised, and may therefore be procured easily, and calcined with the refuse coal, so as to be sold at a cheap rate. The Calton hill, adjoining to Edinburgh, consists almost entirely of cellular basalt, and, being but at a short distance from the port of Leith, offers an inexhaustible abundance at a small cost.

In some parts of the Low Countries coal ashes are substituted for tarras with very good effect; of which the valuable *cendrée de Tournay* is a striking instance. The deep blue argillo-ferruginous limestone of the Scheldt is burnt in kilns with a stony kind of pit-coal that is found in the neighbourhood. When the calcination of the lime is completed, the pieces are taken out, and a considerable quantity of dust and small fragments remains at the bottom of the kiln. This refuse consisting of coal ash mixed with about one-fourth of lime dust, is called the *cendrée*, and is made into a mortar with lime in the following method. About a bushel of the materials is put in any suitable vessel, and sprinkled with water just sufficient to slake the lime; another bushel is then treated in the same way, and so on till the vessel is filled. In this state it remains some weeks, and may be kept for a much longer time if covered with moist earth. A strong open trough, containing about two cubic feet, is filled about two-thirds full with the cement in the above state, and by means of a heavy iron pebble, suspended at the end of an elastic pole, is well beaten for about half an hour: at the end of this time it becomes of the consistence of soft mortar, and is then laid in the shade from three to six days, according to the dryness of the air. When sufficiently dry, it is beaten again for half an hour as before, and the oftener it is beaten the better will be the cement; three or four times, however, are sufficient to reduce the cement to the consistence of an uniform smooth paste; after this period it is apt to become refractory on account of the evaporation of its water, as no more of this fluid is allowed to enter the composition than what was at first employed to slake the lime. The cement thus prepared is found to possess the singular advantage of uniting in a few minutes so firmly to brick or stone, that still water may be immediately let in upon the work without any inconvenience, and by keeping it dry for 24 hours, it has nothing further to fear from the most rapid current.

A composition very similar to the preceding in materials, which are coal cinders and lime, though seldom prepared with any attention, is the blue mortar, commonly used in London for setting the coping of buildings, and other works much exposed to the weather.

Ash mortar is used in some parts of England. It is prepared by slaking two bushels of fresh burnt meagre lime, and mixing it accurately with three bushels of wood ashes: the mass is to lie till it is cold, and is then to be well beaten: in this state it will keep a considerable time without injury, and even with advantage, provided it is thoroughly beaten twice or thrice before it is used.

The scales of black oxyd, which are detached by hammering red-hot iron, and are therefore to be procured at the

forges and blacksmiths shops, have been long known as an excellent material in water cements; but we believe that Mr. Smeaton was the first person who made any accurate experiments on their efficacy, compared with other substances. The scales being pulverised and sifted, and incorporated with lime, are found to produce a cement equally powerful with puzzolana mortar, if employed in the same quantity. Induced by the success of these experiments, Mr. Smeaton substituted roasted iron ore for the scales, and found that this also gave to mortar the property of setting under water; it requires, however, to be used in greater proportions than either tarras or puzzolana; two bushels of argillaceous lime, two of iron ore, and one of sand, being carefully mixed, produce 3.22 cubic feet of cement fully equal to tarras mortar. If the common white lime is made use of, it will be advisable to employ equal quantities of all the three ingredients.

With respect to the water used in the preparation of water cements, that of rivers or ponds where it can be had easily, is to be preferred to spring water; but for works exposed to the action of the sea, such as piers, light-houses, &c. it is usually more convenient and equally advantageous in other respects to use salt water.

Pumice stone, brick, and tile dust, are also recommended for water cements, but their only advantage seems to be an absorbent quality, which causes the mortar made with them to set sooner, and therefore acquire a greater hardness in the same time, than mortar composed of sand and lime alone, for they have no power of hardening under water.

The Lorient mortar is a composition which has acquired considerable celebrity in France, and has been employed in some large works. It was invented about 40 years ago by Mr. Lorient, who imagines that he has discovered the process used by the Romans. The principle of this invention consists in adding to any quantity of mortar made in the usual way with lime and sand, but prepared rather thinner than usual, a certain proportion of quick lime, in powder. The lime powder being well incorporated with the mortar, the mass heats, and in a few minutes acquires a consistence, equal to the best Paris plaster, and is as dry at the end of two days, as an ordinary cement after several months. It also, when the ingredients are well proportioned, sets without any cracks. The quantity of lime powder to be added, varies from $\frac{1}{4}$ to $\frac{1}{6}$ of the other materials, according to the qualities of the lime; too much burns and dries up the mass, and with too little, it loses its peculiar advantages; thus the proportions, a point of the utmost importance, can only be determined by experiment. It is its speedy desiccation which rendered the Lorient mortar useful as a water cement, for under water it has only the common properties of a composition of lime and sand of equal solidity; indeed for this purpose various substances, commonly used in cements, are recommended to be added, such as brick and tile powder, and forge scales. The following is an approved receipt. One measure of bricks exactly pounded, two measures of fine river sand, old slaked lime in sufficient quantity to make a mortar in the usual manner and sufficiently liquid to quench the lime powder which is added in about the same quantity as the pulverised brick.

It is sufficiently extraordinary, that a process, perfectly similar to that of M. Lorient, is described in a "Treatise on Building in Water, by George Semple," printed at Dublin, 1776. In discoursing on the good qualities of the roach-lime of Ireland, Mr. Semple remarks, that, "it has some useful qualities not much known among the generality of workmen, as, for instance, our lime-stone will make exceeding good tarras for water-works, for which purpose, you are

to prepare it thus. Get your roach-lime brought to you hot from the kiln, and immediately pound, or rather grind it, with a wooden maul, on a dry, boarded floor, till you make it as fine as flour; then, without loss of time, sift it through a coarse hair or wire sieve, and, to the quantity of a hod of your setting mortar, (which, on this account, ought to be poorer than ordinary,) put in two or three shovels-full of this fine flour of the roach-lime, and let two men, for expedition sake, beat them together with such beaters as the plasterer make use of, and then use it immediately. This, I can assure you, will not only stand as well, but is really preferable to any tarras." The memoir of M. Lorient was published in 1774, only two years previous to this treatise of Semple, who appears to have been a man rather of practice and experience than of reading; and, besides, in the book quoted from, he expressly, though incidentally, mentions his ignorance of the French language. We are justified therefore, in stating, that the knowledge of the advantages of mixing quick lime powder in mortar was not confined to M. Lorient, though it might be an original invention in him, and he was the first who drew public attention to the process, and used it in any considerable works.

§ 3. *Maltha, or Mastich.*

Under this term we include those calcareous cements of a more complicated kind, whose hardness appears to depend on the oily or mucilaginous substances that enter into their composition. The use of these is at present very limited, at least in Europe, but they were highly esteemed by the ancients, especially for stucco. The maltha of the Greeks seems to have been more simple than that employed by the Roman architects; at least we are informed that Panæus, the brother of Phidias, lined the inside of the temple of Minerva at Elis with a stucco, in which the usual ingredients, sand and lime, were mixed up with milk instead of water, some saffron being also added to give it a yellow tinge. The Roman maltha, according to Pliny, was prepared in the following manner. Take fresh burnt lime, flake it with wine, and beat it up very well in a mortar with hog's lard and figs: this cement, if well made, is excessively tenacious, and, in a short time, becomes harder than stone; the surface to which it is to be applied is to be previously oiled, in order to make it adhere. Another kind, almost equally strong, and considerably cheaper, was prepared by beating up together fine slaked lime, pulverized iron-scales and bullock's blood.

In the preparation of mastichs, as well as of every other kind of mortar, so much depends on the manipulation, and especially on the care which is taken to incorporate the ingredients by *long* beating, that those countries in which labour is of the least value possess, in general, the best mortar. Hence, no doubt, principally arises the unrivalled excellence of the mortar made by the Tunisians and other inhabitants of the northern coast of Africa, which, according to Dr. Shaw, is prepared in the following manner. One measure of sand, two of wood-ashes, and three of lime, being previously sifted, are mixed together, and sprinkled with a little water; after the mass has been beaten some time a little oil is added: the beating is carried on for three days successively, and, as the evaporation in that hot climate is considerable, the cement is kept at the proper degree of softness by the alternate addition of very small quantities of water and oil. The cement being completed, is applied in the usual manner, and speedily acquires a stony hardness. The last species of maltha that we shall mention is the celebrated chunam of India, where it has been used from time immemorial. The method in which it is prepared at Madras is as follows.

Take 15 bushels of pit sand, and 15 bushels of stone-lime; flake the latter with water; and when it has fallen to powder, mix the two ingredients together, and let them remain untouched for three days. In the mean time dissolve 20lbs. of molasses in water, boil a peck of gramm (a kind of pea), to a jelly, boil a peck of mirabolans also to a jelly, mix the three liquors, and incorporate part of the mixture very accurately with the lime and sand, so as to make a very fluid cement: some short tow is now to be beaten very well into it, and it is then fit for use. The bricks are to be bedded in as thin a layer as possible of this mortar; and, when the workmen leave off, though but for an hour, the part where they recommence working is to be well moistened with some of the above liquor, before the application of any fresh mortar. When this is used for stucco, the white of four or five eggs, four ounces of butter or sesamum oil, and a pint of butter-milk, are to be mixed up with every half bushel of cement, and the composition is to be applied immediately.

It is to be regretted, that no experiments have been instituted to ascertain the cause of the induration of calcareous cements. It is attributed by Dr. Higgins to the absorption of carbonic acid; but several circumstances contradict this supposition. In numerous instances the cement hardens long before the lime is saturated: in the different kinds of maltha the lime combines with the albumen, mucilage and oil with which it is in contact, and in all probability takes up little or no carbonic acid; and, if it be true, that the lime in old mortar cannot by burning be re-converted into quick lime, this would imply a chemical union of the ingredients; and it may reasonably be questioned whether, even in the simple calcareous cements, carbonic acid acts so important a part as is usually attributed to it.

CEMETERY, *Cameterium*, a dormitory, or sacred place set apart for the burial of the dead.

Chorier observes, that under *cameterium*, κοιμητήριον, from κοιμᾶν, *I sleep*, anciently was comprehended, not only the strict dormitory, or place where the dead were disposed; but all the lands which encompassed the parish churches, and were contiguous to the real churches.—Perhaps it might be added, that all the church domains were comprised under *cameterium*. This will best account for that confiscation of the cemeteries, charged on Valerian.

In the early ages, the Christians held their assemblies in the cemeteries, as we learn from Eusebius and Tertullian; the latter of whom calls those cemeteries where they met to pray, *arce*. Valerian seems to have confiscated the *cemeteries* and places destined for divine worship, which were restored again to the Christians by Gallian. In the rescript of that emperor, which is preserved by Eusebius, cemeteries and places of worship are used as synonymous terms. It being here the martyrs were buried, the Christians chose those places to have churches in, when leave was given them by Constantine to build. And hence some derive that rule which still obtains in the church of Rome, never to consecrate an altar without putting under it the relics of some saint. See **BURIAL**.

The heathen writers frequently upbraid the primitive Christians for their meetings in cemeteries; as if they served other purposes besides those of religion. The council of Elvira prohibits the keeping of tapers lighted in *cameteria*, during the day-time; and by another canon, the women from passing the night, watching in *cameteria*.

The practice of consecrating cemeteries is of some antiquity: the bishop walked round it in procession, with the crozier, or pastoral staff, in his hand, the holy water-pot being carried before, out of which aspersions were made.

CEMMENUS, in *Ancient Geography*, the name of a mountain,

mountain, which, branching from the Pyrenées, advanced far into Gaul, according to Strabo. It was the mass of mountains which Ptolemy calls "Cemmeni montes," and which, he says, was inhabited by the Segusiani, found in that chain which formed the Cevennes.

CEMPSI, a people of Spain, who occupied the foot of the Pyrenées, according to Dionysius Periegetes.

CENA, a small river of Sicily, which at present bears the name of "Fiume delle Cane."

CENABUM. See GENABUM.

CENÆUM, a promontory of the island of Eubœa towards the west and opposite to Thermopylæ, according to Strabo, Pliny, and Ptolemy, seated on the Malic gulf; now called Cabo Litar, or Canaia. It had a temple of Jupiter Ceneus.

CENAPATAM, in *Geography*, a town of Hindoostan, in the country of Mysore; 34 miles N.E. of Seringapatam, and 28 S.W. of Bangalore.

CENCHRÆ, a town of Asia Minor, in the Troade. Suidas says that it was the country of Homer.—Also, a town of Italy. Steph. Byz.

CENCHRAMIDIA, in *Botany*, Pluk. See CLUSIA rosea, and BUBROMA Guazima.

CENCHRAMUS, in *Ornithology*, one of the names given by authors to the snow bunting, *EMBERIZA nivalis*.

CENCHREA, in *Ancient Geography*, a port of Corinth, situate on the bay of Saron. This was a fortress built on the frontiers of Arcadia, towards the source of Phryxus, and S.W. of Argos. It defended the way that led from Argos to Tegea. Near this place, towards the south-east, lay the tombs of those Argians, who, according to Pausanias, challenged an army of Lacedæmonians near Hyfix, under the archonate of Pisisstratus.

CENCHREA, a port town of Corinth, which lay towards the east upon the gulf. It derived its name from Cenchrias, the pretended son of Neptune, when his brother Leches had given his name to Lecheum. These were the only two havens; and indeed the only two cities of any note, next to Corinth, that belonged to this territory. They were so well situated for naval commerce, and so near the metropolis, that they made ample compensation for the barrenness of the soil. These two naval roads, which opened a way into the Ionian and Ægean seas, might easily have gained them a superiority, if not a command over all Greece, if this advantageous situation had not inclined them more to commerce than war. That Cenchrea was a distinct city from Corinth, at least in St. Paul's time, we may infer from Acts xviii. 18, and from his epistle to the Romans, ch. xvi. 1.; though it had the epithet of Corinthiaca in the poets, from its being one of the havens of that little state, as Corinthus had that of Bimaris, from its being so conveniently situated between two seas. Upon the road from Cenchrea across the isthmus there was a temple of Diana, and at Cenchrea a temple of Venus, with a fine statue. At the end of this road was a Neptune in bronze; and on the other side of the port were two temples, one of Neptune, the other of Isis. In the vicinity was a spring of hot water, said by Pausanias to be salt, and called the bath of Helena. The water fell from a rock, and precipitated itself into the sea. Along the coast, towards the north-east, there was another port, mentioned by Strabo and Ptolemy. Pliny and Strabo say, that it was situated in the most secure place of the isthmus.

CENCHREA was also a name given generally to the isthmus of Corinth, distant 70 furlongs from it, where were celebrated the Isthmian games: whence the apostle in his epistle to the Corinthians so frequently alludes to these games. See 1 Epist. ix. 2 Epist. iv. 7, 8, 9.

CENCHREIS, a small island of Greece, towards the bottom of the Saronic gulf, according to Pliny.

CENCHRIS, in *Ornithology*, a name given by Gesner, Aldrovandus, and others, to the kind of hawk known in England by the title of Kestrel, Stannel, or Windhover hawk, *FALCO TINNUNCULUS* of Linnæus.

CENCHRIS, in *Zoology*, the name of a species of BOA that inhabits South America, and which is distinguished by having 265 abdominal plates, and 57 caudal. Linn.—*Boa flavescens ocellis albidis, iride grisea*, Boddaert.

Boa cenchris is a serpent of large size, though inferior in this respect to either the boa constrictor, or the spotted boa. The prevailing colour is yellowish-ferruginous, darkest on the back, where it is marked by a continued series of very large blackish circles extending from the head to the tail: the sides are marked with a number of kidney-shaped blackish spots, many of which are ocellated with whitish: the head is of a lengthened form, and is marked by a black longitudinal and two lateral bands.

CENCHRIUS, in *Ancient Geography*, a river of Asia Minor, in Ionia, which had its course through the territory of the city of Ephesus, according to Tacitus and Pausanias.

CENCHRUS, in *Botany*, (κνυχρος, Theophrast. Dioscor.) Linn. gen. 1149. Schreb. 1574. Willd. 119. Gært. 503. Juss. p. 30. Vent. vol. ii. p. 102. (*Panicetrella*; Mich. 31. Racle, Fr.) Class and order, *polygamia monœcia*, Linn. *Triandria monogynia*, Willd. Nat. ord. *Gramina*, Linn. *Graminæ*, Juss. Vent.

Gen. Ch. Cal. involucre variously divided, often echinated, containing from two to four flowers; or, if wanting, the defect compensated by echinated calyx-glumes; calyx-glumes lanceolate, concave, acute, shorter than the corolla, generally about two-flowered; one of the flowers often male. Cor. Glumes concave, lanceolate, acuminate, awnless; one shorter than the other. Stam. filaments three, capillary, the length of the corolla; anthers arrow-shaped. Pist. germ roundish; style filiform, the length of the stamens; styles two, hairy, oblong, spreading. Seeds roundish, enclosed in the permanent corolla.

Eff. Ch. Involucre variously divided, often echinated; or, if wanting, the defect compensated by echinated calyx-glumes; style one, bifid.

* With an involucre.

Sp. 1. *C. echinatus*, Linn. Sp. Pl. 4. Mart. 5. Poir. 2. Willd. 3. Pluk. Alm. tab. 92. fig. 3. Schreb. gram. 9. tab. 23. fig. 1. Gært. tab. 80. Lam. Illuf. tab. 838. fig. 1. (*Panicetrella americana major*, Mich. gen. 36. tab. 31. *Elymus caput Medusæ*, Forsk. Flor. Ægyp. p. 25.) "Spike oblong, conglomerated." Root annual. Stems from eight to ten inches high, bent at the lower joints, smooth, striated, compressed, almost angular. Leaves from four to five lines broad, long, smooth, striated; sheaths loose, smooth, slightly tomentous at their orifice. Spike two or three inches long; simple, upright; spikelets on short peduncles, scattered or alternate, at a small distance from each other; involucre large, entire at the base, cut at the edge into several stiff, awl-shaped, fetaceous, yellowish or somewhat violet segments; flowers from two to four in each involucre, very small. Seeds almost elliptical, flat, a little convex, without a furrow. A native of Jamiaca and the coast of Barbary, described by Poiret from a living plant in the botanic garden at Paris, cultivated in England by Doody, in 1691. It is one of the most common grasses in the open pastures of Jamaica, and is esteemed a wholesome and pleasant food for all sorts of cattle. 2. *C. tribuloides*, Linn. Sp. Pl. 5. Mart.

6. Poir. 1. Willd. 4. (*Panicastrella minor*, Mich. Gen. 37. Gramen, &c. Morif. Ox. tab. 5. fig. 4. Sloan. Jam. tab. 65. fig. 1.) "Spike glomerated; female glumes globular, muricated with spines, hirsute." Linn. *Root* annual. *Stems* branched, jointed, smooth, striated. *Leaves* often longer than the culm, two or three lines broad, striated, smooth; sheath a little pubescent at its upper part; orifice furnished with a tuft of fine, setaceous, whitish hairs. *Spike* oblong, or more frequently capitate, very close; spikelets sessile, globular; spines strong, smooth, very pungent, spreading; calyx-glumes pubescent or villous, especially towards the base, ciliated at the edges, mucronated, very hard. A native of Virginia and Jamaica. 3. *C. muricatus*, Linn. Mant. 302. Mart. 3. Poir. 5. (*Panicum squarrosulum*, Retz. Obf. tab. 1. Willd.) "Spike muricated; scales various, sharp-pointed." *Root* annual. *Stems* from eight to ten inches high, procumbent, branched. *Leaves* of a moderate size, soft, enveloping almost the whole of the culm by their sheaths. *Spikes* on long filiform peduncles, slender, naked, almost unilateral, very close; rachis zig-zag, jointed, furnished on each side with a rather large membrane. *Flowers* sessile, scarious; involucre composed of various scales, large, stiff, sometimes a little twisted, oval or lanceolate, smooth, hard, awl-shaped or mucronate; calyx-glumes ciliated at the edges, containing one or two flowers. The disposition of the flowers gives it the habit of a tripacum. It is also in some respects allied to panicum, under which Retz and Willdenow have placed it. A native of the East Indies. 4. *C. hordeiformis*, Willd. 3. Thunb. prod. 24. (*C. asperifolius*; Poir. 7. Desfont. flor. Atl. vol. ii. p. 388. *Alopecurus hordeiformis*; Linn. Sp. Pl. Mart. and of this work.) "Leaves rough backwards; involucre bristle-shaped, four times as long as the flower, villous towards the bottom, white, enclosing one or two flowers." Desf. *Root* perennial. *Stems* two or three feet high, upright. *Leaves* about a line broad, rolled in, smooth, awl-shaped, stiff. *Spikes* five or six inches long, whitish, not interrupted; involucre composed of numerous silky filaments. *Flowers* sessile; rachis villous. A native of the East Indies, of the Cape of Good Hope, and of mount Atlas near Bugie. Nearly allied to *C. rufescens*, and *C. ciliaris*. 5. *C. rufescens*, Poir. 10. Desf. Flor. Atl. vol. ii. p. 388. "Leaves smooth; spike elongated; involucre crowded, bristle-shaped, rufescent, villous towards the bottom, three times as long as the flower; calyxes about two-flowered." Desf. *Stems* almost procumbent, firm, jointed, rush-like. *Leaves* smooth, rolled in, rough at their edges; orifice of the sheaths furnished with a lacerated membrane. *Spike* four or five inches long, close; bristles of the involucre silky; calyx-glumes membranous; those of the corolla violet-coloured. A native of sandy soil in Barbary near Mascara. 6. *C. ramosissimus*, Poir. 11. "Stem frutescent; branches dichotomous; involucre bristle-shaped, soft, naked; spikelets about four flowered." Poir. *Stems* very high, several times branched, smooth. *Leaves* smooth, long, acute, striated, a little scabrous; sheaths naked and serrated at their orifice. *Flowers* terminating the branches and forming cylindrical spikes two or three inches long; spikelets, sessile, scattered, alternate, involucre composed of numerous, fine, silky, almost silvery hairs, a little longer than the flowers; calyx-valves obtuse. A native of Ægypt, described from a dried specimen in the herbarium of La Marck. 7. *C. ciliaris*, Linn. Mant. 302. Mart. 7. Poir. 12. Willd. 5. Giseke ic. tab. 23. Lam. Illuf. tab. 838. fig. 3. "Involucre bristle-shaped, ciliated, enclosing four calyxes." *Root* perennial. *Stems* a foot and half high, slender, a little bent at their joints, naked at their upper part. *Leaves* narrow, somewhat villous; sheaths striated,

ciliated. *Spike* two or three inches long, cylindrical, a little interrupted; spikelets alternate, sessile, involucre composed of fine silky hairs, of a purple colour, ciliated at their base, two or three times longer than the valves of the calyx; calyxes two-flowered, one male, the other hermaphrodite; glumes membranous, unequal; stigmas violet-coloured; rachis zig-zag. A native of the Cape of Good Hope, of Barbary and Ægypt. 8. *C. parviflorus*, Poir. 13. "Involucre bristle-shaped, naked; spikelets generally one-flowered, very small." *Stems* from one to two feet high, slender, filiform, smooth. *Leaves* long, narrow, very acute, rough to the touch; sheaths smooth, rather loose, naked at their orifice, furnished with a short reddish membrane, a little torn at its summit. *Spike* lanceolate, somewhat compressed, greenish or purplish; spikelets sessile; involucre composed of long, stiff hairs. A native of Porto Rico. 9. *C. purpurascens*, Mart. 11. Poir. 15. Willd. 9. Thunb. Linn. Transf. vol. ii. p. 329. (*Panicum hordeiforme* γ; Thunb. Jap. 38.) "Spike simple; florets surrounded with very long awns; stem erect." *Stems* about two feet high. *Leaves* longer than the culm. *Spike* six or seven inches long, loose; spikelets in two rows; peduncles as long as the spikelet; bristles of the involucre purple, five or six times longer than the flowers. A native of Japan. 10. *C. setosus*, Mart. 10. Willd. 6. Swartz. prod. 26. "Spike linear-oblong; involucre bristle-shaped; interior bristles with ciliated hairs at the base; glumes even." A native of the West Indies. 11. *C. geniculatus*, Willd. 7. Thunb. prod. 24. "Raceme spiked, simple; involucre many-leaved, scabrous; culm geniculated." A native of the Cape of Good Hope.

** Without an involucre.

12. *C. inflexus*, Poir. 6. "Leaves lanceolate, villous; racemes lateral, inflexed, on long peduncles; spikelets sessile, florets in a single row." *Stems* branched, cylindrical. *Leaves* entirely covering the stem, an inch and half long, about four lines broad at their base, lanceolate, almost heart-shaped, finely striated, most villous on the sheath and at the edges. *Peduncles* from the axils of the upper leaves, six or seven inches long, simple, smooth; each terminated by a spike of sessile flowers, so curved at its insertion as to make nearly a right angle with the stem; spikelets lanceolate, narrow, very acute; calyx one or two-flowered; outer valve echinated with spiny points, ciliated at its edges, very acute; inner one short, villous; corolla one-valved, much shorter than the calyx, flat, smooth, obtuse. *Seed* naked, shining, oblong, cylindrical. A native of Cayenne. Described by Poir. from dried specimens in the herbarium of Jussieu and La Marck, but not so perfect as to make him quite certain that the plant may not more properly be referred to some other genus. On account of its one-valved corolla, it appears to us to be truly an *alopecurus*, and might have been placed very conveniently next to *A. monspeliensis* of Linnæus, if that plant had not been determined by Schreber and Dr. Smith to have really a two-valved corolla, and therefore removed to phleum. Its rachis resembles that of *paspalum*. 13. *C. ovatus*, Poir. 8. Lam. Ill. 838. fig. 2. "Leaves quite smooth, rather firm; spike densely egg-shaped." *Stems* stiff, smooth, cylindrical. *Leaves* stiff, acute, rolled in at their edges; sheath cylindrical, long, narrow, furnished at its orifice with a small tuft of fine whitish hairs. *Flowers* in a thick branched spike; outer calyx-valves echinated with stiff, whitish hairs; florets smooth, oval, mucronate; two or three in each calyx. Gathered by Sonnerat at the Cape of Good Hope, preserved in the herbarium of La Marck. 14. *C. tomentosus*, Poir. 9. "Leaves tomentous-woolly on their upper surface, striated underneath; spikes oblong-egg-shaped." *Stems* upright, smooth. *Leaves* stiff, narrow, flat,

a little

a little rolled in at their edges; sheaths cylindrical, striated. Spike very close, sometimes interrupted at its base; outer valves of the calyx echinated with short, stiff, unequal points; florets three or four in each calyx, oblong; valves very acute. A native of the Cape of Good Hope, preserved in the herbarium of La Marck. 15. *C. carolinianus*, Walt. Flor. Car. p. 79. "Spike glomerated; glumes globular, muricated with spines, even."

Obf. In conformity with Poiret's ideas on the subject, we have extended the generic character so as to include the last four species, which would be excluded by it, as it was originally constituted by Linnæus; without, however, being perfectly satisfied that they may not be better otherwise disposed of. 16. *C. frutescens*, Linn. Sp. Pl. 6. Mart. 9. Willd. 10. (*Arundo graminea aculeata*; Alp. exot. tab. 104. *Gramen orientale*, spicatum fruticosum, spinosum; spicis echinatis in capitulum congestis; Tourn. cor. 39.) "Heads lateral, sessile; leaves mucronate; stem shrubby." Linn. Root perennial. A native of Armenia. La Marck asserts, on the authority of Tournefort's specimen preserved in the herbarium of the museum at Paris, that its leaves have no sheaths, and that therefore it cannot be a gramineous plant. He has no doubt, notwithstanding the singularity of its habit, of its being really an eryngium. See Encyc. vol. iv. p. 756, and vol. vi. p. 53.

CENCHRUS capitatus; Linn. Mart. Willd. Poir. See ECHINARIA.

CENCHRUS lappaceus; Linn. Mart. Willd. Poir. See PANICUM lappaceum.

CENCHRUS racemosus; Linn. Mart. Poir. See LAP-PAGO.

CENCHRUS granularis; Linn. Mantissa. Mart. See MANISURIS.

As these four plants are destitute of an involucre, they were improperly placed by Linnæus under his *cenchrus*; and as they have not an echinated calyx-glume, they are equally excluded from our second section.

CENDEVIA, in *Ancient Geography*, a marsh of Asia, in Phœnicia; placed by Pliny at the foot of mount Carmel.

CENEDA, in *Geography*, a town of Italy, in the Trevisano, belonging to the state of Venice, the see of a bishop, suffragan of Udina, destroyed by the Huns and Goths; 20 miles N. of Treviso.

CENDRILLARD, in *Ornithology*, the name given by Buffon to the St. Domingo Cuckow. *Cuculus dominicus*, Gmelin.

CENDRILLE, the cinereous Lark, *Alauda cinerea* of Gmelin, is so named by Buffon in his Nat. Hist. des Ois.

CENEGILD, in the *Saxon Antiquities*, an expiatory mulct, paid by one who had killed a man to the kindred of the deceased. The word is compounded of the Saxon *cinne*, i. e. *cognatio*, relation, and *gild*, *solutio*, payment.

CENEONTLATOTI, in *Ornithology*, the name by which Nieremberg described the Polyglot or American mocking Thrush; a bird celebrated for the different modulations of its notes, which excel those of the nightingale in melody.

CENERIUM, in *Ancient Geography*, a small town of the Peloponnese, in the Elide, according to Strabo.

CENESPOLIS, a name given by Polybius to a town of Spain.

CENESTAM, a town placed by Ptolemy towards the middle of the island of Corsica; which was an episcopal see.

CENETÆ, a town of Venetia, N. of Tarvisium.

CENGOTTO, in *Geography*, a small island in the Mediterranean; 24 miles N.N.W. of Candia, N. lat. 36° 14' E. long. 41°.

CENIA, in *Botany*, (*κενος*, empty), a genus formed by Jussieu for *Cotula turbinata* of Linnæus, with the following character: *Flowers* radiate; florets four-cleft, retrandrous; ligulate ones about twenty, very short; calyx top-shaped, empty under the receptacle; border short, eight-cleft; seeds compressed; receptacle convex. See LANCISIA.

CENIA, in *Geography*, a river of Spain, which runs into the Mediterranean, 8 miles N.E. of Pegniscola, separating in its course the provinces of Catalonia and Valencia.

CENION, a river of Britain, the mouth of which is supposed to be Falmouth haven; so called from the British word "gene," a mouth; and of which there is still some vestige in the name of a neighbouring town, Tregonny.

CENIS, in *Entomology*, *Phalæna Cenis* of Cramer, is the species described by Fabricius as *Phalæna cenaria*, which see.

CENIS, in *Geography*, a summit of the Western Alps, which separates the marquise of Susa from Maurienne, and over which is the famous passage from Savoy to Piedmont.

At Lafnebourg on the Savoy side of the mountain, preparations are made for crossing it, which is usually performed in about 5 hours. The inns at La Ramasse and La Grand Croix, so called from the crosses near it, which is a boundary between Savoy and Piedmont, affording but very uncomfortable entertainment, in case, by any accident, persons were obliged to spend the night on the mountain, the baggage and chaises which are here taken to pieces are forwarded upon mules and asses. The Vetturini, or carriers, have generally their chaises standing on each side of the mountain, which save the trouble and expence of taking their carriages to pieces. The horses which they take with them become by degrees as well acquainted with the road over the mountains, as the mules of the country; so that betwixt Lafnebourg and Novalese in Piedmont, one may safely give them the reins. From La Grand Croix to Novalese travellers take those carriers whom they hire at Lafnebourg. In coming from Piedmont, the journey up the steep mountain from Novalese to La Grand Croix, and likewise across to La Ramasse, where the Novalese carriers take up the travellers, and forward them to Lafnebourg, is performed on mules. Down hill the mules are not so sure-footed, neither does the rider sit so well upon them as upon an ascent, which renders it necessary to be carried by men. From Lafnebourg to the summit of mount Cenis is a league, the climbing of which takes up a full hour: the two leagues from thence to La Grand Croix, being over a plain, are travelled in an hour and a half: here commences a declivity of two leagues more; one to Fertièr, and another to Novalese. In winter, when the snow is on the ground, the plain on the top of mount Cenis is crossed on sledges, drawn by a horse and a mule. The descent from La Grand Croix to Novalese must, at all times, and even in winter, be passed in chairs; the large stones, the winding ways full of holes, and the dangerous precipices not admitting of sledges. But the descent from mount Cenis to Lafnebourg is performed in another manner. On the spot where the declivity begins is a house called la Ramasse, from whence one is carried in a sledge down to Lafnebourg, which is about a league further, in seven or eight minutes, the rapidity of the motion almost taking away the breath. These sledges hold only two persons, the traveller, and the guide who sits forward steering with a stick. On each side he has an iron chain; which he drops like an anchor, either to slacken the course of the sledge, or to stop it. This, like the carrying in chairs, is called "Ramasser les gens aller à ramasse." The horse-road from Lafnebourg up to the Ramasse-house is very serpentine; the mules and asses are so used to it, that they are at no loss in selecting the best tracks and avoiding the stones, so that the rider may trust himself

himself to them. That the inhabitants may not exact upon strangers, the king has issued an order to regulate the price, which is generally stuck up in the post-houses. From Lafnebourg to Novalese are two roads, the old and new; the last is the worst, but the shortest, and always chosen by those who travel on mules or in chairs. The Lafnebourg chairmen are very active and expeditious in performing their labour; but notwithstanding their alertness and the extreme fatigue that seems to attend it, they attain, in the use of the most simple diet, a considerable longevity. In order the better to secure their footing, their shoes are without heels, and the soles are rubbed with wax and rosin. The machines in which travellers are carried down hill are a kind of straw chairs, with low backs, two arms, and instead of feet a little board hanging down by a cord for resting the traveller's legs. The seat, which is made of bark and ropes twisted together, is fastened to two poles, and carried, like a sedan, with broad straps.

On the summit of mount Cenis is a plain, of rather a long uneven valley betwixt very high mountains, whose tops, even in summer, are covered with snow; and in winter and spring, when vast quantities of snow fall from the hill into the valley, the journey over mount Cenis is rendered not a little dangerous. There are huts built up and down along the mountain for the herdsmen, who come hither in summer with their cattle: fine grass and several sorts of flowers being produced here, in the months of July, August, and September. This mountain, like some other parts of the Alps, abounds with chamois, wolves, marmottes, and hares. Half-way up the mountain is a lake about a league in circumference, which is said to be in the middle almost unfathomable. In this lake is fine trout, some of which weigh 16 pounds. It is constantly supplied with water from springs issuing from the adjacent eminences, which are always covered with snow, and often with clouds: and out of it flows a river, which being augmented by other springs falls down in very delightful cascades: this river is by some called Semar, by others St. Nicholas; and near Susa it loses itself in the Petite Doire or Dura. Keyser erroneously asserts, that the mountain of Roche-melon, on the left hand of Cenis, betwixt Fertiére and Novalese, is reckoned the highest of all the Italian Alps; it is 11,977 English feet above the sea; and little mount Cenis is 9956; whereas mount Rosa exceeds 15,500; and mont Blanc is, according to sir George Shuckborough, 15,662, and according to De Luc 15,304. Keyser's Travels, vol. i.

CENNABA, in *Ancient Geography*, a mountain of Africa, in Mauritania Cæsariensis.

CENNING, CENNINGA, or *Kenninga*, in our *Ancient Books*, denotes notice given by the buyer to him of whom he had bought, that the thing purchased was claimed by another, that he might appear and avow, or warrant his bargain.

The word is formed of the Saxon *cennam*, *auctorem advocare*, to call an author. Du-Cange.

CENO, or ZENO, in *Geography*, a river of Italy, which runs into the Taro; 8 miles S.S.W. of Parma.

CENOBITE. See COENOBITE.

CENOMANI, in *Ancient Geography*, a people of Transalpine Gaul, belonging to the Auleri, whose country corresponded to the diocese of Mans. The Cenomani also were a people who originally came from Gaul, where they inhabited the country called by moderns le Maine, and settled themselves in Italy, a little after the year 600 B.C. Their principal towns in Italy were Brixia, Cremona, Mantua, and Verona.

CENOTAPH, compounded of *κενός*, empty, and *ταφος*,

tomb, an empty tomb, or a monument without a body under it; erected only by way of honour to the deceased; and distinguished from *sepulchre*, in which a corpse is actually deposited.

Cenotaphs are honorary tombs, erected either to persons buried in another place, or to those who have received no burial, and whose relics cannot be found, as being killed in battle, lost at sea, or the like. Among the ancients the same privileges and religious regard were allowed to these *tumuli iranes* & *honorarii*, as to real tombs. Card. Noris has a treatise expressive on the cenotaphs of the Cæsars, Caius and Lucius, which are still seen at P. sa. Lamprid. in Alex. cap. 63.

CENSAL, in the Mediterranean parts, denotes a regular or established broker, authorised to negotiate between merchant and merchant.

CENSER, in *Antiquity*, a kind of vessel where incense was burnt to the gods.

Censer is chiefly used in speaking of the Jewish worship. Among the Greeks and Romans it is more frequently called *thuribulum*, *καθαρτή*, and *acerra*, which see.

The Jewish censer was a small sort of chafing-dish, covered with a dome, and suspended by a chain. Josephus tells us, that Solomon made twenty thousand gold censers for the temple of Jerusalem, to offer perfumes in, and fifty thousand others to carry fire in.

CENSER, the same with ARA.

CENSIO, in *Antiquity*, the act or office of the censor. See CENSUS. Censio included both the rating or valuing of a man's estate, and the imposing of mulcts and penalties.

CENSIO *bastaria*, a punishment inflicted on a Roman soldier for some offence, as laziness or luxury, whereby his *hasta*, or spear, was taken from him, and consequently his wages, and hopes of preferment stopped.

CENSITUS, a person censured, or entered in the censual tables. See CENSUS.

In an ancient monument found at Ancyra, containing the actions of the emperor Octavius, we read,

“ Quo lustro civium Romanorum
Censita sunt capita quadragies
Centum millia & sexaginta tria.”

CENSITUS is also used in the *Civil Law*, for a servile sort of tenant, who pays capitation to his lord for the land he holds of him, and is entered as such in the lord's rent-roll. In which sense, the word amounts to the same with *capite census*, or *capite censitus*. See CAPITE CENSI.

CENSOR, in *Antiquity*, one of the prime magistrates in ancient Rome; whose business was to survey and rate the people, and to inspect and correct their manners.

The word is derived from *censere*; because he assessed and valued every man's estate; registering their names, and placing them in a proper century, that the Romans might know their own strength; though others say, the censors were so called on account of their other office; viz. as being comptrollers or correctors of manners and policy. The censors had all the ensigns of the consuls, except the licitors.

There were two censors first created in the year of Rome 311, upon the senate's observing, that the consuls were too much taken up with matters of war, to be left at leisure for looking near enough into private affairs; so that the census had been intermitted for 17 years. The two first were Papirius and Sempronius: their authority extended over every person; and they had a right to reprehend the highest. At first they were taken out of the senate; but after the plebeians had got the consulate open to them, they soon arrived

rived at the censorship. M. Rutilius was the first; who, having been twice consul and once dictator, in the year 402 demanded the office of censor. The custom was to elect two; the one of a patrician family, the other a plebeian; and upon the death of either, the other was discharged from his office, and two new ones elected; but not till the next lustrum. In the year 414, a law was made, when Publius Philo was dictator, appointing one of the censors to be always elected out of the plebeians; which held in force till the year 622, when both censors were chosen from among the people, viz. Q. Cæcilius Metellus, surnamed Macedonicus, and Q. Pompeius; after which time, it was shared between the senate and the people.

The last censors, viz. Paulus and Plancus, under Augustus, are said to have been private persons; not, indeed, that they had never borne any public office before, but by way of distinction from the emperor; all besides him being so called.

This office was so considerable, that none aspired to it till they had passed all the rest: so that it was looked on as surprising, that Crassus should be admitted censor, without having been either consul or prætor. The term of this office was at first established for five years; but that institution only lasted nine; Mamerus Æmilius the dictator, in the year 320, made a law, restraining the censorship to a year and a half; which was afterwards observed very strictly. Thus, Rome was regularly without censors $3\frac{1}{2}$ years; for the lustrum did not take place till the end of the fifth year. But this order was often interrupted, either by wars abroad, or domestic divisions, or some other particular reasons. Sometimes five years expired without the creation of any censors; on other occasions censors were created more than once during the space of a lustrum, if those who had been first chosen had not been able to complete the census.

The power of the census was at first very limited; but afterwards it became very extensive. All the orders of the state were subject to them. Hence the censorship is called by Plutarch (in Cat. Maj.) the summit of all preferences, "omnium honorum apex, vel fastigium;" and by Cicero (in Pis. 4.) "magistra pudoris et modestiæ." The title of censor was esteemed more honourable than that of consul; as appears from ancient coins and statues; and it was reckoned the chief ornament of nobility to be sprung from a censorian family.

The sentence of censors only affected the rank and character of persons; and it was therefore properly called "ignominia," and in later times had no other effect besides putting a man to the blush, or, as Cicero expresses it, "nihil fere damnato asserbat præter ruborem." It was not fixed and unalterable, like the decision of a court of law; but might either be taken off by the next censors, or rendered ineffectual by the verdict of a jury, or by the suffrages of the Roman people. Thus we find C. Græta, who had been excluded the senate by the censors, A.U. 639, the very next lustrum made himself censor. Sometimes the senate added force to the feeble sentence of the censors, by their decree, which imposed an additional punishment. When the censors acted improperly, they might be brought to a trial, as they sometimes were, by a tribune of the commons. Two things were peculiar to the censors: 1. No one could be elected a second time to that office, according to the law of C. Marius Rutilius, who refused a second censorship when conferred upon him, hence surnamed "Censorinus." 2. If one of the censors died, another was not substituted in his room; but his surviving colleague was obliged to resign his office. The death of a censor was deemed ominous, because it had happened that a censor died, and another was chosen

in his place, in that lustrum in which Rome was taken by the Gauls. Before the censors began to exercise their office, they swore that they would do nothing through favour or hatred, but that they would act uprightly; and when they resigned their office, they swore that they had done so. Then going up to the treasury, they left a list of those whom they had made "æarii." A record of their proceeding was kept in the temple of the Nymphs, and is also said to have been preserved with great care by their descendants.

The business of the censors was, to register and value the effects, &c. of the Roman citizens; and to impose taxes, in proportion to what each person possessed. Cicero reduces their functions to the numbering of the people; the correction and reformation of manners; the estimating of the effects of each citizen; the proportioning of taxes; the superintendence of tribute; the exclusion from the temples, and the care of the public places. They had also a right, *senatu ejicere*, to expel from the senate such of the members as they judged unworthy of the dignity; as well as to break and cashier the knights who failed in their duty, by taking from them the public horse, *equum adimere*.

There are many examples of senators expelled by the censors, generally for good reasons, yet sometimes through mere peevishness, envy, or revenge: but in such cases, there was always the liberty of an appeal to the final judgment of the people. So that the censorian power, properly speaking, was not that of making or unmaking senators, but of enrolling only those whom the people had made; and of inspecting their manners, and animadverting upon their vices; over which they had a special jurisdiction delegated by the people. Their rule of censuring seems to have been grounded on an old maxim of the Roman policy, enjoining, "that the senate should be pure from all blemish, and an example of manners to all the other orders of the city;" as we find it laid down by Cicero in his "Book of Laws," which were drawn, as he tells us, from the plan of the Roman constitution.

Besides the task of enrolling the senators, and inspecting their manners, it was a part likewise of the censorian jurisdiction to let out to farm all the lands, revenues, and customs of the republic; and to contract with artificers for the charge of building and repairing all the public works and edifices, both in Rome, and the colonies of Italy. Now in this branch of their office it is certain that they acted merely under the authority of the people, and were prohibited by law to let out any of the revenues, except in the rostra, under the immediate inspection and in the very presence of the people.

In the general census and review of the city, held by them every five years, though every single citizen was particularly summoned and enrolled by name in his proper tribe, as a freeman of Rome, yet that solemn enrolment, as Cicero tells us, did not confirm any man's right to a citizenship, but signified only that he had passed for a citizen at that time; because the proper power of determining that right resided always in the people. (Cicero pro Arch. 5. Liv. x. 52. Middleton of Rom. Sen. p. 59. 68. 70. 83, &c.)

When Rome had extended her conquests, and founded many colonies, or given the freedom of the city to many of her neighbours, the functions of the censors became proportionably more extensive. Officers, who were also called censors in those colonies, and municipal cities, gave the senators of Rome an account of the condition of those cities, of the number of their inhabitants, and of their riches; and their reports were registered in the books of the censors. The power of the censors continued unimpaired to the tri-

buneship of Clodius, A. U. 695, who procured a law to be enacted, ordering that no senator should be degraded by the censors, unless he had been formally accused and condemned by both censors; but this law was abrogated, and the powers of the censorship restored soon after by Q. Metellus Scipio, A. U. 702.

The office continued to the time of the emperors, who assumed the authority of it to themselves, but without the name, calling themselves, instead of censors, *morum prefeti*; though Vespasian and his sons took a pride to be called censors, and put this among their other titles on their coins. Decius attempted to restore the dignity to a particular magistrate. After this we hear no more of it till Constantine's time, who made his brother censor: the last who seems to have enjoyed the office.

The necessity of appearing at certain times before the tribunal of the censors, to give an account of their conduct, imposed universally on all the citizens, and from which neither birth, services rendered to the state, nor the most important offices previously exercised, as those of consul and dictator, exempted any one, must have been a powerful check upon licentiousness and disorder. There are, says the author of "Considerations upon the Causes of the Greatness and Declension of the Romans," bad examples, which are more pernicious even than crimes, and more states have been ruined by corrupting their manners than by violating their laws. At Rome, whatever might introduce dangerous innovations, change the sentiments or inclinations of the good citizen, and prevent their perpetuity; in a word, all disorders of a public or private nature were reformed by the censors. If luxury and avarice, the usual causes of the ruin of states, were introduced so late at Rome; if poverty, frugality, simplicity, and moderation in the table, buildings, furniture, and equipage, were so long in honour there, this extraordinary felicity ought, without doubt, to be ascribed principally, or in a great degree, to the inexorable severity of the censors, rigidly attached to the ancient manners of their country, from which they well knew how important it was not to depart. The austerity of the censorship produced at Rome the same effect, in respect to manners, as the severity of the military discipline did in the armies with respect to the support of subordination and obedience. And these were the two principal causes of the Roman greatness and power. Whatever victories are gained, whatever provinces are subjected, if purity of manners do not prevail in the different orders of a state; if the administration of justice, and the power of the government, be not founded upon invariable equity and a sincere love of the public good, however powerful an empire may be, it cannot subsist long. (Val. Max. l. ii. c. 9.) The sanctity of oaths was no where so much respected as at Rome. This was, as Cicero remarks, (Offic. l. iii. c. 3.), because no crimes were so severely punished by the censors, as breach of faith and contempt of oaths. Upon the whole, we may observe, that upon the office of censorship depended, in a great degree, the good order, regulation, discipline, conservation of the manners, and administration of the revenues of the commonwealth. See on the subject of this article, Dion. Hal. Dion. Cassius. Livy. Cicero. Val. Max. Suetonius. Tacit. Annal. &c. &c.

The republic of Venice has at this day a censor of the manners of their people, whose office lasts six months.

CENSORS of books are a body of doctors, or other officers, established, in divers countries, to examine and give their judgment of all books, before they go to the press; and to see they contain nothing contrary to the faith, and good manners. In England we had formerly an officer of this

kind, under the title of *licencer of the press*; but since the revolution the press has been open.

At Paris, the *faculty of theology* claimed the privilege of censors, as granted to them by the pope; and it is certain they have been in possession of it for many ages: but in the year 1624, a new commission of four doctors was created, by letters patent, the sole public, and royal censors, and examiners of all books; and answerable for every thing contained therein. The faculty, however, still maintained their claim, by taking occasion, now and then, to give their approbation to books.

In the year 1650, when public censors were appointed without their consent, whom the faculty opposed, they stated the antiquity of their right to be 200 years. For they said, "It is above 200 years since the doctors of Paris have had a right to approve books without being subjected but to their own faculty, to which they assert they are alone responsible for their decisions."

Many centuries before the invention of printing, books were forbidden by different governments, and even condemned to the flames. See *Burning of Books*. Authors, at this early period, submitted their works, before they were published, to the judgment of their superiors. This was principally done by the clergy; partly to secure themselves from censure or punishment, and partly to manifest respect for the pope or bishops. This, however, does not appear to have been, on their part, a duty, but a voluntary act. In 768, Ambrosius Autpert, a Benedictine monk, sent his exposition on the book of Revelation, to pope Stephen III. and begged that he would publish the work, and make it known. On this occasion, he says expressly, that he is the first writer who ever requested such a favour; that liberty to write belongs to every one who does not wish to depart from the doctrine of the fathers of the church; and he hopes that this freedom will not be lessened on account of his voluntary submission. Soon after the invention of printing, laws began to be made for subjecting books to examination; a regulation proposed even by Plato; and which has been wished for by many since. It is, indeed, very probable, that the apprehensions of the clergy, lest publications should get abroad prejudicial to religion, and consequently, to their power, contributed not a little to hasten the establishment of book-censors. The earliest instance of a book printed with a permission from government is commonly supposed to occur in the year 1480; but professor Beckmann mentions two books, which were printed almost a year sooner than 1479, with the approbation of the public censor. The oldest mandate for appointing a book censor, that has occurred to him, is that issued by Berthold, archbishop of Metz, in the year 1486. In 1501, pope Alexander VI. published a bull, which contains several prohibitions and regulations, with regard to the printing of books, and decrees all catalogues and books before that period to be examined, and those which contained any thing prejudicial to the Catholic religion to be burned. In the council of Lateran, held at Rome in 1515, it was ordered, that in future no books should be printed but such as had been inspected by ecclesiastical censors. Beckmann's Hist. of Inventions, vol. iii.

CENSORIAL, CENSORIUS, something that relates to the office of censor. In which sense we meet with *censoria nota*, or *animadversio*, *censoria virgula*, &c.—*censoria lex*, denoting a law passed or enacted by the censors:—*homo censorius*, a person who has borne the dignity, and served the office of censor:—*virgula censoria*, which, among the ancient *Grammarians* and *Critics*, denoted a note or mark of reprobation, affixed to those passages of a book or writing, which the critic disapproved or condemned.

CENSORINUS, in *Biography*, a learned grammarian, is supposed to have been of the Martian family, and to have been eminent at Rome in the times of Alexander Severus, Maximian, and Gordian. In the first year of the emperor Gordian, A.U.C. 991, A.D. 238, he wrote his famous book "*De Die Natali*," which has been of great use to chronologers by connecting the principal æras of various events of antiquity. It was dedicated to Q. Cerellius, of the equestrian order, and has been often cited with commendation by Sidonius, Cassiodorus, Priscian, and others. This work has passed through a great number of editions. It was printed at Hamburg, in 1614, with a perpetual commentary, by Lindenbrog; at Leyden, with additional notes, in 1642; at Cambridge in 1695; and by Havercamp in 1743. Censorinus also wrote a book "*On Accents*." Fab. Bib. Lat. vol. ii.

CENSUAL Books, *libri censuales*, those wherein the census was taken down.

CENSUALES, in a substantive sense, denoted the clerks or public scribes who wrote the *censual* books.

CENSUALES, in *Ecclesiastical Antiquity*, denoted also a class of the *oblato*, or voluntary slaves of churches or monasteries; or those who, for procuring the protection of the church, bound themselves to pay an annual tax or quit-rent out of their estates to a church or monastery. Besides this, they sometimes engaged to perform certain services. Robertson's Ch. V. vol. i. p. 326.

CENSURE, **CENSURA**, is popularly used for a judgment, whereby some book, person, or action is blamed or condemned; more particularly for a reprimand made by a superior, or person in authority.

CENSURE is also a custom, in several manors in Cornwall and Devon, whereby all the tenants above the age of sixteen are called to swear fealty to the lord, to pay two-pence *per poll*, and a penny *per annum* ever after, as *cert-money*, or common fine.

CENSURES, *ecclesiastical*, are the public menaces which the church makes, or pains and penalties incurred by disobeying what she enjoins; or rather the pains and punishments themselves; as interdiction, excommunication, &c.

Till the time of the Reformation, the kings of England were subject to the censures of the church of Rome; but the kings of France have always maintained themselves exempt from them.

The canonists distinguish two kinds of censures; the one *de jure*, and the other *de facto*, or by sentence.

CENSUS, among the Romans, was an authentic declaration made upon oath by the several subjects of the empire, of their respective names, and places of abode, before proper magistrates in the city of Rome, called *censors*; and in the provinces, *censitores*, by whom the same were registered.

This declaration was accompanied with a catalogue, or enumeration, in writing, of all the estates, lands, and inheritances they possessed; their quantity, quality, place, wives, children, tenants, domestics, slaves, &c.

Those who neglected to conform to this regulation were deprived of their estates, beaten with rods, and publicly sold for slaves, as persons who had deemed themselves unworthy of liberty.

The census was instituted by king Servius Tullius; to be held every five years: and this prince took the census four times during his reign. Tarquin the Proud neglected this useful institution. After the expulsion of the kings, the consuls were charged with this care till the establishment of

the censors. Each census terminated with a ceremony called *lustrum*, which see.

There had been ten census, or lustra, before the first taken by the censors, which was the eleventh. See **CENSOR**. Servius, having by this regulation ascertained the valuation of the estates of the citizens, divided them into six classes, and each class into a certain number of *centuries*. See **CENTURY**. By thus ascertaining the number of citizens and the value of their estates, Servius undertook to ease the poor by increasing the burdens of the rich, and, at the same time, to please the latter, by augmenting their power and influence. The census was taken anciently in the forum; but after the year 320, in the villa publica, which was a place in the Campus Martius; but the census was sometimes held without the concluding ceremony of the lustrum. The census comprehended all the ranks of people, though under different names; that of the common people was called *census*, or *lustrum*; that of the knights, *census*, *recensio*, *recognitio*; that of the senators, *lectio*, *relectio*. Hence, also, census came to signify a person who had made such a declaration: in which sense it was opposed to *incensus*, a person who had not given in his estate, or name, to be registered.

The census among the old Romans was held, as is commonly thought, every five years; but this must not be taken to be precisely true: on the contrary, Dr. Middleton has shewn, that both the census and lustrum were for the most part held irregularly and uncertainly, at very different and various intervals of time. See **LUSTRUM**.

The census was an excellent expedient for discovering the strength of the state: by it they learnt the number of the citizens, how many were fit for war, and who for offices of other kinds; how much each was able to pay of taxes towards the charge of the war.

The census, according to Salmasius, was peculiar to the city of Rome. That in the provinces was properly called *profectio* and *ἀπογραφή*. But this distinction is not every where observed by the ancients themselves.

In the provinces, the census not only served to discover the substance of each person, but where, and in what manner and proportion, tributes might be best imposed.

CENSUS was also used for the book or register wherein the professions of the people were entered. In which sense the census was frequently cited and appealed to, as evidence in the courts of justice.

CENSUS is also used to denote a man's whole substance or estate.

CENSUS senatorius, the patrimony of a senator, which was limited to a certain value; being at first rated at eight hundred thousand sesterces, but afterwards, under Augustus, enlarged to twelve hundred thousand. Sueton. in Cæs. cap. 41.

CENSUS equester, the estate or patrimony of a knight, rated at four hundred thousand sesterces, which was required to qualify a person for that order, and without which no virtue or merit was available. Suet. in Cæs. cap. 33. Hor. lib. i. ep. i. ver. 57, 58, 59.

CENSUS was also used for a person worth an hundred thousand sesterces, or who was entered as such in the census tables on his own declaration. In which sense, census amounts to the same with *classicus*, or a man of the first class; though Gellius limits the estate of those of this class to an hundred and twenty-five thousand asses. By the Voconian law no census was allowed to give by his will above a fourth part of what he was worth to a woman. Aul. Gell. Noct. Att. lib. vii. cap. 13. Cic. in Verr. 3.

CENSUS was also used to denote a tax or tribute imposed on persons, and called also capitation. See CAPITATION.

CENSUS *dominicus*, in *Writers of the Lower Age*, denotes a rent due to the lord.

CENSUS *duplicatus*, a double rent or tax, paid by vassals to their lord, on extraordinary or urgent occasions; as expeditions to the Holy Land, &c.

CENSUS *ecclesia Romanae*, was an annual contribution, voluntarily paid to the see of Rome by the several princes of Europe.

CENSUS *siccus*, that paid in money.

CENT, in *Commerce*, an abbreviation of the Latin *centum*, which properly signifies a hundred. It is applied when expressing the profit or loss upon any commodity.

CENT is also used in the trade of money, and signifies the benefit, profit, or interest of any sum of money which is laid out for improvement. Thus we say money is worth 4 or 5 per cent. upon exchange; that is, it brings four or five pounds profit for every 100l. laid or lent out.

CENT is also used with regard to the draughts or remittances of money, made from one place to another. Thus we say it will cost 2½ per cent. to remit money to such a city.

CENTA, in *Ancient Geography*, a town of Africa, in Mauritania Tingitana. Ptol.

CENTALLO, in *Geography*, a town of Italy, in the principality of Piedmont; 4 miles N. of Coni.

CENTAUREA, in *Botany*, (κενταυριος, or κενταυρια βοτάνη, herb centaury; κενταυριον, Theophr. Dioscor.; κενταυρις, Theophr. so called from Chiron the Centaur, who is said to have employed one of its species to cure himself of a wound accidentally received by letting one of the arrows of Hercules fall upon his foot.) Linn. gen. 984. Schreb. 1331. Willd. 1548. Class and order, *syngenesia polygamia frustranea*. Nat. Ord. *Compositae capitatae*, Linn. *Cinerocephalae*, Juss. Vent.

Gen. Ch. *Cal.* common, imbricated, roundish; scales variously terminated. *Cor.* compound, floscular; florets differing in form; those of the disc hermaphrodite, numerous; those of the ray fewer, loose, larger, funnel-shaped, constantly abortive; tube of the hermaphrodite florets filiform; border bellying, oblong, erect, terminated by five linear erect segments: tube of the abortive florets slender, gradually enlarging, recurved; border oblong, oblique, unequally divided. *Stam.* of the hermaphrodite florets: filaments five, capillary, very short; anthers united into a hollow cylinder, the length of the petal; of the abortive florets none. *Pist.* of the former: germ small; style filiform, the length of the filaments; stigma very obtuse, projecting in a point, in many species bifid; of the latter, germ very small; style scarcely any; stigmas none. *Seeds* of the fertile florets solitary; down in most species feathered or capillary; recept. bristly.

Eff. Ch. Receptacle bristly. Florets of the ray funnel-shaped, longer, abortive.

This extensive genus was formed by Linnæus as a kind of common receptacle for such plants as would have been placed under some other genus of compound capitate flowers, if they had not had a ray of abortive florets, which, by the principles of his system, obliged him to place them in his third artificial order, at a distance from their natural congeners. It contains *centaurium majus* of Tournefort; *jacea* and *cyanus* of Tournefort and Vaillant; *calcitrapa*, *calcitrapoides*, *rhaponticum*, *rhaponticoides*, *amberboi*, and *crocodilum* of Vaillant. Most of these have been revived by Jussieu as separate genera, with some alterations, and are retained by Ventenat.

I. *Jacea*. Scales of the calyx even, neither ciliated nor spinous. (Centaurea, Juss.)

Sp. 1. *C. crupina*, Linn. Sp. Pl. 1. Mart. 1. Lam. 8. Willd. 1. (*Jacea annua*, Tourn. Inst. 444. *Chondrilla foliis laciniatis*, Bauh. Pin. 130. Barrel. Ic. 1136. *Centaurium ciliare*, Morif. tab. 25. fig. 3.) "Calyx-scales linear-awl-shaped; leaves pinnated, ferrated." Linn. "Calyxes oblong; scales lanceolate, acute; leaves pinnated, finely ferrated." Lam. "Calyx-scales lanceolate; leaves pinnated, scabrous; pinnules linear, acute, finely ferrated." Willd. Black-seeded centaury, bearded creeper, Ray. Root annual. Stem three feet high, striated, almost simple. Flowers terminal; florets in the disc three; in the ray five, quadrifid. Usually one or two seeds ripened in a flower, crowned with a black down, so stiff as to make the seeds creep when held in the hand; whence the trivial name *crupina*, from the Dutch *cruppen*, to creep. A native of the south of Europe, the coast of Barbary, and the Levant. 2. *C. crupinoides*, Willd. 2. Desfont. Atl. ii. p. 293. "Leaves pinnated; pinnules lanceolate, smooth, obtuse, toothed; down chaffy." Root annual. A native of Barbary. 3. *C. arenaria*, Willd. 3. "Calyx-scales lanceolate; lower leaves pinnated; pinnules linear, quite entire; upper ones linear, simple." Root annual. Stem angularly furrowed, panicled. Leaves and calyxes clothed with a slight, woolly, pubescence. A native of Russia, on the banks of the Volga. 4. *C. glauca*, Willd. 4. "Calyxes pubescent; scales roundish, obtuse; leaves deeply pinnatifid; lowest segments toothed." A native of mount Caucasus. 5. *C. moschata*, Linn. 2. Mart. 2. Lam. 6. Willd. 5. (*Cyanus moschatus*, Gært. *C. orientalis*, Morif. tab. 25. fig. 5. *C. floridus major*, Park. 481. Tourn. 445. Rai Hist. 322.) Purple sweet sultan. "Calyxes roundish, smooth; scales egg-shaped; leaves lyrate-toothed." Linn. "Calyxes roundish, smooth; leaves long, pinnatifid, somewhat lyrate; flower purple, with a smell of musk." Lam. "Calyxes pubescent; scales roundish, rather obtuse; leaves slightly pinnatifid; lowest segments nearly entire." Willd. Root annual. Stem two feet high, channelled, smooth, branched. Flowers terminal, solitary, pale purple, red, or white. A native of Persia, brought into England from Constantinople, and cultivated in 1629. 6. *C. suaveolens*, Willd. 6. Yellow sweet sultan. (*C. moschata*, β. *amberboi*, Linn. Sp. Pl. *C. amberboi*, Lam. 5. *C. orientalis* flore luteo, Morif. tab. 25. fig. 9.) "Calyxes roundish, smooth; lower leaves broad, somewhat spatulate, toothed; upper ones lyrate at the base; flower yellow, sweet-scented." Lam. "Calyxes smooth; scales roundish-egg-shaped, rather obtuse, sphacelated at the tip; leaves lyrate-pinnatifid." Willd. Root annual. Stem a foot and a half high. Flowers bright yellow; barren florets larger than those of the preceding species; calyx-scales very smooth and even. A native of the Levant. 7. *C. verbasifolia*, Willd. 7. Vahl Symb. i. p. 75. (*C. maxima*, Forsk. Def. 152.) "Leaves elliptical, tomentous; stem shrubby." Root perennial. Whole plant white, with down. Branches cylindrical. Leaves about seven inches long, alternate, petioled, approximate, toothed, ending in a rigid point, veined, ribbed; petiole an inch long, dilated at the base. Flowers violet-coloured, terminal, peduncled, two or three together; bractes an inch long, lanceolate, petioled; calyx an inch long, egg-shaped, imbricated; scales egg-shaped, brown at the tip. A native of Arabia Felix. 8. *C. crucifolia*, Linn. Sp. Pl. 3. Mart. 3. Willd. 8. (*Jacea foliis crucæ*, Tourn. Inst. 444. *Amberboi*, Vaill. *Stæbe major foliis crucæ*, Bauh. Pin. 273.) "Calyx-scales lanceolate; leaves lanceolate, somewhat toothed, woolly." Root annual. Stem a foot

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foot high, furrowed, rough, with hairs. *Branches* numerous, erect. *Leaves* near the bottom pinnatifid; segments about six. *Flowers* bright purple, axillary, and terminal; peduncles long, rough with hairs, two or three-flowered; calyxes pubescent. Native country unknown. 9. *C. Lippii*, Linn. Sp. Pl. 4. Mart. 4. Lam. 7. Willd. 9. (Amberboi minus, Isn. Act. 17. 9, tab. 10.) "Calyx-scales mucronate; leaves somewhat decurrent, lyrate-toothed. *Root* annual. *Stem* a foot high, slender, much branched, with the habit of *C. cyanus*. *Leaves* angular, few. *Flowers* faint purple, terminal, smaller than those of *C. cyanus*. Sent to Jussieu from Grand Cairo by Dr. Lippi: cultivated by Miller in 1759. 10. *C. africana*, Lam. 4. Willd. 10. Desfont. Atl. ii. p. 264. (Centaurium majus laciniatum, Tourn. Inst. 449. Rhapontocoides, Vail. Act. 17. 8. p. 180.) "Calyx-scales egg-shaped, obtuse; leaves almost bipinnated; pinnæ pinnatifid, laciniated." Lam. *Root* perennial. *Stems* several, four feet high, upright, smooth, a little branched. *Root-leaves* pinnated; pinnæ large, toothed, cut smooth; stem-leaves almost bipinnated, quite smooth, green. *Flowers* bright yellow, large, terminal; calyx-scales very smooth, convex. A native of the north of Africa: cultivated at Paris. 11. *C. alpina*, Linn. 6. Mart. 5. Lam. 2. Willd. 11. (Centaurium alpinum luteum, Bauh. Pin. 117. Tourn. 449. Moris. Hist. tab. 25. fig. 5. Barrel. Ic. 514.) "Calyx scales egg-shaped, obtuse; leaves pinnated, smooth, quite entire; odd one ferrated." Linn. *Root* perennial. *Stem* two or three feet high, cylindrical, smooth. *Leaves* rather glaucous. *Flowers* yellow, large, terminal. A native of mount Baldo. 12. *C. centaurium*, Linn. Sp. Pl. 7. Mart. 6. Lam. 1. Willd. 12. (Centaurium majus, folio in lacinias plures diviso, Bauh. Pin. 117. Tourn. 449.) "Calyx-scales egg-shaped; leaves pinnated; leaflets decurrent, ferrated." Linn. "Calyx-scales egg-shaped, obtuse; leaves pinnated, smooth; leaflets sharply double-ferrated, decurrent; terminal one lanceolate." Willd. *Root* perennial, long, large, reddish within. *Stems* four or five feet high, upright, cylindrical, smooth, branched. *Leaves* large, green. *Flowers* yellow, large, terminal. A native of the Alps, supposed to be the tristia centaurea of Lucretius, the thessala centaurea of Lucan, and the graveolentia centaurea of Virgil, by all which authors it is expressed in the plural number of the neuter gender. 13. *C. ruthenica*, Lam. 3. Willd. 13. Gmel. Sib. ii. p. 89. tab. 41. "Calyx-scales egg-shaped, obtuse; leaves pinnated, smooth; leaflets cartilaginous, sharply ferrated; terminal one oblong-egg-shaped." Willd. *Root* perennial. *Stems* three or four feet high, smooth. *Leaves* numerous. *Flowers* pale yellow. 14. *C. nana*, Willd. 14. Desf. Atl. ii. p. 296. tab. 241. "Stemless; calyx-scales egg-shaped, rather acute; leaves lyrate-toothed, smooth." *Root* perennial. *Leaves* pinnated; leaflets egg-shaped. *Scapes* very short, one-flowered. *Flowers* yellow; barren florets short, trifid, or quadrid. A native of mount Atlas, near Tlemcen.

11. *Rhapontica*. Calyx-scales scarious or dry; neither ciliate, nor spinous. (Rhaponticum, Juss.)

15. *C. Behen*, Linn. Sp. Pl. 26. Mart. 28. Lam. 12. Willd. 60. (Behen album, Rauw. Itin. tab. 288. Garf. Exot. tab. 6. Serratulæ affinis, Bauh. Pin. 235. Jacea orientalis patula, Tourn. Cor. 32.) "Calyxes conical; scales quite entire; leaves coriaceous, reticularly veined; root ones lyrate; stem ones embracing the stem, decurrent." *Root* perennial. *Stem* a foot and a half high, smooth, leafy, with simple branches. *Root-leaves* long, petioled; stem-leaves small, smooth, obtuse. *Flowers* yellow, terminal, solitary; calyx a little coloured, but scarcely scarious. A native of Syria, about mount Lebanon. 16. *C. repens*, Linn. Sp. Pl. 28. Mart. 29. Lam. 13. Willd. 61.

(Jacea orientalis cyani folio, Tourn. Cor. 32.) "Leaves lanceolate, toothed, somewhat petioled; peduncles filiform, leaflets." *Root* perennial. *Stem* angular, smooth, branched. *Leaves* smooth, rough at their edges, narrowed into a petiole. *Peduncles* the length of the leaves; calyx-scales acute, entire. A native of the Levant. 17. *C. pieris*, Willd. 62. Pallas. "Calyxes cylindrical; scales roundish, quite entire; leaves lanceolate; lower ones somewhat toothed at the base; stem panicled; branches leafy, one-flowered." *Stem* a foot and a half high, furrowed, upright; branches fastigate. *Leaves* broad-lanceolate, rather acute, scabrous at the edges. *Flowers* purple. Found by Pallas about the Caspian sea. 18. *C. Jacea*, Linn. Sp. Pl. 29. Mart. 30. Lam. 17. Willd. 63. Flor. Dan. tab. 519. (Jacea nigra pratensis, latifolia, Bauh. pin. 271.) β. Jacea, nigra angustifolia. "Calyx-scales egg-shaped, lacerated at the tip; leaves lanceolate, quite entire; root-leaves sometimes toothed; branches angular." *Root* perennial. *Stems* from eight inches to three feet high. *Leaves* scattered, acute, often a little cottony, and whitish. *Flowers* purple, terminal, solitary; florets of the ray long, two-lipped; two inner divisions erect; three lower ones pendulous; florets of the disc unequally cut; down of the seed consisting of a few short, deciduous bristles. A native of the south of Europe. 19. *C. amara*, Linn. Sp. Pl. 27. Mart. 31. Willd. 64. (C. jacea γ, Lam. Cyanus repens; Lob. ic. 548.) "Stems decumbent; leaves lanceolate, quite entire." *Root* perennial. *Stems* two or three from the same root; simple, angular, hoary with down, one-flowered. *Root-leaves* petioled, lanceolate, toothed and pinnatifid, tomentous; stem-leaves sessile, linear, usually falcate. *Flower* only half as large as that of *C. jacea*. A native of Italy, and the south of France. 20. *C. alba*, Linn. Sp. Pl. 30. Mart. 32. Willd. 65. (C. jacea β, Lam. Jacea calyculis argenteis minor, Tourn. 444. Stæbe n. 6. Bauh. pin. 273.) "Calyx-scales entire, mucronated; leaves pinnate-toothed; stem ones linear, toothed at the base." Very nearly allied to *C. jacea*. *Root* perennial. *Stem* panicled. *Leaves* acuminate, those nearest the top quite entire. *Calyxes* terminal, egg-shaped, small; scales loose, snow-white. A native of Switzerland and Spain. 21. *C. splendens*, Linn. Sp. Pl. 31. Mart. 33. Lam. 14. Willd. 66. (Stæbe calyculis argenteis major, Tourn. 444. Stæbe, Bauh. pin. n. 5. Rhaponticum, Hall. helv. n. 5.) "Calyxes egg-shaped; scales mucronated; lower leaves bipinnatifid, linear; upper ones pinnated; pinnæ linear, sometimes toothed." *Root* biennial. *Stems* two or three feet high, angular, hard, smooth, many-flowered. *Leaves* smooth, or slightly tomentous. *Flowers* purple, with a beautiful silvery calyx. A native of Switzerland, Spain, and Siberia; cultivated by Gerard in 1597. 22. *C. nitens*, Willd. 67. (Jacea; Buxb. cent. 2. p. 22. tab. 15. fig. 1.) "Calyxes cylindrical; scales mucronated; leaves pinnated; pinnæ linear, mucronated, quite entire." Nearly allied to the preceding, but differs in having longer branches beset with minute leaves; leaves not bipinnatifid, longer pinnæ, and calyxes twice as large. *Root* annual. A native of mount Caucasus. 23. *C. tagana*, Willd. 68. Brot. Phytog. Lusit. tab. 3. (Centaurium, Bauh. pin. 117. n. 2.) "Calyx-scales roundish, quite entire; leaves oblong, smooth; root-ones ferrated; stem-ones sometimes slightly cut at the base." *Root* perennial. A native of Portugal. 24. *C. rhapontica*, Linn. Sp. Pl. 32. Mart. 34. Willd. 69. (Centaurium, Hall. helv. n. 160. Rhaponticum; Lob. ic. 288. Bauh. pin. 117. n. 5 and 6.) "Calyx-scales lacerated; leaves ovate-oblong, finely toothed, tomentous underneath." *Root* perennial, thick, round, black, wrinkled, and irregular, striking deep into the ground, aromatic when dry. *Stems* from a foot and a half to four feet high. *Root-leaves* nume-

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rous, somewhat heart-shaped, on long petioles; stem-leaves few, on short petioles, sometimes pinnatifid. *Flower* purple, solitary, large, without any barren florets; La Marck on that account has discarded it from this genus, and Gærtner has referred it to *Serratula*. 25. *C. babylonica*, Linn. Mant. 460. Mart. 35. Lam. 9. Willd. 70. (*Serratula Babylonica*, Linn. Sp. Pl. *Jacea Babylonica*, Bauh. prod. 129. pin. 272. *Centaurium Heleni folio*, Tourn. cor. 33. Morif. hist. tab. 28. fig. 10.) "Calyxes conical, hard; scales ending in a patulous point; leaves somewhat tomentous, decurrent; undivided; root-ones lyrate." *Root* perennial. *Stems* fix or seven feet high, simple, upright, winged, a little woolly. *Root-leaves* very large, a foot and a half long, upright, petioled; stem-leaves diminishing in size from the bottom to the top, giving the plant a pyramidal form, rough to the touch. *Flowers* yellow, nearly sessile; in a very long, upright, terminal raceme, growing in bunches three or four together along the raceme; calyx almost smooth, made rough by the little expanding points which terminate the scales. A native of the Levant. 26. *C. alata*, Lam. 10. Mart. 69. Willd. 58. Vahl. symb. 2. 93. "Calyxes egg-shaped, smooth; scales somewhat scarious at the tip; leaves greenish, decurrent, undivided; radical ones lyrate." *Root* perennial. *Stems* four feet high, smooth, a little angular, branched near the top, forming neither a spike, nor a raceme. *Root-leaves* considerably less than those of the preceding species, nerved, very little downy; stem-leaves narrow. *Flowers* bright yellow; calyx scales slightly scarious at the tip. Willdenow attributes to it ferrated; and Vahl, ciliated calyx-scales. Described by La Marck from a living plant, in the royal garden at Paris, where it had long been cultivated, supposed to be a native of Tartary. 27. *C. glastifolia*, Linn. Sp. Pl. 33. Mart. 36. Lam. 11. Willd. 71. Curt. Bot. mag. 62. (*Centaurium majus orientale*, glastifolio, flore luteo, Comm. rar. tab. 39. Tourn. cor. 32.) "Leaves undivided, quite entire, decurrent." *Root* perennial, striking deep into the ground. *Stems* four feet high, greenish, a little winged with the decurrent leaves, branched at their top. *Root-leaves* shaped like those of Woad, upright, on long petioles, with prominent veins on both sides; stem leaves oblong, narrow. *Flowers* bright yellow, terminal; barren florets less than the others; calyx-scales loose, silvery, transparent. A native of the Levant. 28. *C. conifera*, Linn. Sp. 34. Mart. 37. Lam. 15. Willd. 72. (*Centaurium majus incanum humile*, capite pini, Tourn. 449. *Jacea incana capite pini*, Bauh. pin. 272. Morif. hist. tab. 26. fig. 19. *Chamaeleon non aculeatus*; Lob. ic. 2. p. 7. Stæbe, Barr. ic. 38.) "Leaves tomentous; root ones lanceolate; stem ones pinnatifid; stem simple." *Stem* fix or eight inches high, upright, striated, cottony. *Leaves* greenish above, very white and cottony underneath. *Flower* very large, purple, terminal, bracteated; calyx shaped like a pine-cone, very taper at the top, where it closely surrounds the florets which rise only a little above it; scales shining, transparent, the upper ones reddish. A native of the south of Europe. 29. *C. membranacea*, Lam. 16. *Cnicus uniflorus*, Linn.? "Calyxes membranous; leaves pinnatifid, toothed." Nearly allied to the preceding. *Stem* a little taller. *Leaves* deeply pinnatifid. *Flower* large, purple; calyx shorter than in *C. conifera*; scales whitish with a pale brown tint, rounded at their summit, lacerated at their edges. A native of Siberia.

III. *Rhaponticoidea*. *Calyx-scales* dry and scarious, ciliate-ferrated. (*Rhaponticum*; Jusf.)

30. *C. pulcherrima*, Willd. 50. "Calyx scales egg-shaped, acuminate, ciliate-ferrated; leaves hoary underneath; root ones pinnatifid; stem ones lanceolate." *Root* perennial. *Stem* a foot high, quite simple, one-flowered, cylindrical,

upright, tomentous. *Root-leaves* two inches long, petioled; segments lanceolate, entire, terminal one very large; stem leaves an inch and half long, entire. *Flower* purple; the ray twice the length of the disc; lower calyx-scales snow-white; upper ones brownish. A native of the East. 31. *C. Balfamita*, Lam. 26. Willd. 51? (*Carduus orientalis costifolius* folio; Tourn. Cor. 32. Itin. 2. p. 439.) "Calyxes ciliate-fringed with straight, rigid, white bristles; leaves oblong, a little toothed; flower yellow, without a ray." Lam. "Scales egg-shaped, ciliate-ferrated, awned; leaves oblong, undivided, nearly entire, scabrous, mucronated." Willd. *Stem* two feet high, striated or angular, slightly villous, leafy; branches upright, one-flowered. *Root-leaves* oblong, acute, petioled; stem leaves scattered, sessile, lanceolate, a little toothed, whitish green. *Flowers* yellow, terminal; barren florets smaller than the fertile ones; calyx globular; scales beautifully fringed with rather long, straight, whitish bristles. La Marck, from a living plant, in the royal garden at Paris, raised from seeds gathered by M. André in Syria or Armenia. *Stem* erect, cylindrical, smooth, a little scabrous. *Leaves* scabrous, green; higher ones a little hoary; root ones oblong, acute, petioled; stem ones oblong-lanceolate; lower ones somewhat toothed, rather acute; upper ones quite entire, ending in a long bristle-shaped point. *Flowers* yellow, without a ray; calyx-scales yellowish, terminated by a long bristle, ciliate-ferrated at the edges. Willd. from a dried specimen. He quotes La Marck; but it appears dubious whether they have not described different plants. 32. *C. macrocephala*, Willd. 52. "Calyx-scales roundish-egg-shaped, ciliated; leaves oblong-lanceolate, undivided, very scabrous, acute, ferrated." *Branches* the thickness of a swan's quill. *Leaves* three inches long, an inch and a half broad at the base, embracing the stem. *Flowers* yellow, without a ray. A native of Iberia. 33. *C. calendulacea*, Lam. 31. "Calyxes ciliate-hairy; inner scales ligulate, scarious, ferrated at the tip; stem-leaves pinnated; those on the branches simple." *Stem* a foot and a half high, angular, striated, much branched, panicked. *Flowers* yellow, terminal; fertile florets few, small; barren ones large, ligulate, flat, four or five toothed; inner calyx-scales long, narrow, toothed at the summit; the other shorter, ciliated with long reddish hairs. A native of Armenia; discovered by M. André; described by La Marck from a living plant. 34. *C. atropurpurea*, Willd. 53. Walldt. and Kitaib. pl. rar. Hung. 2. p. 121. tab. 116. "Calyx-scales ovate-lanceolate, ferrate-ciliated; leaves bipinnatifid; segments lanceolate." *Flowers* dark purple; calyx-scales black, fringed with white. A native of Hungary among calcareous rocks. 35. *C. orientalis*, Linn. Sp. Pl. 23. Mart. 27. Lam. 44. Willd. 54. (*Cyanus*; Hall. Act. Angl. 1745. vol. 43. p. 94. tab. 4.) "Calyx-scales pectinate-ciliated; leaves deeply pinnatifid; segments linear-lanceolate." Lam. Nearly allied to *C. scabiosa*, but distinguished from it by the colour of the flower, and the structure of the calyx. *Root* perennial. *Stem* a foot and a half or two feet high, striated, branched, downy near the summit. *Leaves* petioled, large, green. *Flowers* bright yellow, large, terminal; calyx scales yellowish white, roundish, downy at the base, ciliated with long pectinated hairs. A native of Siberia and Tartary. 36. *C. sibirica*, Mart. 72. Scop. insubr. 38. tab. 17. "Calyxes ferrate ciliated; leaves dotted underneath, pinnated; pinnæ lanceolate, falcated, erect." Nearly allied to the preceding. *Root* perennial. *Root-leaves* entire. *Flowers* pale yellow, scentless; calyx-scales twice as large as in *C. orientalis*, not at all downy at the base; lacinated all round; down of the seeds very apparent. 37. *C. sibirica*, Linn. Sp. Pl. 20. Mart. 21. Lam. 41. Willd. 55. Pallas it. vol. i. p. 43. Gmel. Sib. vol. ii. tab. 42. fig. 2. (*Cyanus sibiricus*;

sibiricus; Gært. vol. ii. p. 383.) "Calyx-scales egg-shaped, obtuse, ciliated; leaves downy on both sides, pinnatifid and undivided: stem declining." *Root* perennial. *Stem* from six to nine inches high, quite simple, rarely furnished with a single branch, somewhat furrowed, pubescent. *Leaves* lanceolate; root ones generally pinnatifid; lobes turned upwards, entire, terminal one very large; stem-leaves mostly five or six, the uppermost generally undivided. *Flower* purple or flesh-coloured, often single, with a large ray of barren florets; calyx swelling. A native of Siberia. 38. *C. seffilis*, Willd. 56. "Calyx-scales ciliate-ferrated; flowers sessile; leaves all pinnatifid, hoary; stem none." *Root* perennial. *Leaves* an inch and a half long, petioled; segments lanceolate, rather obtuse, quite entire in the upper part, auricled towards the base with an obsolete tooth; terminal one larger, egg-shaped, somewhat toothed. *Flowers* purple, five or six, sessile on the crown of the root, not at all peduncled; calyxes oblong. A native of Armenia. 39. *C. elongata*, Willd. 57. Schousboe Moroc. p. 199. "Calyx-scales scarious at the tip, ferrated; leaves scabrous at the edge; root-ones oblong toothed; stem-ones lanceolate, somewhat decurrent, quite entire." *Root* perennial. *Flowers* pale violet; disc twice the length of the ray; calyx egg-shaped; lower scales toothed at the tip, mucronated; upper ones encreased with a scarious toothed scalelet. A native of Barbary. 40. *C. trinervia*, Willd. 59. "Calyx-scales ciliated; leaves linear, downy, three-nerved, quite entire; stem erect." *Stem* downy; branches few, fastigiate, one-flowered. *Leaves* an inch or an inch and a half long. *Flowers* purple. A native of Siberia. 41. *C. nigrescens*, Willd. 28. "Innermost calyx-scales scarious; root-leaves obsolete pinnatifid; lower stem ones somewhat toothed at the base, upper ones undivided, quite entire." *Root* perennial. It differs from *C. nigra*, in having a radiate flower, and calyx-scales ciliated, not feathery; from *C. jacea* in having a ciliated calyx, root-leaves often obscurely pinnatifid, and the lower stem ones often deeply toothed at the base. A native of Hungary and Austria.

IV. *Cyani*. *Calyx-scales ciliate-ferrated, not scarious*. (*Cyanus* and *Jacea*; Juss.)

42. *C. Triumfetti*, Mart. 67. Willd. 29. Allion. ped. n. 579. (*Cyanus*; *Triumf.* Obf. 26. Misc. taur. 5. p. 68.) "Calyxes ferrated; leaves sessile, downy, lanceolate, sinuate-pinnatifid" Willd. "Calyxes ferrated, with white cilia; leaves decurrent, deeply pinnatifid; pinnæ generally two." Allion. *Root* perennial. *Stem* simple or branched; branches one-flowered. *Leaves* two inches long. *Flowers* purple. A native of mount Cenis. 43. *C. cheiranthifolia*, Willd. 30. Phytog. 12. n. 42. tab. 7. fig. 2. (*Cyanus orientalis*, angustifolius, incanus; flore magno, citrino; Tourn. Cor. 32.) "Calyxes ferrated; leaves downy; root-ones pinnatifid; stem-ones sessile, linear, somewhat toothed; stem one-flowered." *Root* perennial. *Flowers* yellow, with a large ray; calyx-scales sphacelated at the edges. A native of Armenia. 44. *C. ochroleuca*, Willd. 31. (*Cyanus orientalis*, flore maximo, citrino, Tourn. Cor. 32.) "Calyxes ferrated; leaves oblong, ferrated, decurrent, and undivided." *Root* perennial. *Flowers* pale yellow, twice as large as those of *C. montana*. A native of mount Caucasus. 45. *C. atrata*, Willd. 32. (*Cyanus orientalis* folio virecente dentato; flore magno; Tourn. Cor. 32.) "Calyxes ferrated, sphacelated; leaves lanceolate, sessile, smooth, toothed." *Root* perennial. *Stem* seven or eight inches high. *Leaves* an inch and a half long, green; younger ones woolly at the edge. *Flowers* blue; calyx-scales black, with white teeth. A native of Armenia. 46. *C. variegata*, Lam. 29. (*C. axillaris*, Willd. 33. *C. scutana*, Villars delph. 3. p. 52. Suter helv. 2. p. 205.) "Calyxes ciliated, variegated; leaves sessile, linear,

downy; stem one-flowered." Lam. "Calyxes ferrated, leaves hoary, lanceolate, decurrent; lower ones sinuate-toothed at the base; peduncles axillary and terminal," Willd. *Root* perennial. *Stem* from five to seven inches high, quite simple, cottony. *Leaves* about three inches long, two lines broad, entire, a little undulated, cottony and whitish on both sides; lower ones a little sinuated; upper ones shorter, more distant from each other. *Flower* fine blue, large, terminal; calyx scales smooth, green at their base, blackish at their edges, furnished with large, palmated, brilliant, silvery cilia. Lam. A native of mountains in the south of Europe. 47. *C. montana*, Lian. Sp. Pl. 13. Mart. 14. Lam. 28. Willd. 34. Bot. Mag. t. 77. (*Cyanus*, Bauh. pin. p. 273. n. 1. Bocc. mus. 2. p. 20. tab. 2. Hall. helv. n. 190.) "Calyxes ferrated; leaves smoothish, lanceolate, quite entire, decurrent; stem simple." *Root* perennial. *Stems* upwright, simple, when cultivated often a little branched, entire, decurrent, soft. *Flower* blue, purple, or white, resembling that of the next species, but larger, terminal; calyx-scales light green, black at the edges, with short, black cilia; those at the tip longer, brownish, a little recurved. A native of mountains in Germany, Switzerland, and the south of France. 48. *C. Cyanus*, Linn. Sp. Pl. 14. Mart. 15. Lam. 30. Willd. 35. Eng. bot. 277. Curt. Flor. Lond. Tab. 62. Mart. Flor. rust. tab. 3. (*Cyanus fegetum*, Bauh. pin. 273. n. 2. Tourn. p. 446. *Cyanus vulgaris*, Lob. ic. 546. Blackw. tab. 270. Hall. helv. n. 191.) Corn blue-bottle. "Calyxes ferrated; leaves linear, quite entire; lower ones toothed; stem branched, many-flowered," Lam. *Root* annual, fibrous, black. *Stem* erect, much branched, somewhat woolly. *Leaves* linear-lanceolate, acuminate, somewhat woolly; root-leaves entire; lower stem-leaves often pinnatifid or toothed; upper ones always entire. *Flowers* terminal, solitary, peduncled; florets of the disc purplish, regular; anthers black; florets of the ray funnel-shaped, always blue when wild, but when cultivated it varies with almost all colours except yellow; calyx egg-shaped; scales lanceolate. *Seeds* even; down many-leaved, unequal, scabrous, reddish. A well known weed growing in corn fields in the south of England and many other parts of Europe, and for its beauty often cultivated in gardens. A blue water-colour is easily prepared from the expressed juice of the neutral florets, mixed with a little cold alum water; but it is not durable if exposed to the action of light. A water is also distilled from them in France, which is said to remove inflammations of the eyes. 49. *C. virgata*, Lam. 37. Willd. 36. "Calyxes ciliated, small, somewhat cylindrical; scales narrow-lanceolate, coloured at the tip; branches slender, long, rod like," Lam. *Branches* somewhat scabrous, striated. *Leaves* small, cinereous-green; lower ones half an inch long; segments narrow, linear, revolute at the edges, sometimes with one or two teeth; upper ones linear, entire. *Flowers* purple, small florets of the ray shorter than those of the disc. A native of Armenia. 50. *C. ovina*, Willd. 37. Pallas. "Calyxes ciliated; scales ovate-lanceolate, spreading at the tip; lower leaves bipinnatifid, lanceolate-linear; upper ones pinnatifid; stem branched, divaricated." An intermediate species between the preceding and following. Whole plant green, woolly-pubescent. *Florets* of the ray longer than those of the disc. A native of Mount Caucasus. 51. *C. paniculata*, Linn. Sp. Pl. 15. Mart. 16. Lam. 36. Willd. 38. Jacq. Aust. tab. 320. (*C. micranthus*, Gmel. it. 1. tab. 23. fig. 1. Stæbe, Bauh. pin. p. 273. n. 3. *Jacea foliis candidantibus*, Tourn. Inf. p. 444. Morif. hist. tab. 28. fig. 15.) "Calyxes ciliated, egg-shaped; scales flat, close-pressed; lower leaves bipinnatifid; upper ones pinnatifid; stem panicled." *Root* annual. *Stem* a foot and a half high, angular,

angular, hard, slender. *Flowers* small, purple; pistils white. A native of the south of France, Aultria, Italy, Spain, and Siberia. 52. *C. maculosa*, Lam. 35. Gmel. Sib. 2. p. 99. n. 79 and 80. Tab. 44. fig. 1, 2. "Calyxes ciliated, ovate-roundish, beautifully spotted; leaves slender, bipinnatifid; stem a little paniced." *Stem* from eight to ten inches high, striated, whitish. *Leaves* whitish, more finely cut than those of the preceding species; lower ones oblong, bipinnatifid; upper ones smaller, simply pinnatifid; segments linear. *Flowers* purple; calyxes large, short; scales marked with brown spots at their tip. A native of the south of France. 53. *C. spinosa*, Linn. Sp. Pl. 16. Mart. 17. Lam. 38. Willd. 39. (*Jacea cretica aculeata incana*, Tourn. 445. Stæbe spinosa, Morif. 3. p. 136. *Cyanus spinosus*, Alp. exot. tab. 162.) "Calyxes ciliated; root-leaves undivided and pinnatifid, smooth; stem-leaves downy, pinnatifid; branches spinous." *Root* perennial. *Stem* from six to eight inches high, cottony, whitish, much branched, paniced; branches diverging, stiff, terminating in stiff thorns. *Flowers* flesh-coloured, small, oblong; scales of the calyx acute, slightly ciliated. A native of Candia. 54. *C. ragulina*, Linn. Sp. Pl. 17. Mart. 18. Lam. 32. Willd. 40. Bot. mag. 494. (*Cyanus ragulinus*, Gært. *Jacea Epidaurica*, Tourn. 445. *I. ragulina*, Zan. list. tab. 43. Stæbe, Barr. ic. 309.) "Calyxes ciliated; leaves downy, pinnatifid; segments obtuse, egg-shaped, quite entire; outer ones largest." *Root* perennial. *Stem* perennial, near 3 feet high, commonly simple, cottony. *Leaves* remaining all the year alternate, cottony, very white, soft; terminal lobe large, roundish. *Flower* yellow, large, terminal; barren florets not larger than the others. *Calyx* cottony; scales acute, a little ciliated; inner ones terminated by a scarious, lacerated, ciliated appendage. A native of Ragusa and the isle of Candia. 55. *C. cineraria*, Linn. Sp. Pl. 18. Mart. 19. Willd. 41. (*C. candidissima*, Lam. 33. *Jacea montana candidissima*, Bauh. pin. 272. Tourn. 444. Morif. hist. 3. tab. 26. fig. 20.) "Calyxes ciliated; leaves downy, very white, all compound; the lowest bipinnatifid; the highest pinnate-laciniate." Lam. *Root* perennial. *Stem* about a foot high, cottony, with two or three short branches near the summit. *Leaves* petioled, soft; segments acute. *Flowers* purple, large, terminal, solitary; calyx roundish; apparently sessile, the stem being leafy to its base. According to La Marck it is the *C. Triumphetti* of the royal garden of Paris. Is it specifically different from our n. 42? A native of Italy. 56. *C. cinerea*, Lam. 34. Willd. 42. (*C. cineraria*, β . Linn. *Jacea cineraria laciniata*, flore purpureo, Trium. Obs. 72. Tourn. 444. Morif. list. 3. p. 141. n. 21. Jacq. hort. 72. Stæbe, Barr. ic. 347?) "Calyxes ciliated, leaves somewhat downy, cinereous; lower ones pinnate-laciniate; upper ones simple." Lam. *Root* perennial. The whole plant less white than the preceding species. *Stem* near a foot and a half high, angular, a little paniced in its upper part. *Root-leaves* on long petioles, smoothish above, cinereous underneath; segments oblong-lanceolate, obtuse. *Flowers* purple, only half the size of those of the preceding species. A native of Italy. 57. *C. dealbata*, Willd. 43. "Calyxes ciliated; leaves downy underneath; root-leaves bipinnatifid; segments lanceolate, acute; stem-leaves pinnatifid." Willd. *Root* perennial. *Root-leaves* a foot long and a more, on long petioles, smooth and deep, green above, snow-white with down underneath; stem-leaves an inch and a half or two inches long. *Flower* purple, large. A native of Iberia. 58. *C. argentea*, Linn. Sp. Pl. 19. Mart. 20. Lam. 39. Willd. 44. (*Jacea cretica laciniata*, Tourn. Cor. 32. Barr. ic. 218. Argentina, Alp. exot. 116.) "Calyxes ferrated; leaves downy; root-ones pinnated; leaves one-eared." *Root* perennial. Whole plant cottony, very white.

Stem scarcely a foot high. *Root-leaves* with nearly equal egg-shaped leaflets, having only one lobe on the lower side of the base; stem-leaves simple, wedge-shaped, with an obtuse tooth on one side at the base. *Flowers* yellow, only half the size of those of *C. ragulina*. A native of Candia. 59. *C. abrotanifolia*, Lam. 40. (*Jacea tenuifolia hispanica*, Barr. ic. 140?) "Calyxes ciliated, pale-leaves bipinnatifid, linear-bristle-shaped; stem corymbose." *Stem* a foot and a half high, upright, striated, angular, leafy its whole length; branches simple, forming a corymb. *Leaves* numerous, finely cut, like those of southern-wood (*artemisia abrotanum*); upper ones simply pinnated. *Flowers* terminal, solitary, resembling those of *C. paniculata*, but smaller. Communicated to La Marck by Jussieu, supposed to be a native of Spain. 60. *C. sempervirens*, Linn. Sp. Pl. 21. Mart. 22. Lam. 46. Willd. 45. (*Jacea lusitanica sempervirens*, Tourn. 444. Morif. Hist. tab. 28. fig. 9. Bocc. Sicc. tab. 39. fig. 3.) "Calyxes ciliated; leaves lanceolate, ferrated; lowest tooth elongated, so as to appear like a stipule." *Root* perennial. A kind of evergreen shrub, a foot and a half or two feet high. *Stem* cylindrical, greyish; branches pubescent, thick set with leaves. *Leaves* greenish, a little pubescent, soft, toothed, and narrowed at their base. *Flowers* purple, terminal, solitary; peduncles thickened towards the base of the calyxes; calyx-scales smooth, ciliated at the tip. A native of Portugal. 61. *C. intybacea*, Lam. 47. Mart. 70. Hort. Kew. 3. 259. (*Jacea rubra foliis intybaceis*, Barr. Ic. 1229?) (β *Centaurea leucantha*, Pourret. compare Stæbe tenuifolia, Barr. Ic. 359.) "Calyxes ciliated, nearly globular; leaves deeply pinnatifid; segments linear." β . "Leaves narrower, downy underneath, somewhat hoary." *Root* perennial. *Stem* near two feet high, upright, hard, striated, branched. *Leaves* large, almost without hairs, rough to the touch. *Flowers* purple, flesh-coloured, or white, terminal. A native of the south of Europe, on the borders of fields, and in dry pastures. 62. *C. scabiosa*, Linn. Sp. Pl. 22. Mart. 23. Lam. 45. Willd. 47. Eng. Bot. 56. (*Scabiosa*, Bauh. Pin. p. 269. n. 2. *Jacea vulgaris laciniata flore purpureo*, Tourn. 443. *J. nigra laciniata*, Morif. Hist. tab. 28. fig. 10. *Cyanus*, Hall. Helv. n. 186.) Greater knapweed. "Calyx-scales ciliated, pubescent, egg-shaped; leaves pinnatifid; segments lanceolate, sometimes toothed, a little hairy." *Root* perennial. *Stem* two or three feet high, erect, branched, furrowed. *Flowers* purple, large, terminal, solitary, peduncled; florets of the ray elongated; segments linear, narrow; down unequal, rather scabrous. Smith. A native of England, and other parts of Europe, chiefly on a calcareous soil. 63. *C. Karstschiana*, Mart. 68. Scop. Car. n. 1027. tab. 55. "Calyxes ciliated with spines; leaves pinnated; pinnæ sessile, lanceolate, decurrent, ending in a point. *Stem* angular, smooth, branched. *Leaves* all pinnated; pinnæ two or three pairs; terminal one larger than the rest. *Flowers* reddish; calyx-scales yellowish-green, striated, egg-shaped, smooth, ciliated with spines above the middle. A native of the south of Europe. 64. *C. coriacea*, Willd. 46. Waldf. and Kitaib. pl. rar. Hung. "Calyxes ciliated, smooth; leaves pinnatifid, scabrous; segments oblong, lanceolate, acute; highest of the root ones sometimes cut at the base." *Root* perennial. Very nearly allied to *C. scabiosa*, but the leaves are much broader and coriaceous, the flowers larger, and the calyxes smooth. A native of Hungary. 65. *C. tatarica*, Mart. 24. Willd. 48. Linn. Jun. Sup. 383. "Calyxes ciliated; leaves scabrous underneath, pinnatifid; segments lanceolate, sometimes toothed. Nearly allied to *C. scabiosa*. *Root* perennial. *Root-leaves* oblong, entire, or toothed, petioled; lower stem ones pinnated; leaflets petioled, lanceolate, toothed towards the base; upper ones pinnatifid; segments lanceolate, quite entire, terminal, one-toothed; uppermost lanceolate, quite entire.

ture. *Flowers* yellow; calyx-scales smooth, yellowish. A native of Tartary. 66. *C. flabe*, Linn. 24. Mart. 25. Lam. 42. Willd. 49. (Stæbe, Bauh. Pin. 273. n. 7. *C. austriaca humilis*, Clus. Hif. 2. p. 10.) "Calyxes ciliated, oblong; leaves pinnatifid, linear, quite entire." *Root* perennial. *Stem* near three feet high, branched; branches slender. *Leaves* some pinnatifid, others entire and linear. *Flowers* solitary, terminal. A native of Austria. 67. *C. acaulis*, Linn. 25. Mart. 26. Lam. 43. Willd. 110. (Jacea, Shaw Af. 342.) "Calyxes ciliated; leaves lyrate; stem scarcely any." *Flower* yellow, oblong, solitary; calyx-scales with white ciliae. A native of Arabia. The root is sweet and esculent, and called toffs by the Arabs.

V. Cyanoidea. Calyx-scales bristly-ciliated; bristles recurved or erect. (Cyanus & Jacea, Juss.)

68. *C. phrygia*, Linn. Sp. Pl. 8. Mart. 7. Lam. 19. Willd. 15. (Jacea, n. 7, 8, 9. Bauh. Pin. Cyanus, Hall. Helv. n. 188.) "Calyxes recurved-feathery; leaves oblong, undivided, scabrous, mucronate-ferrulated." *Root* perennial. *Stem* a foot and a half high, somewhat shrubby, angular, striated, pubescent, branched towards the summit. *Leaves* greenish, rough to the touch; root-ones long, lanceolate, toothed, narrowed into a petiole towards the base; stem-ones embracing the stem, lanceolate, toothed, with a longer tooth, appearing like an ear, at the base. *Flowers* purple, terminal, solitary; calyx-scales oblong, smooth, yellowish; ending in a brown, lanceolate lamina, twice or thrice as long as the scales themselves, with two rows of rufous ciliae, having the appearance of a reflected feather. A native of Germany, Switzerland, and the south of France. 69. *C. salicifolia*, Willd. 16. "Calyxes recurved-feathery, top-shaped; leaves oblong, undivided, scabrous, mucronate-ferrulated; stem simple." *Root* perennial. *Stem* a foot or a foot and a half high, furrowed, angular, woolly-pubescent above. *Leaves* with white veins; root and lower stem ones long, egg-shaped, petioled; upper ones oblong, sessile. *Flowers* few, generally two, terminal; lower scales of the calyx ciliated; upper ones recurved-feathery. It differs from *C. phrygia* chiefly in the structure of the calyx. 70. *C. austriaca*, Willd. 17. (*C. phrygia*, Jacq. Rind. 167.) "Calyxes recurved-feathery; leaves egg-shaped, undivided, scabrous, grossly toothed." *Root* perennial. Easily distinguished from *C. phrygia* by its grossly toothed egg-shaped leaves; and by its roundish, scarious, inner calyx scales. 71. *C. pectinata*, Linn. Sp. pl. 9. Mart. 11. Lam. 24. Willd. 18. (Jacea montana incana aspera, capitulis hispidis.) "Calyxes recurved-feathery; leaves mucronate-ferrated; lower stem ones sinuate pinnatifid; upper ones, and those of the branches undivided." *Root* perennial. *Stem* scarcely a foot high, angular, branched, a little woolly. *Leaves* oblong, embracing the stem, auricled at the base, lyre-shaped, slightly cottony, whitish. *Flowers* purple, terminal, solitary. A native of the south of France and Hungary. 72. *C. capillata*, Linn. 10. Mart. 8. Lam. 22. Will. 19. (Cyanus, Act. Gott. 1. 202. tab. 6.) "Calyxes recurved-feathery; lowest leaves pinnatifid, toothed; upper ones lanceolate." *Stem* four or five feet high, hard, angular, branched. A native of Siberia. 73. *C. pullata*, Linn. Sp. Pl. 12. Mart. 13. Lam. 27. Willd. 85. (Cyanus humilis hieracii folio, Tourn. 446. Cyanus pullatus, Gært. Jacea humilis alba, Bauh. Pin. 271. Morif. hif. tab. 28. fig. 18. Lob. Ic. 542.) "Calyxes ciliated, surrounded by a whorl of long leaves; leaves lyrate, toothed, obtuse." *Root* annual. *Leaves* from the root, oblong, lyre-shaped, green, slightly villous, spreading on the ground; segments short, obtuse; terminal one almost round. *Flowers* pale purple, three or four in the centre of the leaves, at first almost sessile, but having their peduncles gradually lengthened into simple stems, a

little villous, declining, and longer than the root-leaves; calyx-scales green, bordered with black; terminated, by long yellowish, recurved-feathery ciliae. When cultivated, the stem becomes two feet high, branched, and leafy. A native of the south of France, Spain, and the Levant. Willdenow has inserted this species in the next division. 74. *C. involu-crata*, Willd. 20. Desfon. Atl. 2. 295. "Calyxes recurved-feathery, leafy at the base; leaves slightly toothed; root-leaves pinnatifid; stem ones lanceolate, petioled." *Stems* a foot high, several, simple, or branched, striated, pubescent, some erect, others decumbent at the base. *Leaves* pubescent; stem ones obtuse. *Flowers* yellow, solitary, terminal, sometimes axillary and sessile; barren florets larger, three or four cleft; calyx oblong, with an involucre of lanceolate leaves; scales pale yellow, linear-lanceolate, acute, sometimes brown at the edge. *Seed* oblong, even; down bristly. *Receptacle* bristly. A native of mount Atlas. 75. *C. uniflora*, Linn. Mant. 118. Mart. 9. La Marck 20. Willd. 21. (Cyanus alpinus; Tourn. 445. Hall. helv. n. 189. Bocc. Mus. 2. tab. 2.) "Calyx recurved-feathery; leaves lanceolate, sometimes toothed; downy." *Root* perennial. *Stem* near a foot high, simple, cottony, one-flowered. *Leaves* narrow lanceolate, cottony, whitish, soft to the touch, some entire, others thinly toothed. *Flower* purple, large, terminal, sessile, surrounded by bractes at its base. A native of the South of Europe. 76. *C. flouculosa*, Willd. 22. "Calyxes recurved-feathery; flowers without a neutral ray; leaves hairy, lanceolate, remotely toothed." *Root* perennial. *Stem* simple, one-flowered, hairy. *Leaves* an inch and a half long, not downy, but clothed on each side with numerous, short, erect hairs. *Flowers* purple. The habit of the preceding species, but differs in the leaves and flowers. A native of Italy. 77. *C. trichocephala*, Willd. 23. Gmel. Sib. tab. 45. fig. 1, 2. "Calyxes recurved-feathery, pubescent; leaves linear-lanceolate, quite entire, scabrous." *Root* perennial. *Stem* scabrous. Nearly allied to the next species, but larger. A native of Russia about the Volga. 78. *C. linifolia*, Linn. Mant. 117. Mart. 10. Lam. 21. Willd. 24. (*C. linarifolia*; Lam. 23. Jacea hispanica pumila, linariae folio; Tourn. 445. Bar. ic. 162.) "Calyxes recurved-feathery, smooth, leaves linear; quite entire, hairy." *Root* perennial. *Stems* several, from six to eight inches high, more or less upright, much branched, panicked, hairy. *Leaves* acute, small, numerous, sessile, whitish, rough to the touch. *Flowers* purple, terminal, sessile, solitary. A native of Spain and Italy. The linifolia and linarifolia of La Marck appear to be the same plant. He described the former from a living, the latter from a dried specimen, and was doubtful to which the synonym from Tournefort should be referred. 79. *C. hyssopifolia*, Willd. 25. Vahl. Symb. 1. p. 75. (Stæbe, Barr. ic. 306.) "Calyxes recurved-feathery, pubescent; flowers without a neutral ray; leaves linear, quite entire; stem somewhat shrubby." *Root* perennial. *Stem* about half a foot high, cylindrical, somewhat scabrous, branched from the bottom. *Leaves* sessile, crowded, half an inch long, stiff, pale green, spreading at the tip, ending in a white point. *Flower* purple, egg-shaped, nearly sessile, terminal. A native of Spain. 80. *C. coronopifolia*, Lam. 25. Willd. 26. (Jacea orientalis anana coronop. folio flore luteo, Tourn. Cor. 32.) "Calyxes erect-feathery; flowers without a neutral ray; lower leaves pinnatifid; upper ones linear; all quite entire; stem panicked." *Root* annual. *Stem* about a foot high, upright, slender, nearly smooth. *Leaves* clothed on both sides with short hairs. *Flowers* yellow, terminal, solitary; calyx-scales lanceolate, bristly-ciliated, ending in a long, stiffish, expanding awn. A native of Spain. 81. *C. nigra*, Linn. Sp. Pl. 11.

Mart. 12. Lam. 18. Willd. 27. Eng. bot. tab. 178. Mart. Flor. Ruft. tab. 130. Flor. dan. 996. (*Cyanus niger*, Gært. tab. 161. fig. 4. *Jacea nigra laciniata*, Bauh. pin. 271. Tourn. 443. Lob. ic. 541.) Common knap-weed, knob-weed, horse-knops, or hard-heads. "Calyxes erect-feathery; leaves oblong; root ones sometimes pinnatifid, stem ones entire or slightly toothed." *Root* biennial. Linn. Lam. Willd. but in England it is certainly perennial, woody, and somewhat creeping; whole plant rigid, hard, scabrous. *Stem* branched, angular. *Lower-leaves* often lyrate-angular or toothed, upper ones egg-shaped, often entire. *Flowers* purple, terminal, solitary, sessile; calyx globular; scales black, egg-shaped; cilia erect, bristle-shaped, brown; inner scales unguiculated; florets most generally equal, regular, all fertile. *Seeds* hairy; down short, consisting of numerous scales. Dr. Smith. In the north of England it is almost always without a ray of barren florets; but in the western counties it is said by Ray and other botanists, to be frequently found with it. According to La Marck it has always, in France, an evident ray of barren florets larger than the others. Are there not two distinct species, one biennial with a ray, the other perennial without one?

VI. *Staba*. *Calyx-scales with palmated spines at the tip*. (Seridia; Juss.)

82. *C. sonchifolia*, Linn. 35. Mart. 38. Lam. 49. Willd. 73. (*Carduus maritimus*, Tourn. 441. *Jacea laciniata sonchifolia*, Bauh. pin. 272. Pluk. tab. 39. fig. 1. β . Pluk. tab. 94. fig. 1.) "Calyxes palmate-spinous; spines reflexed; leaves oblong, smoothish, embracing the stem, half-decurrent, repand-toothed; teeth prickly." *Root* perennial. *Stem* a foot high, simple or sometimes a little branched, green, slightly downy near the top. *Lower-leaves* petioled, undivided, lanceolate-egg-shaped; upper ones sessile, toothed towards the base; uppermost somewhat decurrent, lanceolate. *Flower* purple, large, terminal, solitary; calyx-scales green; spines yellowish. A native of the coast of the Mediterranean. 83. *C. feridis*, Linn. 36. Mart. 39. Lam. 50. Willd. 74. (*Carduus hispanicus*, Tourn. 442. *Jacea foliis feridis*, Bauh. pin. 272. *J. latifolia*, Pluk. tab. 38. fig. 1.) "Calyxes palmate-spinous; spines reflexed; leaves oblong, hoary, embracing the stem, half decurrent, toothed, cut at the base; teeth rather prickly." *Root* perennial. *Stems* about a foot high, inclining, a little branched. *Leaves* thick, fleshy; lower ones near a foot long, sinuated like those of dandelion. *Flowers* very large, with a purple ray and whitish disc; calyx-spines nine or more, yellowish. A native of Spain. 84. *C. romana*, Linn. 37. Mart. 40. Willd. 75. (*Jacea*, Zan. hist. tab. 42. *Cyanus*, Barr. rar. tab. 504.) "Calyxes palmate-spinous; leaves decurrent, not prickly; root ones pinnatifid, terminal lobe very large." Linn. "Calyxes palmate spinous; spines reflexed; leaves lanceolate, sessile, decurrent, hairy, scabrous, not prickly, finely toothed; root-leaves lyrate." *Root* annual, Linn. biennial, Miller; perennial, Willd. *Stems* three feet high. *Flowers* large, red; calyxes strongly armed with spines. Mill. A native of the Campania of Rome. Cultivated by Miller in 1768. 85. *C. napifolia*, Linn. 40. Mart. 43. Lam. 51. Willd. 86. (*Cyanus napifolius*, Gært. *Jacea*, Herm. par. tab. 189. Pluk. tab. 94. fig. 2. Morif. hist. tab. 26. fig. 20.) "Calyxes palmate-spinous; leaves decurrent, sinuated, somewhat prickly; root-leaves lyrate." Linn. "Calyxes palmate-spinous; stem-leaves lanceolate, toothed, decurrent; root-leaves lyrate, obtuse." Willd. *Root* annual. *Stem* three feet high, branched. *Lower-leaves* not much unlike those of a turnip, rounded at the end, cut at the base into many segments, diminishing gradually to the top of the stem, and winged. Miller. *Stem* a foot and a half high, weak,

much branched. *Root-leaves* lyrate; terminal lobe very large, roundish-oval, finely toothed; stem-leaves small, oblong, narrow. *Flowers* purple, terminal; barren florets loose, large; calyx-spines small, very weak, always reflexed. Lam. from a living plant. A native of Candia. Cultivated by Miller in 1759. La Marck is of opinion that this and the preceding are the same species, and that one is not even a variety of the other. But as both are said to have been cultivated by Miller; and as Willdenow appears to have formed his specific characters of both from living plants, we apprehend that this eminent French botanist must have fallen into an error, from having seen only one of them. 86. *C. ferox*, Willd. 76. Desfont. Atl. 2. tab. 242. "Calyxes palmate-spinous; spines reflexed, larger than the calyx; leaves hoary, oblong, sessile, decurrent, pinnatifid; teeth not prickly." *Root* perennial. *Stem* procumbent. A native of the coast of Barbary. 87. *C. folstitialis*, Linn. 46. Mart. 50. Lam. 59. Willd. 77. Eng. Bot. tab. 243. (*Carduus stellatus*, Bauh. Pin. 387. n. 4. Tourn. 440. n. 7. Rai Syn. 196. n. 16. *Jacea*, Morif. tab. 34. fig. 29. *Calcitrapa*, Hall. Helv. n. 193.) St. Barnaby's thistle. "Calyxes palmate-spinous, terminal, solitary; spines straight; leaves lanceolate, decurrent, not prickly; root ones lyrate." *Root* annual. *Stem* near two feet high, alternately branched, winged by the decurrent leaves. *Leaves* slightly cottony, whitish; stem ones small, narrow, a little sinuated or toothed; root-ones four or five inches long, deeply sinuated or pinnatifid; with a large, more or less triangular terminal lobe. *Flowers* bright yellow, terminal, scarcely rayed; calyx, like the rest of the plant, clothed with a cotton-like web; spines yellowish; the middle one considerably longer and stronger than the others. A native of the south of Europe, very rare in England. 88. *C. verutum*, Linn. 52. Mart. 56. Lam. 60. Willd. 111. Gouan Illust. 73. Jacq. Ic. Rar. i. tab. 178. "Calyxes palmate-spinous; middle spine very long; lateral ones short; root-leaves sinuate-pinnatifid; stem ones lanceolate, quite entire, decurrent." *Root* annual. *Stem* from one to three feet high, upright, winged, with a few simple branches near the top. *Lower stem-leaves* lyrate. *Flowers* yellow, large, terminal, solitary; calyx pubescent; spines yellowish. La Marck is inclined to consider it as only a variety of the preceding, although placed by Linnæus and most other authors in a different division. 89. *C. melitenensis*, Linn. 47. Mart. 51. Lam. 62. Willd. 78. (*Cyanus melitenensis*, Gært. *Carduus melitenensis capitulis conglobatis*, Tourn. 442. *Jacea*, Bocc. Sic. tab. 35. Morif. Hist. iii. p. 145.) "Calyxes palmate-spinous; terminal ones clustered, sessile; spines straight; leaves lanceolate, scabrous, decurrent, not prickly; lower stem ones a little toothed; root ones sinuated." *Root* annual. *Stem* from five to ten inches high, a little woolly, simple, or with only a few short branches. *Leaves* oblong, sinuated, their terminal lobe obtuse, not angular, as in *C. folstitialis*; lower stem-leaves not decurrent. *Flowers* yellow; axillary ones single; terminal ones clustered, two or three together, nearly sessile; calyx-scales brownish; the middle one not above one-third the length of that in *folstitialis*. A native of Malta and the south of France. This species was cultivated in the English gardens under the name of *folstitialis*, till Dr. Smith pointed out the mistake in the Linnæan Transactions, vol. ii. p. 236. 90. *C. Adami*, Willd. 79. "Calyxes palmate-spinous, solitary; spines straight; inner scales scarious at the tip; leaves downy, lanceolate, decurrent; lower ones finely toothed, pinnatifid at the base." *Root* annual. *Stem* a foot high, branched, near the top, hoary. *Leaves* hoary on both sides. *Flowers* yellow, terminal; calyx-scales egg-shaped, green; middle

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middle spine longer than the others; florets of the ray shorter than those of the disc. A native of Iberia. 91. *C. sicula*, Linn. 48. Mart. 52. Lam. 63. Willd. 80. (*Carduus melitenis* cruce folio, Tourn. 442. *Jacea cichorii* folio, Bocc. Sic. 15. Morif. Hist. tab. 28. fig. 26.) "Calyxes palmate-spinous; spines spreading; leaves scabrous; stem-leaves lanceolate, a little embracing the stem, finely toothed; root ones lyrate." Root perennial. Stem a foot and a half high, angular, branched, slightly villous. Flowers yellow, terminal; middle spine of the calyx longer than the others, brown. A native of Sicily. 92. *C. sphaerocephala*, Linn. 38. Mart. 41. Lam. 53. Willd. 81. (*Jacea*, Morif. Hist. tab. 27. fig. 9.) "Calyxes palmate-spinous; leaves ovate-lanceolate, petioled, toothed." Linn. Root annual. Stem from one to two feet high, feeble, dividing at the top into a few branches. Leaves woolly; root ones petioled, a little sinuated or lacinated, stem ones sessile, oblong, simply toothed. Flowers purple, terminal, solitary, often with one or two bractes. A native of the coast of Barbary and Spain. 93. *C. capifolia*, Mart. 75. Cyril Rar. Neap. tab. 8. Vahl Sym. ii. 93. "Calyxes palmate-spinous; leaves sinuate-toothed; lower ones petioled; upper ones half embracing the stem." Root perennial, woody, dry, perpendicular, black on the outside. Stems from one to two feet high, thickish, round, pubescent, striated; dividing from the bottom into numerous procumbent branches. Leaves slightly pubescent; teeth mucronate, but not prickly. Flowers purple, terminal, solitary, of a strong disagreeable smell; surrounded at the base of the calyx with an involucre of from four to six concave inflexed leaves, irregularly toothed, lanceolate-egg-shaped at the tip. A native of Italy, on the sea-coast near Naples, forming thick tufts in the sand. Willdenow supposes this and the preceding to be one and the same species. 94. *C. Isuardi*, Linn. 39. Mart. 42. Lam. 52. Willd. 82. (*Calcitrapoides*, Infl. Paris, 1719. tab. 9.) "Calyxes palmate-spinous, solitary, sessile; leaves lanceolate, a little embracing the stem, pinnatifid-toothed." Root perennial. Stems ascending, about a foot long, commonly square, hairy, furrowed, branched. Lower leaves four or five inches long, scabrous, especially at the edges; lobes rather prickly; upper ones smaller, often entire, or a little toothed. Flowers purple, terminal; calyx egg-shaped, smooth. A native of the isle of Jersey, and other parts of the south of Europe. 95. *C. straminea*, Willd. 84. (*C. prolifera*, Vent. Hort. Cels. tab. 16. *C. glomerata*, Vahl Sym. ii. 94. *C. acaulis*, Forsk. Descrip. 152.) "Calyxes palmate-spinous, terminal, sessile, glomerated; leaves petioled, pinnatifid, cut-toothed." Root annual. Stemless in its natural wild state; but when cultivated it has a short stem. 96. *C. polyacantha*, Willd. 83. Calyxes palmate-spinous; leaves embracing the stem, runcinate, pinnatifid, prickly toothed; root ones lyrate." Root annual. Stem six or seven inches high, erect, slightly villous. Root-leaves hispid-scabrous, lyrate; segments oblong, toothed; terminal one large, roundish. Flowers purple; ray twice the length of the disc. Native country unknown. 97. *C. heterophylla*, Willd. 87. "Calyxes palmate-spinous; spines three; stem-leaves linear-filiform, quite entire; root ones lanceolate, toothed towards the base." Root probably annual, simple, perpendicular. Stem six or seven inches high, erect, scabrous, pubescent; branches simple. Leaves hispid-scabrous; root ones rather acute, lessening into a petiole; stem ones alternate, rather crowded, revolute at the edges. Flowers purple, rayed, terminal, solitary; calyx-scales egg-shaped, close; spines yellow, awl-shaped, spreading, equal. A native of Spain. 98. *C. aspera*, Linn. 41. Mart. 44. Lam. 48. Willd. 88. (*Stæbe iquamis asperis*,

Bauh. Pin. 273. *Jacea*, Bocc. Mus. ii. tab. 26.) "Calyxes palmate-spinous; spines three or five; leaves lanceolate, sessile, toothed. Root perennial. Stems from one to two feet long, procumbent when young, reddish, striated, rough to the touch, branched, diffuse. Root-leaves oblong, sinuated; stem ones small, narrow, rough. Flowers bright purple, small; calyx-spines very small, yellowish, or reddish. A native of the south of France, Italy, Spain, and Portugal.

VII. *Calcitrapæ*. Calyx-spines compound or branched. (*Calcitrapa*, Juss.)

99. *C. benedicta*, Linn. 42. Mart. 45. Lam. 54. Willd. 89. Woodv. Med. Bot. tab. 42. (*Cnicus benedictus*, Gart. tab. 162. fig. 5. *Cnicus sylvestris hirsutus*; five *carduus benedictus*, Bauh. pin. 378. Tourn. 450.) Blessed thistle. "Calyxes doubly spinous, woolly, involucred; leaves half-decurrent, toothed-spinous." Root annual, cylindrical, whitish. Stems several, a foot and a half high, reddish, woolly, branched. Leaves oblong, toothed, villous, bright green, with a white nerve; lower ones sinuated; almost runcinate. Flowers yellow, terminal; involucre of ten leaves; five outer ones larger; calyx-spines pinnated; yellowish; florets of the ray small, trifid. A native of the south of France, Spain, and the Levant, flowering from June to September. This plant obtained the name of benedictus, or blessed, from its supposed extraordinary medicinal virtues. It has an intensely bitter taste, and disagreeable smell; and exclusive of the qualities attributed to other bitters, was thought, when taken internally, to be peculiarly efficacious in malignant fevers, and applied externally to heal cancers and carious bones. It has now lost much of its reputation, and does not seem to be essentially different from other simple bitters. An infusion of it was formerly employed to assist the operation of emetics, but the flowers of chamomile are now substituted for it with equal advantage. In loss of appetite, where the stomach has been injured by irregularities, its good effects have been frequently experienced. Cold water poured on the dry leaves extracts in an hour or two a light grateful bitterness; by standing long upon the plant the liquor becomes disagreeable. Rectified spirit in a short time extracts the lighter bitter, but does not take up the nauseous so easily as water. See Woodville's Medical Botany. 100. *C. apula*, Lam. 61. Willd. 90. Desfont. Atl. 2, 300. (*Carduus itellatus luteus*, capitulo minus spinoso; Tourn. 441.) "Calyxes doubly spinous, globular, small; spines small; root-leaves lyrate, obtuse; stem winged." Lam. Root annual. Whole plant pubescent. Stem about a foot high, branched. Root-leaves lyrate-pinnatifid; terminal lobe oval-obtuse; stem-leaves decurrent, oblong, rather narrow, entire or toothed. Flowers yellow, terminal; calyx-spines three; middle one longer, branched. A native of Italy and the coast of Barbary. 101. *C. eriophora*, Linn. 43. Mart. 46. Lam. 55. Willd. 91. (*Carduus lufitanicus canescens*, Tour. 441. *Calcitrapa*, Vaill. Aët. 1718, p. 212. *Cyanus eriophorus*, Gart. 2, 382. tab. 161. fig. 4.) "Calyxes doubly spinous, woolly; leaves half decurrent, entire and sinuated; stem proliferous." Linn. Root annual. Stem eight or nine inches high, with several branches on its upper part, which often rise higher than itself. Leaves light green, obtuse, with a spine-like point. Flowers yellow, terminal, somewhat globular; barren florets four-cleft, shorter than the others; inner scales of the calyx simply acuminate; outer ones ending in a yellow, spreading spine, half an inch long, armed with prickles on each side. A native of Portugal. 102. *C. ægyptiaca*, Linn. Mant. 118. Mart. 47. Lam. 56. Willd. 92. "Calyxes doubly spinous, somewhat woolly; leaves sessile, lanceolate, entire and toothed; stem proliferous." Root annual. Stem a foot high,

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diffuse,

diffuse, proliferously branched, spreading; branches alternate, from the axils of the upper leaves. *Leaves* alternate, sessile, or embracing the stem, somewhat scabrous; lowest pinnatifid; middle ones lyrate; highest lanceolate. *Flowers* white, florets of the ray four-cleft, smaller than the others; calyx-spines purplish, slender, with two brittle-shaped small spines on each side. A native of Ægypt. 103. *C. calcitrapa*, Linn. 44. Mart. 48. Lam. 57. Willd. 93. Eng. Bot. 125. (*Carduus stellatus*, foliis papaveris erratici, Bauh. pin. 387. Tourn. 440. *Calcitrapa*, Hall. helv. n. 194. *Hippophæstum*, Col. phyt. tab. 24. *Calcitrapa hippophæstum*, Gært. tab. 163. fig. 2.) Common star-thistle. "Calyxes doubly spinous, sessile; leaves pinnatifid, toothed; stem divaricated, spreading, hairy." Smith. *Root* annual. *Stem* low, much branched, furrowed. *Leaves* pale green, sometimes alternate, sometimes from luxuriance clustered under the branches; teeth somewhat prickly. *Flowers* purple or white, lateral, sessile; florets of the ray scarcely longer than those of the disc, nearly regular; calyx-spines yellowish, divaricated, polished, three times the length of the scale, pinnated at their base with smaller spines. *Seeds* with scarcely any down. A native of England and other temperate parts of Europe. The plant and root are both bitter, and are said to be sometimes used by brewers instead of hops. The leaves are eaten by the Jews with their paschal lamb. They are given by the French physicians in the way of extract, decoction, or powder in agues and fevers. A decoction of the root in the proportion of from half an ounce to an ounce in six ounces of water, is said to be useful in disorders of the bladder and kidneys. 104. *C. calcitrapoides*, Linn. 45. Mant. 49. Lam. 58. Willd. 94. (*Carduus stellatus*, foliis intigris ferratis, Magn. Monsp. 292. Tourn. 440.) "Calyxes somewhat doubly ferrated; leaves embracing the stem, lanceolate, undivided, ferrated." Nearly allied to the preceding, if not merely a variety. A native of the south of France, and of Syria.

VIII. *Calcitrapoidea*. Calyx-scales ciliated, terminated by a simple spine. (*Calcitrapa*; Juss.)

105. *C. diluta*, Mart. 71. Hort. Kew. 3. 261. "Calyxes ciliated; scales acuminate, somewhat thorny; leaves oblong, pinnatifid; florets of the ray longer than those of the disc. A native of the south of Europe. 106. *C. nicaensis*, Mart. 74. Willd. 95. Allion. ped. tab. 74. "Calyxes ciliate-spinous at the tip; leaves oblong, embracing the stem, scabrous, undivided, quite entire; root-leaves egg-shaped, toothed." *Root* biennial. *Stems* a foot and a half high, striated, angular, alternately branched. *Flowers* yellow; calyx-scales dilated at the tip; spine short, stiff. A native of the neighbourhood of Nice. 107. *C. fuscata*, Willd. 96. Desfont. Atl. 2. tab. 244. "Calyxes ciliate-spinous at the tip; leaves of the stem lyrate-pinnatifid; of the branches pubescent, lanceolate, somewhat toothed." A native of the coast of Barbary. 108. *C. hybrida*, Mart. 73. Willd. 97. Allion. ped. n. 523. "Calyxes ciliate-spinous at the tip; leaves hoary, pinnatifid, quite entire; upper ones linear-lanceolate." *Root* biennial. Whole plant hoary-pubescent. *Root-leaves* pinnatifid, somewhat toothed. *Flowers* of the disc yellow; of the ray violet; calyx-spines rigid, yellow. A native of hills about Turin. It has been supposed to be a mule between *C. foliitalis* and *C. paniculata*. 109. *C. squarrosa*, Willd. 98. "Calyxes ciliate-spinous, cylindrical; scales reflexed at the tip; leaves of the stem pinnatifid; of the branches linear." *Stem* a foot high or more, erect, branched, paniced; branches spreading. *Flowers* violet, solitary, or two together at the top of the branches. A native of the Levant. 110. *C. parviflora*, Willd. 99. Desf. Atl. 2. 301. (*C. diffusa*, Lam. 70. *Carduus orientalis calcitrapæ folio*,

stems minimo, Tourn. 31.) "Calyxes ciliate-spinous, egg-shaped; scales reflexed at the tip; leaves hoary; root ones lyrate; stem ones linear." Nearly allied to the preceding. A native of the Levant, and of the coast of Barbary. 111. *C. caeruleus*, Willd. 100. (*C. virgata*; Cavan. ic. 3. tab. 320.) "Calyxes ciliate-spinous; leaves of the stem pinnated-linear; of the branches linear." *Stem* a foot high, erect, smooth, pubescent near the top, furrowed, branched; branches few, erect. *Leaves* smoothish. *Flowers* violet; calyxes oblong; scales egg-shaped, obtuse, with a long spine; inner ones scarious at the tip. A native of Spain. 112. *C. jacobæifolia*, Lam. 68. Willd. 101. "Calyxes ciliate-spinous; inner scales scarious; root-leaves deeply pinnatifid, lacinated, tomentous; stem nearly naked, one-flowered." *Stem* six or seven inches long, simple, angular, cottony. *Leaves* from the root, or the lower part of the stem, petioled, soft, whitish. *Flower* yellow. Described by La Marck from a specimen in the herbarium of Jussieu. 113. *C. reflexa*, Lam. 67. Willd. 102. (*Carduus orientalis calcitrapæ folio*, flore flavescente odoratissimo.) "Calyxes ciliate-spinous at the tip; spines of the lower scales reflexed; leaves pinnated; pinnæ linear, obtuse; root-leaves bipinnated." *Stem* about three feet high, erect, angular, deeply furrowed, branched. *Leaves* large. *Flowers* yellow, large; calyx-scales egg-shaped, ending in a long, stiff, straight spine; spines of the lower ones shorter, weaker, reflexed. A native of Armenia. 114. *C. ornata*, Willd. 103. "Calyxes ciliate-spinous; spines of the lower scales reflexed; leaves very scabrous, pinnated, linear; pinnæ linear, mucronate; root-leaves bipinnated." Nearly allied to the preceding. *Leaves* smaller, hoary; calyx-scales bristly-ciliated; inner ones with a scarious ciliated little scale at the tip, acute. A native of Spain. 115. *C. eryngioides*, Lam. 66. Willd. 104. (*Carduus eryngoides*, capite spinosa, Alp. Exot. 158.) "Calyxes ciliate-spinous; leaves pinnated; pinnæ oblong, lanceolate, toothed, or entire, mucronate at the tip." *Root* perennial. *Stem* a foot and a half high, upright, simple, furrowed. *Flowers* purple, large, terminal; calyx-scales egg-shaped, with a strong spine half an inch long; inner ones with a small ciliated appendage at the tip. A native of the Levant. 116. *C. centauroides*, Linn. 49. Mart. 53. Lam. 64. Willd. 105. (*Jacea lutea spinosa centauroides*, Bauh. Pin. 272. *Carduus centaurii majoris facie*, capitulo longis & brevibus aculeis munito, Tourn. Cor. 31.) "Calyxes ciliate-spinous; leaves lyrate-pinnated, generally entire; terminal lobe large, toothed." *Stem* two or three feet high, angular, branched, clothed with short hairs. *Leaves* large, rough, deeply pinnated. *Flowers* yellow, large, terminal; outer calyx-scales short, round; inner ones oblong, scarious, without a spine. A native of Spain, Italy, and the south of France. 117. *C. collina*, Linn. 51. Mart. 54. Lam. 65. Willd. 106. (*Jacea lutea*, capite spinoso, Bauh. Pin. 272. *Carduus luteus centauroides segetum*, Tourn. 441.) "Calyxes ciliate-spinous; stem-leaves pinnatifid; root ones bipinnatifid; segments lanceolate." *Root* perennial. *Stem* two or three feet high, angular, nearly smooth, branched. *Leaves* large, greenish. *Flowers* yellow, rather large, terminal, solitary. La Marck thinks it scarcely more than a variety of the preceding, but its leaves are more deeply cut, and their terminal lobe is smaller. A native of Italy, Spain, and the south of France. 118. *C. rupifloris*, Linn. 50. Mart. 55. Lam. 69. Willd. 107. (*Jacea laciniata lutea*, Bauh. Pin. 272. Col. Ecphr. 1. tab. 35. fig. 2. Morif. tab. 28. fig. 25.) "Calyxes ciliate-spinous; stem-leaves pinnated; root-leaves bipinnated; pinnæ linear-filiform." *Root* perennial. *Stem* scarcely angular, but little branched. Calyx-spines weak, shorter than the scale; inner scales scarious. Nearly allied to the preceding. 119. *C. pubescens*, Willd. 108.

(*C. incana*,

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(*C. incana*, Desfont. Atl. 2. 301 ?) "Calyxes ciliate-spinous at the tip; stem-leaves pinnatifid, linear-lanceolate; root ones bipinnatifid; segments lanceolate, terminal one toothed." *Root* perennial. *Stem* a foot high, erect, furrowed, woolly, pubescent, a little branched. *Root-leaves* about seven inches long, rather smooth, segments short, acute, entire; stem-leaves three inches long; segments linear-lanceolate, an inch long, quite entire, acute; upper ones shorter, undivided, linear-lanceolate, quite entire. *Flowers* yellow; calyx the size of *C. eriophora*; scales pubescent, brownish at the tip. Described by Willdenow from a living plant. Native country unknown. 120. *C. fordida*, Willd. 109. "Calyxes ciliated-spinous; stem-leaves pinnated, quite entire; root-leaves bipinnatifid." *Root* perennial. *Stem* a foot high, erect, furrowed, branched at the base. *Root-leaves* three inches long, pubescent; segments short, lanceolate, acute; pinnæ of the stem-leaves linear, acute, quite entire. *Flowers* dull purple, the size of those of the preceding species. Willdenow, from a living plant. Native country unknown.

IX. *Crocodiloidea*. *Calyx-scales* not ciliated, terminated by a simple spine. (*Crocodilium*, Juss.)

121. *C. salmantica*, Linn. 54. Mart. 57. Lam. 71. Willd. 112. (Stebe, Bauh. Pinax. p. 275. n. 1. *Jacea foliis cichoraceis flore purpureo*, Tourn. 444.) "Calyxes globular, smooth; spine very small, weak, a little reflected; leaves lanceolate, serrated, root ones lyrate; stem divaricated." *Root* perennial. *Stem* three feet high, a little villous towards the base; branches simple, long, slender, striated. *Lower leaves* soft, very hairy, runcinate-pinnatifid; terminal lobe lanceolate, large, toothed; lower ones narrow, almost linear, toothed, smooth, acute. *Flowers* purple or white, of a moderate size, terminal, solitary; barren florets four-cleft, not larger than the others. A native of the south of France and Spain. 122. *C. elegans*, Mart. 76. Allion. Ped. tab. 49. fig. 1. "Stem simple; leaves undivided, linear; flowers solitary, axillary, and terminal." *Root* annual. *Stem* a foot and a half high, cylindrical. *Leaves* linear, elliptical, hoary beneath, slightly toothed, ending in a small spine; lower ones opposite the others, alternate. *Flowers* blue. A native of Piedmont, in the vineyards. 123. *C. aurea*, Mart. 77. Willd. 113. Hort. Kew. 3. 265. Bot. Mag. 421. "Calyxes simply spinous; spines spreading; florets equal; leaves hairy; lower ones pinnatifid." *Root* perennial. *Stem* two feet high, hairy. *Leaves* sessile. *Flowers* bright yellow, large, terminal. A native of the south of Europe; cultivated by Miller in 1758. 124. *C. cichoracea*, Linn. 53. Mart. 58. Lam. 72. Willd. 114. (*Jacea*, Rai. Sup. 203. Till. Pis. tab. 27.) "Calyxes bristly-spinous; leaves decurrent, undivided, serrated-spinous." *Flowers* small; calyx-spine recurved. A native of Italy. 125. *C. muricata*, Linn. 55. Mart. 59. Lam. 73. Willd. 115. (*Jacea cyanoides, echinato capite*, Bauh. Pin. 272. Monf. Hist. 3. tab. 26. fig. 18.) "Calyxes simply spinous, villous; lower leaves lyrate, toothed; upper ones lanceolate; peduncles very long." *Root* annual. *Stem* a foot high, or more, inclining, slightly villous, a little branched. *Flowers* purple, rayed; calyx-scales lanceolate, black at the edges; spine brown, very sharp. A native of Spain. 126. *C. peregrina*, Linn. 56. Mart. 60. Lam. 74. Willd. 116. (*Centaureum*, Boerh. Lugd. 1. p. 44.) "Calyxes bristly-spinous; leaves lanceolate, petioled, toothed near the base." *Root* biennial. *Flower* yellow, large. A native of the south of Europe. 127. *C. radiata*, Linn. Syst. 65. Mart. 61. Lam. 75. Willd. 117. (*Xeranthemum crucifolium*, Linn. Sp. Pl. Ed. 2. Gmel. Sib. 2. tab. 47. fig. 1. Pal. It. 3. p. 682.) "Calyxes scarcely spinous, somewhat awned, rayed; leaves pinnatifid." *Stem* branched towards the summit. *Leaves* as well as the stem furnished with white hairs,

toothed. *Flowers* white, almost cylindrical, terminal; inner calyx-scales long, forming a small ray. A native of Russia, on the banks of the Don. Linnæus was at a loss where to place this plant; and, after all, doubted whether it be not a species of *Zagea*. 128. *C. nudicaulis*, Linn. 58. Mart. 62. Lam. 76. (*Carduus cerinthoides*, Willd. 35. *Jacea folio cerinthos*, Tourn. 445. Herm. Parad. tab. 190. Barrel. ic. 1288. Bocc. mus. 2. tab. 48.) "Calyxes bristly-spinous; leaves undivided; upper ones somewhat toothed; stem simple, nearly naked, one-flowered." *Root* perennial. *Stem* a foot high, upright, smooth, striated; furnished near the base with two or three narrow, distantly toothed leaves. *Root-leaves* egg-shaped, entire, petioled, a little hairy at the base and along the petiole. *Flower* purple, terminal; calyx-scales smooth, blackish at the tip. A native of the south of France, Spain, and Italy. 129. *C. Crocodilium*, Linn. 57. Mart. 63. Lam. 77. Willd. 118. (*Crocodilium*, Vaill. Aët. 1719. 183. Cyanus, Barr. 503. good.) "Calyxes scarious, simply-spinous; leaves pinnatifid, quite entire; terminal segment larger, toothed." *Root* annual. *Stem* a foot and half high, angular, rough to the touch; branches spreading, loose. *Flowers* on long peduncles; barren florets large, purple; fertile ones whitish; calyx-scales whitish or silvery green; with a brown appendage, terminated by a sharp spine. A native of Candia and Syria. 130. *C. pumila*, Linn. 59. Mart. 64. Lam. 78. Willd. 119. (*Crocodilium acaulon*, Vaill. Aët. 1719. 163.) "Calyxes simply-spinous; leaves pinnated, toothed, villous; stem none. Similar to *C. acaulis* (n. 66.) but the calyx-scales are not ciliated. *Leaves* spreading on the ground. *Flowers* about three together, close to the root; barren florets scarcely longer than the others; calyx-scales smooth, membranous at their edges; spine short, yellowish. Found by Hasselquist in Egypt. 131. *C. tingitana*, Linn. 60. Mart. 65. Lam. 79. Willd. 120. (Cyanus, Hall. Goett. 370. Linn. Goett. 393. Cnicus, Herm. Ludgb. tab. 163.) "Calyxes spinous at the edge; leaves lanceolate, undivided, serrated, somewhat spinous; stems one-flowered. Distinguished, according to Linnæus, from *Carthamus tingitanus* and *cæruleus* by its ray of barren florets; but La Marck suspects that the same plant has been assigned to two different genera. A native of the coast of Barbary about Tangier. 132. *C. galaclites*, Linn. 61. Mart. 66. Lam. 80. Willd. 121. (*Carduus tomentosus, capitulo minore*, Bauhin. pin. 382. *Carduus galaclites*, J. Bauh. hist. 3. 54. Tourn. 441.) "Calyxes bristly-spinous; leaves decurrent, sinuated, spinous, downy underneath." Entirely the habit of a thistle. *Root* perennial. *Stem* a foot and a half high, branched, cottony, whitish. *Leaves* long, rather narrow, deeply pinnatifid, toothed, deep green, often variegated with white, milky veins or spots. *Flowers* purple or white terminal; barren florets large, cut into very narrow segments. A native of the south of Europe, and the coast of Barbary.

CENTAUREA fruticosa, Linn. See *STÆHELINA fruticosa*.

CENTAUREA majus, Tourn. See *CENTAUREA*.

CENTAUREA minus, Tourn. See *GENTIANA*, *CHIRONIA*, and *CHLORA*.

CENTAUREA minus, Rai. Sup. See *ERANTHEMUM Capense*.

CENTAUREA, in *Gardening*, contains plants of the herbaceous annual and perennial kinds. It has been seen that the species are very numerous, but those most commonly cultivated are: the great purple centaury, (*C. centaurium*;) the perennial blue bottle, or blue batchelors button (*C. montana*;) the annual blue-bottle, or bottles of all sorts (*C. Cyanus*;) the purple sweet centaury, or sweet Sultan, (*C. moschata*).

The first sort has a strong perennial root, and a great number of long pinnate leaves, of a lucid green colour, spreading wide on every side proceeding from it; the peduncles are slender, but very stiff, and divide at top into many smaller peduncles. These together with the stalks, rise five or six feet high, having at each joint one small pinnate leaf of the same form with the others; each of the peduncles is terminated by a single head of purple flowers, considerably longer than the calyx, which come out in July, and in warm seasons, produce ripe seeds in this climate.

The second sort has a perennial root, running deep into the ground; the stem is commonly, single, upright, one-flowered; sometimes, especially in a cultivated state, it puts forth a branch or two; the leaves are quite entire, tomentose; and the flower large and spacious. And there are varieties, with broad leaves, with narrow leaves, and the dwarf perennial blue-bottle.

In the third the stem is from one to two feet high, angular, slightly tomentose, branched at top; the leaves are numerous, white underneath, with three parallel ribs; the branches are one-flowered, flowering from June to August. It varies with blue flowers, with blue and white flowers, with purple flowers, with purple and white flowers, with flesh-coloured flowers, with flesh coloured and white flowers; with violet-coloured flowers, with violet and white flowers, with red flowers, with double blue flowers, with double purple flowers, and with double purple and white flowers.

The last sort is annual, and sends up a round channelled stalk near three feet high, which divides into many branches with jagged leaves, of a pale green colour, smooth, and close to the branches; from the side of the branches come out long naked peduncles, each sustaining a single head of flowers, which have a very strong odour, so as to be offensive to many people, but to others very grateful; they are purple, white, or flesh-coloured. It varies with purple flowers, with white flowers, with flesh-coloured flowers, with purple fistulous flowers, with white fistulous flowers, with fringed flowers and sawed leaves, and with bright yellow fistular flowers.

Method of Culture.—These are plants which are raised with little trouble or difficulty. The first sort is capable of being increased by parting the roots, and planting them out in the early spring months or in the autumn, in beds or borders where they are to remain. And it, as well as the annual sorts, may likewise be raised from seed, which in it and the second kind should be sown in the borders or clumps in March or the following month, the young plants being kept clean from weeds, and removed into other situations, when necessary, in the following autumn.

The two last sorts and varieties are also propagated by sowing the seeds in the open ground, where the plants are to flower, in the above season. They should be put in patches of six or seven seeds in a place, covering them lightly in to the depth of half an inch. The latter of which may also be sown in the autumn as soon as the seeds are fully ripened, by which means they will flower at a much more early period in the following year. And the last or sweet sultan kind, especially the yellow, which is rather tender, may also be rendered more forward by sowing the seeds under frames or glasses on gentle hot-beds in the early spring, removing the plants to the open ground when of sufficient growth, with balls of earth about their roots or in pots. They are all proper for ornamenting the clumps and borders of pleasure-grounds; the two first being placed more backward in them, as growing to the largest size.

CENTAURIUM minerale, among *Chemists*, a name given by some to the *PANACEA* of antimony, called also by Glau-

ber, *purgans universale*; the preparation of which is given by Juncker.

CENTAUROIDES, in *Medicine* and *Pharmacy*, the same with *GRATIOLA*. Others give the denomination to the greater *centaury*.

CENTAURPOLIS, in *Ancient Geography*, a fortress of Greece in Thessaly; seated on Mount Ossa, near Tempé. The emperor Justinian is said to have repaired its ruined walls.

CENTAURS, in *Mythology*, a kind of fabulous monsters, half men, half horses. The poets feign that the centaurs were the sons of Ixion and a cloud. The reason of which fancy was, that the castle to which they retired was called Νέφελαι, which signifies a cloud. Pind. Pyth. Od. 2. This fable is differently interpreted.

The centaurs, in reality, were a tribe of Lapithæ, who inhabited the city Pelethronum, adjoining to mount Pelion, and first invented the art of breaking horses; as is intimated by Virgil. Georg. lib. iii. ver. 115. Homer and Hesiod speak of centaurs. The first of these poets in his Iliad (l. i. v. 268, and l. ii. v. 740) and in his Odyssey (l. xxi. v. 295) calls them savages, or monsters covered with hair. Hesiod describes the combat of the centaurs and lapithæ, the latter of whom had helmets and cuirasses, whereas the former fought without any defensive armour. Pindar seems to have been the first of the poets who represented the centaurs as half men and half horses. "These monsters (says he) were the fruit of the amours of Centaurus, the son of Ixion, with the mares of Thessaly; they resembled their father in the upper part of their body, and their mother in the lower." But upon the chest of Cypselides, mentioned by Pausanias, and upon which characters were written in the year 778 B. C. in the boustrophedon form, the centaur Chiron appears half man and half horse, but represented as a man sustained upon two human legs and feet, with the croup-flanks and two hinder legs of a horse attached to his loins; so that two feet of this centaur were those of a horse: so that it resembled a man leading a horse by the bridle rather than a cavalier mounted on horseback. M. Freret (Mem. Liter. t. 23.) suggests, that the centaurs were herdsmen, who for a long time occupied with their herds the vallies of Thessaly. Their name seems evidently to be derived from κεντρεω, *stimulo*, *I prick*, and ταυρος, *boves*, whence κενταυροι, *bull-prickers* or centaurs. It is of this kind of persons that Homer speaks (v. 250) as inhabiting at first the environs of mount Pelion, and who, having been driven away by Pirithous, sought a retreat in the country of the Æthiopi. Didymus, upon this and the following verses, observes, that, according to all the ancients, the centaurs of mount Pelion were of the same nation with the Perrhæbi. Accordingly, the centaurs were the first herdsmen of Thessaly. The more ancient sculptures represent them as persons who stood near horses to hold them; and in process of time, and by means of a poetic or picturesque licence, they came to be represented as half men and half horses.

CENTAURUS, *CENTAUR*, from κενταυρος, formed of κεντρεω, *pungo*; and ταυρος, *bull*; q. d. *bull-pricker*, in *Astronomy*, a part or moiety of a southern constellation, being one of the 48 old constellations, in form, half man, half horse; usually joined with the Wolf. See *LUPUS*. According to the fable of the Greeks, this was Chiron the centaur, who was the tutor of Achilles and Æsculapius, represented as half man and half horse, because he had applied the art of medicine to the benefit both of men and of horses. Others pretend that it is the symbol of pleasure, which reduces men to the similitude of beasts: but the origin of the allegory which has placed

placed Centaurus among the constellations is unknown. His hands hold a bottle full of wine, as a symbol of the vintage, which occurs when the sun is near this constellation; and the seventh labour of Hercules is represented by his triumph on a furious animal, because the sun in the sign of Aquarius causes the minotaur monster or this constellation to disappear.

The stars of this constellation, in Ptolemy's Catalogue are 37; in Tycho's 4; and in the Britannic Catalogue, with Sharp's Appendix, 35. Among a great number of stars in the catalogue of La Caille, there is one, besides others of the first magnitude, which in 1750 had $215^{\circ} 42' 29''$ of right ascension, and $59^{\circ} 47' 8''$ of south declination. For an account of the comparative lustre of some of the stars in this constellation by Dr. Herschel, see the Phil. Trans. for 1797, p. 314.

CENTAURY. See CHLORA, GENTIANA, and CENTAUREA.

CENTAURY, in *Agriculture*, is the name of a weed or plant, abounding in arable or other lands, and generally called blue-bottle. It is often very troublesome to extirpate from the lands on which it has established itself.

CENTELLA, in *Botany*, Linn. See HYDROCOYLE *glabrata*, and *villosa*.

CENTENARIENSIS, in *Ancient Geography*, an episcopal see of Africa in Numidia.

CENTENARIUS, or CENTENIER, in the *Middle Age*, was an officer who had the government or command, with the administration of justice, in a village, or division, containing an hundred freemen. The *centenarii* were under the jurisdiction and command of a superior officer, called the count or *comes*. We find them among the Franks, Germans, Goths, Lombards, &c. On account of the disorders that prevailed in the ninth century, and the acts of violence that were so commonly committed, as to be hardly considered as criminal, the *centenarii* were required to take an oath, that they would neither commit any robbery themselves, nor protect such as were guilty of that crime. Before the time of Charles the Bald, the titles of count, duke, vicar, centenier, or thungin, were not hereditary in families. They had the management of the revenue and administered justice in the provinces. They were at the same time magistrates and military men. They convoked the *ban* and *arrière-ban*, assembled and conducted the troops to the places of general rendezvous.

CENTENARIUS is also used for an officer who had the command of a hundred men, more frequently called CENTURION.

CENTENARIUS, in *Monasteries*, was an officer who had the superintendence of a hundred monks.

CENTENARIUS was also used for a person worth a hundred thousand sesterces; otherwise called CENSUS.

CENTENIER. See CENTENARIUS.

CENTENINUM ovum. See EGG.

CENTER, or CENTRE, in a general sense, denotes a point equally remote from the extremes of a line, figure, or body; or the middle of a line, or plane, by which a figure or body is divided into two equal parts; or the middle point so dividing a line, plane, or solid, that some certain effects are equal on all sides of it. The word is *κεντρον*, which primarily signifies a *point*; being formed from the verb *κεντρειν*, *pungere*, to prick.

CENTER, in *Architecture*. This term is used to denote a frame of timber constructed for the purpose of supporting the stones or bricks forming an arch or vault during the erection. Thus the center serves as a foundation for the arch to be built-upon, which, at the completion of the

work, is struck or taken down, and then the arch will stand of itself from its curved figure.

The center of a large vault, such as that of a bridge, consists of trussed ribs, framed like those of a roof, set in parallel vertical planes, at the distance of 5, 6, 7, or 8 feet, bridged over with horizontal purlines. In great works, a bridging is laid for every course of arch stones, with blockings between to keep them at proper distances. The vault-stones do not always immediately rest upon these bridgings: planks are sometimes put between that they may afterwards be cut away, in order to separate the center from the vaults, which must now support itself by the reciprocal pressure of its parts.

If a center is truly constructed, every point of the vault to be built ought to be supported, without giving any transverse strain to the incumbent part of the center: but this is impracticable, for, as it would require such a multiplicity of joints, and, from the shrinking of the timber, it would be less sufficient than if composed of few pieces, supporting only a certain number of points disposed at judicious distances, leaving the intervals to be supported by timbers in which the superincumbent part of the arch will act transversely, but will still present a sufficient resistance so as not to be materially bent or put out of form by the load of the arch above.

If the river over which a bridge is to be built is not navigable, the manner of constructing the center is so easy, that it would be unnecessary to give any examples here; but where the river is navigable, the center requires an opening in the middle for vessels to pass: this renders the construction more intricate by interrupting the horizontal tie, instead of which a number of ties are therefore disposed around the polygon, forming the interior part of the center; but as in many practical cases the most judicious and well-skilled theorist might be deceived as to the equilibrium of the arch to be supported, or the points on which it has the most tendency to fall in, it would, therefore, be difficult to say what are ties and what are struts; and even if the true pressure of the arch could be ascertained, the knowledge of this alone would not be sufficient; for the same parts of the vaults, in the process of execution, vary their pressure in every succeeding additional part, and what was a tie at one time, becomes sometimes a strut, and a strut, on the contrary, a tie at another, either in building, or at the completion of the vault. This ought to be well considered; and, where the pressure is doubtful, or any of the lengths of timber forming the center be ascertained to be in the two different states above mentioned, such timbers should be made to act in either case.

Though the timbers upon which the vault immediately rests cannot be supported transversely throughout, the other pieces, which support the arch from the several pressing points, may all be made to act by a judicious arrangement, in a direction of their lengths. The abutting joints, which are pressed, will be sufficiently resisted, when their shoulders are made perpendicular to the direction of their force, and with a very small tenant; but if the timbers are drawn in a direction of their length, the joints ought to be strapped.

The beauty of every truss is to have as few quadrilaterals as possible. All the openings should be triangles: the intersection of the timber should be as direct as possible. Oblique pressures exert prodigious strains, which require timbers of very large sections to withstand them, and which press upon the abutments so much as to make the whole truss sag by the compression of the intermediate joggles.

If proper attention be paid to these circumstances, and
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the bearings of the timbers well ascertained, a center, constructed upon such principles, must answer its intended purpose, provided that a proper estimate be taken of the communicating forces during the execution of the vault, and that the center be well secured at its abutment.

There are several principles of constructing the ribs of centering; one of these may be that of a large truss, spanning the whole opening, having its vertex supporting the summit of the arch, and its rafters, or principal braces, supporting other subordinate trusses which resist the pressure of the arch at other intermediate points.

Of this kind is that of the bridge of Orleans, by Mr. Hupeau, one of the boldest centers ever executed in Europe. Another principle is that of two independent trusses, one supporting the sides or haunches of the arch, and the other the crown. Of this construction was the centering of the nave and transepts of St. Peter's church at Rome, by Michael Angelo, and two centers by Pitot. Another principle of centering is that of inscribed equilateral polygons, that is, the exterior beams, supporting the curve, are of equal lengths, and joined together in the form of a polygon: another polygon is formed within this, having its angles in the middle of the sides of the former, and so on, alternately until there are as many polygons inscribed as will make the centering sufficiently strong or stiff: this mode of centering may be of two kinds. One, when the angles are fixed at their junction to the sides of the last, with bolts: double king-posts are put over the angles to prevent transverse strain at that section of the beams where the two pieces meet, and to support the curve above. The other kind is, when the polygons act independently of each other: these polygons are brought into action by king-posts, which support the curve, and act upon the angular points of each other's polygon. Of this kind were the centering of the bridges of Cravant, Nogent, Mayence, and Neuilly, constructed by Perronet. Though these centerings have been executed to very large spans, the last mentioned being 120 feet, their equilibrium is by no means so secure as when the angles of the inner polygon are fastened to that immediately preceding, as is evident from the information given of the erection of these bridges by the ingenious architect who has favoured the world with a treatise on this subject. Another principle of centering is that of Westminster and Blackfriars bridges, London. They consist of a series of trusses, each supporting a point in the arch, the principal braces having their lower extremities abutting below at each end of the centering, on the striking-plates, and at the upper end, upon apron-pieces, which are bolted to the curve that support bridgings for binding the pieces which compose them together at their junction. There is one disadvantage under which this mode labours; that is the frequent intersection of the principal braces with one another: they must either be halved, upon each other, otherwise they must be discontinued, and made in various lengths. Both of these diminish their lateral strength, and consequently make them much more liable to buckle than when whole; but of the two that of halving is to be preferred; as, by the braces being in one length, there can be no sagging occasioned by intermediate joggles, and the braces may be rendered sufficiently secure laterally, by running straps longitudinally across the notched part on each side, bolting these straps to the braces.

Lastly, another mode of centering may be that of a number of quadrilateral frames abutting on each other, having their joints radiating to a center, in the manner of the wedge-stones of an arch in masonry. These frames should all be re-

solved into triangles by one or two diagonals, according to the kind of strain, keeping in view that a piece, which is a tie in one diagonal, is, in the other diagonal, of the same quadrilateral, a strutt; but if the kind of strain on any frame is not well ascertained, it would be better to place two diagonals halved upon each other. The frames are to be secured to one another with keys or bolts; by this precaution each frame will be rendered quite immoveable.

Having now shown the principles upon which a good center may be constructed, we shall proceed to give some of the most approved examples.

Fig. 1, Plate LXVI. of Architecture, is the manner of forming the rib for a center by two independent trusses; in this form of centering there is no occasion for bridges, or double king-posts, as in those of Pitot, of the same construction.

Fig. 2. The manner of forming a center by two polygons, of which the interior one is secured to the exterior; in this there is no occasion for double king-posts, as the parts of the inscribed polygon either act as struts, or ties to that of the circumscribing one.

Fig. 3, is the manner of constructing a center with three polygons, which are all secured to each other. In this, king-posts become necessary, otherwise the angles of the inner polygon would bend the sides of that next to it.

Fig. 1, Plate LXVII. is the manner of constructing a center according to Perronet, with four polygons, independent of each other, but with this improvement, that the lower extremities of each ring of polygons are framed into the two abutments; this gives a much firmer base than if they were all to meet at the same place, and renders the center much stronger, by making the angles more acute. In this it becomes also necessary to have double king-posts, otherwise the exterior polygon would only be effective.

Fig. 2, is the manner of forming a center, as used at Westminster and Blackfriars bridges, by independent trusses, consisting of two rafters. Whoever considers the principle of this center, must evidently see that there is no occasion for the double king posts, as the pressure is directed to the abutments, or to two opposite of the arch in the same level. In this example, the intersections are all supposed to be halved together, and firmly strapped across the notchings.

Fig. 3, is the manner of constructing a center with separate frames, the sides of which radiate to a center, as has already been intimated.

Fig. 1, Plate LXVIII. is the design of a center; its principle is that of two roofs intersecting each other. In this example, the forces which are communicated to the various parts of the frame are resisted longitudinally, either by compression or extension; and no force is exerted transversely on any part, excepting the curved pieces in contact with the boarding supporting the arch stones.

Fig. 2, is the design of a center: it is first framed in one large truss, like a common roof, with two principal rafters, and a collar beam: each of the rafters becomes a tie for the two small trusses above which are framed in the manner of a roof with queen-posts and braces. The lower angles of the principal rafters are braced from the lower queen posts to the posts. This truss is free from transverse strains in all its parts, except the curve, which support the arch stones; and, if well secured at the abutments, an arch of an immense weight may be erected upon it.

Fig. 3, is the celebrated center used at Blackfriars bridge. The names of the timbers are as follows:

- A, Timbers which support the centering.
- B, C, Upper and lower striking-plates cased with copper.
- D, Wedge

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- D, Wedge between striking-plates for lowering the center.
- E, Double king-posts to confine braces.
- F, Apron pieces to strengthen rib of center.
- G, Bridings laid on the back of the ribs
- H, Blocks between bridgings to keep them at equal distances.
- I, Small braces to confine the ribs tight.
- K, Iron straps bolted to king-posts and apron-pieces.
- L, Ends of the beam at the feet of king-posts.
- M, Principal braces.

In striking the center of a large arch, the best method is to let it down a little all in a piece, by easing some of the wedges; it is there let to rest for a few hours or days, to try if the arch makes any efforts to fall, or any joints open or stones crush or crack, that the damage may be repaired before the center is entirely removed, which is not to be done till the arch ceases to make any visible efforts.

CENTER of Attack, in French *centre d'attaque*, or *attaque du centre*, in *Military Language*, is an attack on an extensive front, from the second parallel upon the works of a strong place that is besieged, according to the rules or principles of a regular attack.

CENTER of Attraction. See *CENTER of Gravitation*.

CENTER of abasition, in *Fortification*, is the middle point of its gorge, or angular point of the interior polygon, or the point where the two adjacent curtains would meet when produced.

CENTER, or *CENTRE*, of a *battalion on parade*, in *Military Language*, is the middle of it, where an interval is left for the colours; and so on.

CENTER of cavity, in a *ship*, is the center of that part of the ship's body which is immersed in the water; and which is also the center of the vertical force exerted by the water to support the vessel. See *BALLAST*.

CENTER of a circle is a point in the middle of a circle, or circular figure, from which all lines drawn to the circumference are equal.

Euclid demonstrates, that the angle at the centre is double to that at the circumference; i. e. the angle made by two lines drawn from the extremes of an arch to the center, is double that made by two lines drawn from those extremes to a point in the circumference.

CENTER of a conic section is the middle point bisecting any diameter, or the point in which all the diameters intersect and bisect one another.

This point, in the ellipsis, is within the figure; and, in the hyperbola, without, or between the conjugate hyperbolas; and in the parabola, it is at an infinite distance.

CENTER of conversion, in *Mechanics*, a term first used by M. Parent. Its signification is thus conceived: if a stick be laid on stagnant water, and drawn by a thread fastened to it, so that the thread always makes the same angle with the stick; the stick will be found to turn on one of its points which will be immoveable; which point is termed the *center of conversion*. For the greater ease the thread may be conceived fastened to one end of the stick.

This effect arises from the resistance of the fluid, and the manner wherein it divides: for, imagine the first moment of traction, it is certain, here, the resistance of the parts of the fluid to be displaced tends to turn the stick around the point to which the thread is fastened, as on a center; so that in the present instance, the staff would describe precisely the quadrant of a circle: after which the fluid would no longer bear the stick lengthwise; but in a particular motion, in such manner, as that the free end of the stick, and the parts nearest it, would describe larger arcs of circles than the rest, and have a greater velocity. The resistance, therefore, of the fluid, which tends to impress a circular motion on the stick, around the point to which the thread is fast-

tened, tends to impress a greater velocity on the parts next to the other extremity; or, which is the same thing, those parts require a greater velocity to surmount the resistance of the fluid, so that the stick will not have that circular motion around the point to which the thread is fastened; or the resistance of the fluid is greater towards the free extreme of the stick, and still lessens towards the other extreme. Now all the columns, or threads of water, which resist the stick, must be supposed of the same length or the same mass. One may therefore find on the stick such a point, as that taking a great number of those threads on that side which resists the least, and a less number on that side where they resist the most, there will be an exact compensation, and the forces be equal on each side: this point is the center of conversion. And as the same reasoning has place in all motions of traction made in the same manner, this center is always the same point. The grand question here arising is, to know precisely in what point the center of conversion is found: this M. Parent has determined by much laborious calculation. If the stick drawn by one extremity be a straight line divided into twenty parts, reckoning from the thread, the center of conversion he finds will be nearly on the 13th. If it be not a line, but a surface or a solid, there will be some change in the situation of the center of conversion, according to the surface, or the solid. See *Mem. of the Acad. of Sciences*, abridged, vol. i. p. 191.

If in lieu of a body swimming in a fluid, we suppose it laid on a rough uneven plane: the resistance of this plane to the motion of the body will always be divided in the same manner, and determine the same center of conversion. This resistance is, precisely, what we call *friction*, so prejudicial to the effects of machines. See *CENTER of rotation*.

CENTER of a curve, of the higher kind, is the point where two diameters concur.

When all the diameters concur in the same point, sir Isaac Newton calls it the *general center*. M. l'Abbé de Gua, in his "*Usages de l'Analyse de Descartes*," has given a method for finding the general centers of curves, and suggested some important remarks on the definition of general centers given by Newton. The ingenious abbé calls the general center of a curve a point of his plane, such that all the right lines which pass thither have on one side or other of this point equal portions terminated by the curve; and he observes: 1. That this definition corresponds with sufficient exactness to the ordinary acceptation of the word center:—2. That the definition of Newton is comprised in his own: and 3. That by adhering to his definition he has arrived at those conditions which Newton assigns to curves, which, according to him, have a general center; and hence it seems to follow, that Newton had in view the definition of M. l'Abbé de Gua rather than his own, when he determined these centers. M. Cramer, in his "*Introduction à l'Analyse des Lignes courbes*," gives a very exact method for determining these general centers.

CENTER of a dial, is that point where its gnomon or style, which is placed parallel to the axis of the earth, intersects the plane of the dial; and from thence, in those dials which have centers, all the hour lines are drawn. If the plane of the dial be parallel to the axis of the earth, it can have no center at all; but, all the hour-lines will be parallel to the style, and to one another; the center being, as it were, at an infinite distance.

CENTER of an ellipsis, is that point where the two diameters, the transverse and the conjugate, and also all other diameters, intersect each other.

CENTER of the equant, in the *Old Astronomy*, a point in the line of the aphelion; being as far distant from the center

of the eccentric towards the aphelion, as the sun is from the center of the eccentric towards the perihelion.

CENTER of equilibrium, is the same with respect to bodies immersed in a fluid, as the center of gravity is to bodies in free space: or it is a certain point on which, if the body or bodies be suspended, they will rest in any position. More generally, in a system of bodies, it is the point about which they will be in equilibrio; or it is a point such that if the system of bodies were suspended or sustained by it, the said system would remain in equilibrio. Thus, the fulcrum of a lever is its centre of equilibrium. For a method of determining the centre of equilibrium, see Emerson's Mechanics, prop. 92, p. 134.

CENTER of friction is that point in the base of a body, on which it revolves, into which, if the whole surface of the base and the mass of the body were collected, and made to revolve about the center of the base of the given body, the angular velocity destroyed by its friction would be equal to the angular velocity destroyed in the given body by its friction in the same time.

To find the center of friction. Let FGH (Plate IV. Mechanics, fig. 21.) be the base of a body revolving about its center C, and suppose about a, b, c , &c. to be indefinitely small parts of the base, and let A, B, C, &c. be the corresponding parts of the solid, or the prismatic parts, having a, b, c , &c. for their bases; and P the center of friction. It is manifest, that the decrement of the angular velocity must vary as the whole diminution of the momentum of rotation caused by the friction *directly*, and as the whole momentum of rotation or effect of the inertia of all the particles of the solid *inversely*; the former being employed in diminishing the angular velocity, and the latter in opposing that diminution by the endeavour of the particles to persevere in their motion. Hence, if the effect of the friction varies as the effect of the inertia, the decrements of the angular velocity in a given time will be equal. Now as the quantity of friction does not depend on the velocity, the effect of the friction of the elementary parts of the base a, b, c , &c. will be as $a \times aC, b \times bC, c \times cC$, &c. and also the effect of the inertia of the corresponding parts of the body will be as $A \times aC^2, B \times bC^2, C \times cC^2$, &c. Now when the whole surface of the base and mass of the body are concentrated in P, the effect of the friction will be as $a + b + c + \&c. \times CP$, and of the inertia as $A + B + C + \&c. \times CP^2$; consequently $a \times aC + b \times bC + c \times cC + \&c. : a + b + c + \&c. \times CP :: A \times aC^2 + B \times bC^2 + C \times cC^2 + \&c. : A + B + C + \&c. \times CP^2$; and hence

$$CP = \frac{A \times aC^2 + B \times bC^2 + C \times cC^2 + \&c. \times a + b + c + \&c.}{a \times aC + b \times bC + c \times cC + \&c. \times A + B + C + \&c.} = (\text{if } S = \text{the sum of the products of each}$$

partiele into the square of its distance from the axis of motion, $T = \text{the sum of the products of each part of the base into its distance from the center, } s = \text{the area of the base, } t = \text{the solid content of the body}) \frac{S \times s}{T \times t}$. See Vince on

the motion of bodies affected by friction, in the Philos. Trans. for 1785, vol. lxxv. p. 186.

CENTER of gravitation, or *attraction*, in *Physics*, is that point to which bodies tend by gravity; or that point to which a revolving planet or comet is impelled or attracted by the force or impetus of gravity.

CENTER, in *Masonry*, denotes a wooden mould by which to turn an arch. See **CENTER** in *Architecture*.

CENTER of gravity, in *Mechanics*, is a point within a body,

through which if a plane pass, the segments on each side will equiponderate, i. e. neither of them can move the other. Hence, if the descent of the center of gravity be prevented, or if the body be suspended by its center of gravity, it will continue at rest in *equilibrio*, in any position. The whole gravity, or whole matter, of a body may be conceived united in its center of gravity; and therefore, in demonstrations, it is usual for the body to substitute the center.

Through the center of gravity passes a right line, called *the diameter of gravity*: the intersection, therefore, of two such diameters determines the center. The plane whereon the center of gravity is placed is called *the plane of gravity*: so that the common intersection of two such planes determines the diameter of gravity.

In homogenous bodies, which may be divided lengthwise into similar and equal parts, the center of gravity is the same with the center of magnitude. If, therefore, a line be bisected, the point of bisection will be the center of gravity.

The center of gravity of a parallelogram, or cylinder, or any prism whatever, is in the middle point of the axis: and the center of gravity of a circle, or any regular figure, is the same as the center of magnitude. Also, if a line can be so drawn as to divide a plane into equal and similar parts, that line will be a diameter of gravity, or will pass through the center of gravity; and it is the same as the axis of the plane. Thus, the line, drawn from the vertex perpendicular to the base of an isosceles triangle, is a diameter of gravity; and thus also the axis of an ellipse, or a parabola, &c. is a diameter of gravity. The centre of gravity of a segment or arc of a circle is in the radius or line perpendicularly bisecting its chord or base. Likewise, if a plane divide a solid in the same manner, making the parts on both sides of it perfectly equal, and in all respects similar, it will be a plane of gravity, or will pass through the center of gravity. Therefore, as the intersection of two such planes determines the diameter of gravity, the center of gravity of a right cone, or spherical segment, or conoid, &c. will be in the axis of the same. See the sequel of this article.

To find the center of gravity of a body. Let A, B, C, D, &c. (Plate IV. Mechanics, fig. 22.) be particles of the body, and finding the centers of equilibrium, p and q , of A and B, C and D respectively (see **BALANCE** and **LEVER**); let A + B be placed in p , and C + D in q , and their center of equilibrium, G, will be the center of gravity of the particles A, B, C, D, &c. Because the force of gravity acts upon the particles in parallel directions, the efficacy of A to communicate motion to G is $A \times AG$, and that of B is $B \times BG$, or $A \times Ap + pG$, and $B \times Bp + pG$, which are equivalent to them, or $A + B \times pG$, since $A \times Ap$ and $B \times Bp$ are equal and opposite, and consequently destroy each other. The sum of the momenta of C and D is found, by a similar process, to be the same as if they were placed in q : and consequently G, which is the center of gravity of A + B and C + D, placed in p and q respectively, is the center of gravity of A, B, C, D, placed at the points A, B, C, D, &c. Hence it follows, that the particles of the body cannot be in equilibrio about any other point except G; for, if possible, let X be such a point, and it is plain that the efforts of A and B to move $X = A + B \times pX$, and of C and D $= C + D \times qX$; consequently the point X is kept in equilibrio by two forces, $A + B \times pX$, and $C + D \times qX$, not acting in opposite directions, which is impossible. Moreover, in every situation of the body composed of the particles A, B, C, D, &c. if the point G be supported, the body will be at rest; for the force of gravity acting always in parallel directions upon the particles, their momenta, or efforts to move

G, will always be as $A \times AG, B \times BG, \&c.$ which, by the process used in this proposition, will always be reduced to two forces that are equal and opposite. Farther, if $A + B + C + D, \&c.$ be equal to Q , and the pressure of each in parallel directions be equal to g , a force, as $Q \times g$, acting at the point G in a direction opposite to that in which the particles press, will remove their pressure. Or, if $A, B, C, \&c.$ be destitute of gravity, and only resist the action of a force by their inertia, a force at P acting at G will communicate equal velocities to every particle; because their resistances, being exerted in directions opposite to that of P , and therefore parallel to each other, vary as their distance from G , and consequently the sums of the resistances on each side of G are equal. And, vice versa, if Q be moving and without gravity, a force applied at G (the center of inertia) equal to the momentum of Q , will destroy all motion.

The center of gravity of a ship is always before the point, which is the middle of her absolute length; for the fore part, having greater capacity than the after part, must of course have also greater weight: and, therefore, it carries the center of gravity forward in proportion to its greater weight (which in large ships is from 50 to 80 tons), and also to the interval between every center of gravity of each particular part, both forward and aft. When a ship is at sea, and loaded, the center of gravity may well be supposed not to change, unless the cargo be moved. But experience shews, that the fore or after part of the bottom of a ship plunges and labours more and more, in proportion as the wind acts with more or less force on the sails: because ships are generally not masted according to the "point velique;" so that a ship which has the center of the effort of her sails ill-placed, draws always more water forward or aft, when the impulse of the wind upon her sails is very powerful, than when she is at ease under her burden. Obs. From the center of gravity of the floating line of a ship let a perpendicular be raised, and continued till it be intersected by the direction of the impulse of the water on the bows, in sailing directly before the wind; and, where these two lines cut each other, that point is the "point velique," and where the center of effort of all the sails should be placed.

CENTER, common, of gravity of two bodies, is a point so situated, in the right line joining the centers of the two bodies, as that, if the point be suspended, the two bodies will equiponderate, and rest in any situation. Thus, the point of suspension in a common balance, or in a Roman steelyard, where the two weights equiponderate, is the common center of gravity of the two weights.

When any number of bodies move in right lines with uniform motions, their common center of gravity moves likewise in a right line with an uniform motion; and the sum of their motions estimated in any given direction, is precisely the same as if all the bodies, in one mass, were carried on with the direction and motion of their common center of gravity. Nor is the center of gravity of any number of bodies affected by their collisions or actions on each other.

1. If one or more of the bodies, $A, B, C, \&c.$ (Plate IV. *Mechanics*, fig. 23.) move uniformly in the same right line, with velocities equal to $a, b, c, \&c.$ their common center of gravity will move uniformly. For, let A and B move uniformly in the same or an opposite direction, P be their center of gravity, and D their distance; then, because the motions of A and B are uniform, D either continues the same, or increases and decreases uniformly; but $AP = \frac{D \times B}{A + B}$, and consequently varies as D , and P moves uniformly. If another

body, C , move uniformly in the same right line, and R be the center of gravity of A, B, C , the distance, CP , either continues the same, or increases and decreases uniformly, because C and P move uniformly; but $PR = \frac{CP \times C}{A + B + C}$;

and consequently varies as CP , or R moves uniformly. Hence it follows, that the velocity of the center of gravity is equal to $\frac{Aa \pm Bb \pm Cc}{A + B + C}$; for, let p, r, a, b, c , be contemporary positions of P, R , and the bodies, and (by what we shall demonstrate in the sequel of this article) $A \times Ap$, or

$\times Aa + ap - B \times Bp$ or $\times bp \pm Bb = A + B \times Pp$, and $Pp = \frac{A \times Aa \pm B \times Bb}{A + B}$, because $A \times ap - B \times bp = 0$. And, placing $A + B$ in P , and repeating the above process, it appears that $Rr =$ the velocity of $R = \frac{A \times Aa \pm B \times Bb \pm C \times Cc}{A + B + C}$. Hence again it is in-

ferred, that the velocity of R is uniform; because Aa, Bb, Cc , are constant, and consequently their sum, or difference, multiplied into the same given quantities, or the velocity of R , is always the same. Moreover, because $A + B + C \times Rr = A \times Aa \pm B \times Bb \pm C \times Cc$, the velocity of the center of gravity is such as would be communicated to the sum of the bodies acted upon by a force equal to $A \times Aa \pm B \times Bb \pm C \times Cc$.

2. If one or more bodies, $A, B, C, \&c.$ (fig. 24.) move uniformly in right lines, either in the same or different planes, their common center of gravity, S , will move uniformly in a right line. Let B describe Bb uniformly in the time T , and P, Q , be the centers of gravity of A and B ; and $A + B : B :: AB : AP :: Ab : AQ :: Bb : PQ$ (Eucl. I. vi. pr. 5.), and PQ is parallel to Bb , and equal to $\frac{Bb \times B}{A + B}$, and varies

therefore as Bb , or uniformly. Let A describe Aa uniformly in the time T , either in the same plane with Bb , or not, and R be the center of gravity of A , and B placed at b ; and QR , the path of the center of gravity, will appear, by the same process with the above, to be parallel to Aa , and equal to $\frac{Aa \times A}{A + B}$, and consequently it varies as Aa , or increases

uniformly. When both bodies move at the same time, the point P will have two motions, PQ and QR ; and will consequently describe the diagonal PR uniformly in the time T . Let a third body be added, and the common center of gravity be S , and CS produced will pass through the center of gravity of A and B . Then, from the nature of the center of gravity, $A + B + C : A + B :: CP : CS :: CQ : CT :: QP : ST$; and $ST = \frac{A + B \times QP}{A + B + C}$,

and varies as QP , or uniformly; and for the same reason TV , the motion of T arising from A 's motion, is equal to $\frac{QR \times A + B}{A + B + C}$, and therefore varies as QR , or uniformly.

ly. When A and B move together, the motions ST, TV , will be combined into one, SV ; and if C describe Cc uniformly in the time T , the common center of gravity will describe VY , and this new motion, combined with SV , will make it describe SY uniformly in the time T .

This proposition may be otherwise demonstrated in the following manner. Case 1. Let two bodies move, in the same plane, in the directions DE, AB , (fig. 25.); and let D and A, E and B , be contemporary positions, and H, K , the centers of gravity in those positions, respectively; and taking

CENTRE.

BP = AD, joining EP, and drawing DL parallel to HK, DE : AB in the given ratio of the motions of the bodies; and, because the angle EDP is given, all the angles of the triangle EDP are given, and DP is to PE in a given ratio; and, because all the angles of the triangle DPL are given, the angle PDL is given, and L is always in DL. By the nature of the center of gravity, DA : DH :: EB : EK :: PB or DA : LK; therefore DH = LK, and DHKL is a parallelogram, HK is parallel to DL, and the angle BHK is given, and the center of gravity K is always in the right line HK given in position. And, because all the angles of the triangles DPL and DLE are given, the lines DP, DE, DL, that is, AB, DE, HK, are in a given ratio, and consequently the point K moves uniformly in HK. The demonstration is the same if one of the bodies moves from B towards A.

Case 2. Let the paths of the bodies, AB and DE, (fig. 26.) be in different planes; and through AB draw a plane Bde parallel to DE, and through DE draw the plane Dde perpendicular to Bde; produce BA to d, and let Dd, Ee, be perpendicular to de, and the planes DdA, EeB, will be perpendicular to the plane edB. Let A and D, B and E, be contemporary positions of the bodies. If the body at D were to move in de, the center of gravity would move uniformly in some line HK (case 1.); though HK erect the plane HKkb perpendicular to HBK. From similar triangles, and the nature of the center of gravity $Ab : bD :: AH : Hd :: BK : Ke :: Bk : kE$; therefore bk is the path of the center of gravity of the bodies moving in AB, DE. And, because $Dd : Hb :: Ad : AH :: Be : BK :: Ee : Dd :: Kk, Hb = Kk$, and kb is equal and parallel to HK; therefore the center of gravity of the bodies, moving uniformly in AB, DE, moves uniformly in bk .

Case 3. The common center of gravity of two bodies and a third body is either at rest, or moves uniformly in a right line; for two may be placed in their common center of gravity, which was proved to move uniformly, and the center of gravity of the three or more bodies is proved, by the same process as before, to move uniformly.

From what has been above demonstrated, it is evident, that the path of the center of gravity, arising from the motion of any one body, is always parallel to that of the moving body: PQ and ST (fig. 24.) are parallel to Eb; QR and TV are parallel to Aa, and VY to Cc. Moreover, the centers of gravity of two, three, &c. bodies will describe polygons or curves similar to that of the moving body to which their motion is owing; and if the velocity of the body be variable, the velocity of each center will be variable according to the same law. Also, the velocity of the center of gravity of two, three, &c. bodies is the same as if they were placed in it, and acted upon by forces equal to the momenta of the moving bodies, in their respective planes and directions: for $B \times Bb = \overline{A+B} \times PQ$, and $A \times Aa = \overline{A+B} \times QR$; and if A + B were placed at P, and acted upon by forces equal to $B \times Bb$ and $A \times Aa$ in the planes and directions of Bb and Aa, they would describe the diagonal PR.

3. *The common center of gravity of two or more bodies is not affected by any action of the bodies upon each other.* For, let A and B (fig. 27.) be two bodies in a system, acting upon each other, G their common center of gravity, and Aa, Bb, the velocities lost by A and gained by B respectively in opposite directions; and $A \times Aa = B \times Bb$, or $A : B :: Bb : Aa :: BG : AG :: bg : aG$, or $A : B :: B's \text{ distance from the center of gravity} : A's \text{ distance from it}$; and con-

sequently the same point, G, is still the center of gravity of A and B, or it has been immoveable. What is proved of these two is true of every two bodies, and therefore of all. Hence, if two parts of a system, A and B, attract or repel each other, or moving with unequal rectilinear motions, disturb each other's motion by the force of their inertia, the center of gravity will not be affected by their mutual action.

CENTER of gravity, laws of the. 1. *In two bodies, whose masses of matter are equal, the center of gravity is equally distant from their two respective centers.* For these are like two equal weights suspended at equal distances from the point of suspension; and in this case they will equiponderate, and rest in any position.

2. *If the centers of gravity of two bodies, A and B, (Plate IV. Mechanics, fig. 28.) be joined by the right line AB, the distances, BC and CA, of the common center of gravity, C, from the particular centers of gravity, B and A, are reciprocally as the weights B and A.* See this demonstrated under BALANCE and LEVER.

Hence, if the gravities of the bodies A and B be equal, the common center of gravity, C, will be in the middle of the right line, AB. Again, since $A : B :: BC : AC$; it follows that $A \times AC = B \times BC$; whence it appears, that the powers of equiponderating bodies are to be estimated by the product of the mass, multiplied into the distance from the center of gravity; which product is usually called the *momentum* of the weights.

Further, since $A : B :: BC : AC, A + B : A :: BC + AC (or AB) : AC$. Therefore the common center of gravity, C, of two bodies, will be found, if the product of one weight, A, into the distance of the separate centers of gravity, AB, be divided by the sum of the weights, A and B. Suppose, e. g. $A = 12, B = 4, AB = 24$; therefore $BC = 24 \times 12 \div 16 = 18$; and $AC = 6$. If the weight, A, be given, and the distance of the particular centers of gravity, AB, together with the common center of gravity, C; the weight of B will be found = to $A \times AC \div BC$; that is, dividing the momentum of the given weight, by the distance of the weight required from the common center of gravity. Suppose, $A = 12, BC = 18, AC = 6$; then $B = 6 \times 12 \div 18 = 4$.

3. *To determine the common center of gravity of several given bodies or points, a, b, c, d, (fig. 29.) in the same right line, AB.* Find the common center of gravity of the two bodies, a and b, which suppose in F; conceive a weight, $a + b$, applied in F; and in the line, FE, find the common center of the weights, $a + b$ and c; which suppose in G. Lastly, in BG, suppose a weight $a + b + c$ applied, equal to the two $a + b$ and c; and find the common center of gravity between this and the weight d, which suppose in H; this H will be the common center of gravity of the bodies, a, b, c, d. And in the same manner might the common center of gravity of any greater number of bodies be found. Otherwise: take the distances of the given bodies from some fixed point, as V (fig. 30.), calling the distance VA = a, VB = b, VC = c, VD = d, and the distance of the center of gravity VS = x; then SA = x - a, SB = x - b, SC = x - c, SD = x - d; and by the property of the lever, $A \times x - a + B \times x - b = C \times x - c + D \times x - d$; hence $Ax + Bx + Cx + Dx = Aa + Bb + Cc + Dd$, and $x = \frac{Aa + Bb + Cc + Dd}{A + B + C + D} = VS$, the distance

sought; which is consequently equal to the sum of all the momenta, divided by the sum of all the weights in the bodies. Or

Or thus: when the bodies are not in the same straight line, connect them with the lines, AB , CD ; then find, as before, P , the common center of A and B , and Q the common center of C and D ; and conceiving A and B united in P , and C and D united in Q , find S , the common center of P and Q , which will be the common center of the whole. Or, the bodies may be all reduced to any line, VAB , &c. drawn in any direction whatever, by perpendiculars, BB' , CC' , &c. and then the common center in this line, found as before, will be at the same distance from V as the true center is; and consequently, the perpendicular from s will pass through S , the real center. From the preceding general ex-

pression, viz. $\alpha = \frac{Aa + Bb + Cc, \&c.}{A + B + C, \&c.}$, for the center of

gravity of any system of bodies, we may deduce a general method for finding that center; for A , B , C , &c. may be considered (as above stated), to be the elementary parts of any body, whose sum or mass is $M = A + B + C, \&c.$, and Aa , Bb , Cc , are the several momenta of all these parts, viz. the product of each part multiplied by its distance from the fixed point, V . Hence then, in any body, find a general expression for the sum of the momenta, and divide it by the content of the body, and the quotient will be the distance of the center of gravity from the vertex, or from any other fixed point, from which the momenta are estimated. The application of this principle will appear in the sequel of the article. M. Lhuillier has, in the fourth volume of the New Acts of the Academy of Petersburg, given the demonstration of a very general theorem concerning centers of gravity; the following expression is a particular example of the general proposition: Let A , B , C be the centers of gravity of three bodies; a , b , c , their respective masses; and Q their common center of gravity. Let right lines, QA , QB , QC , be drawn from the common center to that of each body, and the latter be connected by right lines, AB , AC , and BC ; then $QA^2 \times a + QB^2 \times b + QC^2 \times c = AB^2 \times \frac{ab}{a+b+c} + AC^2 \times \frac{ac}{a+b+c} + BC^2 \times \frac{bc}{a+b+c}$.

4. Two weights, D and E , (fig. 31.) being suspended without their common center of gravity in C , to determine which of them preponderates, and how much. Multiply each into its distance from the center of suspension; that side on which the product is greatest will preponderate; and the difference between the two will be the quantity wherewith it preponderates. Hence, the momenta of the weights, D and E , suspended without the center of gravity, are in a ratio compounded of the weights, D and E , and the distances from the point of suspension. Hence, also, the momentum of a weight suspended in the very point, C , will have no effect at all in respect of the rest, D , E .

5. To determine the preponderation where several bodies, a , b , c , d , (fig. 32.) are suspended without the common center of gravity in C . Multiply the weights, c and d , into their distances from the point of suspension, CE and CD ; the sum will be the momentum of their weights, or the ponderation towards the right: then multiply the weights, a and b , into their distances, AC and CD , the sum will be the ponderation towards the left; subtracting, therefore, the one from the other, the remainder will be the preponderation required.

6. Any number of weights, a , b , c , d , being suspended without the common center of gravity in C , and preponderating towards the right; to determine the point, F , from whence the sum of all the weights being suspended, the ponderation still continues the same as in their former situation.

Find the momentum wherewith the weights, c and d , preponderate towards the right; since the momentum of the sum of the weights to be suspended in F is to be equal to it, the momentum now found will be the product of CF into the sum of the weights: this, therefore, being divided by the sum of the weights, the quotient will be the distance, CF , at which the sum of the weights is to be suspended, that the preponderation may continue the same as before.

7. The sum, or difference, of the products, which results from multiplying each particle, A , B , C , D , into its perpendicular distance from any plane, LN , as they are on the same or different sides of the plane, is equal to the product of all the particles multiplied into the distance of their center of gravity, G , from that plane. See figs. 33, and 34. Let P and Q be the centers of gravity of A and B , C and D , and drawing right lines through P , Q , G , parallel to the plane, which intersect the perpendiculars drawn from those points respectively; and $A : B :: BP : AB :: Bn$ or $Bb - Pp : Am$ or $Pp - Aa$; and $A \times Pp - Aa = B \times Bb - Pp$, or $A \times Aa + B \times Pb = A + B \times Pp$. By a similar process it appears, that $C \times Cc + D \times Dd = C + D \times Qq$. But $A + B : C + D :: QG : PG :: Gv$ or $Gg \mp Qq : Px$ or $Pp - Gg$, and $A + B \times Pp - Gg = C + D \times Gg \pm Qq$; or, by transposition and substitution of equals, $A \times Aa + B \times Bb \pm C \times Cc \pm D \times Dd = A + B + C + D \times Gg$; in which expression the higher or lower signs are to be used, as the bodies are on the same, or a different, side of the plane.

Hence it appears, that, if the particles be placed upon the same right line, or, (as in fig. 35.) Aa , Bb , Cc , Dd , Gg become Ag , Bg , Cg , Dg , Gg respectively, $A \times Ag + B \times Bg \pm C \times Cg \pm D \times Dg = A + B + C + D \times Gg$; i.e. the sum, or difference, of the products resulting from the multiplication of each particle into its distance from any point, g , as they are on the same, or a different side of that point, is equal to the product of their sum multiplied into the distance of their center of gravity from that point. Moreover, the whole momentum of a body, acting upon a lever, being equal to that of every particle, or to the sum of the products which results from the multiplication of each particle into its distance from the center of motion, is equal therefore to the product of the whole body into the distance of the center of gravity from the center of motion, and is consequently the same as if it were collected in the center of gravity. The demonstration of this proposition obtains therefore when A , B , C , D are collections of particles or bodies, whose centers of gravity are the points A , B , C , D . And to find the center of gravity of a system of bodies, it is evident that in the proposition, introducing this article, bodies, whose centers of gravity are A , B , C , D , &c. may be substituted for particles. Farther, if A , B , C , D (fig. 33 and 34) be bodies acting upon any plane, LN , in parallel directions, the sum of their efforts to move it is the same as if they were collected in their center of gravity; for, if A , B , C , D be the respective centers of gravity of each body, this sum is equal to $A \times Aa + B \times Bb \pm C \times Cc \pm D \times Dd = A + B + C + D \times Gg$; or, if they be placed upon a lever, the sum of their efforts to make it revolve is the same as if they were placed at G . When the center of gravity, therefore, is in the plane, or at the fulcrum of the lever, the plane and lever are quiescent. And if any point, Z , be taken in NL , $A \times aZ + B \times bZ + C \times cZ + D \times dZ = A + B + C + D \times gZ$; for if a plane pass through Z , the proof is the same as that of this proposition. Also, the distance

distance of any plane from the common center of gravity of A, B, C, D, &c. or Gg is equal to $\frac{A \times Aa + B \times Bb \pm C \times Cc \pm D \times Dd}{A + B + C + D, \&c.}$; and its distance from a plane passing

through any point, Z, is equal to $\frac{A \times Za + B \times Zb \pm C \times Zc \pm D \times Zd}{A + B + C + D}$, in which expression the lower signs

are to be used for those bodies that are not on the same side of Z with A and B. It follows also, that a right line drawn from A (fig. 36.) through the center of gravity, G, of any number of bodies, A, B, C, D, &c. will pass through the center of gravity of the remainder; for $B \times Bb + D \times Dd = C \times Cc$; and consequently the center of gravity of B, C, D is in the plane passing through A G; and if this plane revolve, their center of gravity is always in the plane passing through A G, and consequently it must be in the line A G produced, which is the common intersection of the planes. If

r be this center, $B + C + D \times Gr = A \times AG$, and if the bodies be equal, and n their number, $AG = \frac{n-1}{n} \times Gc$. It appears farther, that if a circle or sphere be described about the center of gravity, G, of any number of bodies, A, B, C, &c. (fig. 37.) and any point, P, be taken in the periphery of the circle or surface of the sphere, $PA^2 \times A + PB^2 \times B + PC^2 \times C, \&c.$ is a given quantity; for, drawing G P, and the perpendiculars to it Aa, Bb, Cc, $A \times Ga = B \times Gb + C \times Gc$, or by substitution of equals,

$$A \times \frac{GA^2 - PA^2 + GP^2}{2 GP} = B \times \frac{PB^2 - BG^2 - GP^2}{2 GP} + C \times \frac{PC^2 - GP^2 - GC^2}{2 GP}, \text{ or, } A \times PA^2 + B \times PB^2$$

$$+ C \times PC^2 = A \times GA^2 + GP^2 + B \times GB^2 + GP^2 + C \times GC^2 + GP^2; \text{ and this side of the equation is invariable in whatever point of the periphery or surface P be placed.}$$

8. If A, B, C, D, &c. (fig. 38.) be particles of a body urged by forces in parallel directions, whose magnitudes are Aa, Bb, Cc, &c. the sum of their weights is equal to the weight of $A + B + C, \&c.$ acted upon by a force whose magnitude is Gg. For the weights of A, B, C, &c. being $A \times Aa, B \times Bb, C \times Cc, \&c.$ the sum of their weights will be equal to $A + B + C, \&c. \times Gg$; but this product is the weight of $A + B + C, \&c.$ acted upon by the force Gg. Hence, if the forces Aa, Bb, Cc, &c. be equal to each other, Gg is equal to one of them, or if the particles A, B, C, &c. be acted upon by the same force, their weight is the same as if they were collected in their center of gravity, and acted upon by that force. The tendency, therefore, of a body to descend is the same as if it were collected in its center of gravity, and, consequently, if a line drawn from that center perpendicular to the horizon fall within the base of that body, it cannot fall; and if without the base, it cannot stand. See GRAVITY.

9. If any number of bodies, A, B, C, &c. (fig. 39.) move in parallel directions, with any velocities, the center of gravity will describe a right line parallel to them. Let A and B, a and b , be contemporary positions of the bodies A and B, and Gg, their centers of gravity, and through g draw a line, αy , parallel, and consequently equal, to A B. From the nature of the center of gravity, $A : B :: BG : AG :: bg : ag :: yg : \alpha g$ (by similar triangles); and the point g divides the parallel and equal lines A B, αy , in the same ratio, and Gg

is a right line parallel to Aa or Bb. If H be the center of gravity of A, B, C, it is proved in the same manner that it cuts the parallel and equal lines, G C, $v z$, in the same ratio, and Hb is consequently a right line parallel to Gg. Hence, if any number of bodies, A, B, C, &c. (fig. 38.) ascend or descend in parallel right lines, the sum of the products resulting from the multiplication of each body into the space described by it is equal to the product of their sum, and the space described by their center of gravity G; for, let a, b, c, g , be contemporary positions of A, B, C, G, and, drawing any plane N L, $A \times Am + B \times Bn + C \times Cg = A + B + C \times Gb$; and $A \times am + B \times bn + C \times cg = A + B + C \times gb$; and consequently by addition $A \times Aa + B \times Bb + C \times Cc = A + B + C \times Gg$. Moreover, if any number of bodies move in parallel directions with any unequal velocities, or they be placed upon the lever X Y (figs. 39. and 40.), and receive unequal impulses from any force at the same time in parallel directions, the center of gravity will, in the beginning of its motion, move uniformly in a right line parallel to them, and its velocity is equal to the products of each body into its velocity, divided by the sum of the bodies; for the spaces Aa, Bb, Cc, Gg are described in the same time, and vary as the velocities; and Gg, or velocity of G, = $\frac{A \times Aa + B \times Bb + C \times Cc}{A + B + C}$.

See Parkinson's System of Mechanics, &c. ch. ix.

10. To find the center of gravity in a right line A B (Pl. VI. Mechanics, fig. 41.) All the particles that compose this line may be considered as so many very small weights, each equal to \dot{x} , which is therefore the fluxion of the weights, or of the line denoted by x . Multiplying therefore the small weight \dot{x} by its distance from A, viz. x , and $x\dot{x}$ will be the momentum of that weight \dot{x} ; or, in other words, $x\dot{x}$ is the fluxion of all the momenta in the line A B or x ; and, therefore, its fluent $\frac{1}{2}x^2$ is the sum of all those momenta; which, being divided by x the sum of all the weights, gives $\frac{1}{2}x$ or $\frac{1}{2}AB$ for the distance of the center of gravity C from the point A; that is, the center of gravity of an homogeneous line is in the middle of that line. In any body, having found a general expression for the sum of the momenta of all the parts, if this be divided by the content of the body, the quotient will be the distance of the center of gravity from the vertex, or from any other fixed point, from which the momenta are estimated.

11. To find the center of gravity in a parallelogram and parallelepiped. Draw the diagonals A D and E G, (fig. 42.) likewise C B and H F; since each diagonal, A D and C B, divides the parallelogram A C D B into two equal parts, each passes through the center of gravity; consequently, the point of intersection, I, must be the center of gravity of the parallelogram. In like manner, since both the planes, C B F H, and A D G E, divide the parallelepiped into two equal parts, each passes through its center of gravity; so that the common intersection, I K, is the diameter of gravity, the middle whereof is the center.

After the same manner may the center of gravity be found in prisms and cylinders; it being the middle point of the right line that joins the center of gravity of their opposite bases.

The center of gravity of a parallelogram, &c. may be very easily found by the method of fluxions. Let the axis or length A B of the parallelogram (fig. 43.) be x , and its breadth D E = b ; and if de be drawn parallel and indefinitely near to D E, the areola $d D E e = b\dot{x}$ will be the fluxion of all the weights, which multiplied by its distance x from

from the point A gives $b x \dot{x}$ for the fluxion of all the momenta, and consequently the fluent $\frac{1}{2} b x^2$ is the sum of all those momenta themselves; which, being divided by $b x$ the sum of all the weights, gives $\frac{1}{2} x = \frac{1}{2} A B$ for the distance of the center C from the extremity at A, and is therefore in the middle of the axis, as we have above shewn. The process and conclusion will be precisely the same for a cylinder, or any prism whatever, making b to denote the area of the end or of a transverse section of the body.

12. In regular polygons, the center of gravity is the same with the center of the circumscribed parallelogram.

13. To find the center of gravity of a cone and a pyramid. The center of gravity of a cone is in its axis AC (fig. 44.) If then AP = x, AC = a, CD = r, the periphery of the base = p, and PN = y, we shall have, by the well known

property of circles, $r : p :: y : \frac{p y}{r}$ = the periphery of the circle, whose diameter is MN, which being multiplied by $\frac{y}{2}$ will give $\frac{p y^2}{2r}$ = the area of the same circle. But, by

similar triangles, $y : x :: r : a$, therefore $y = \frac{r x}{a}$, and $y^2 = \frac{r^2 x^2}{a^2}$; consequently the area of the circle, whose radius

is PN, becomes equal to $\frac{p r x^2}{2 a^2}$; and therefore $\frac{p r x^2 \dot{x}}{2 a^2}$ will be the fluxion of the mass, or of the content of the cone at the term MN, and $\frac{p r x^3 \dot{x}}{2 a^2}$ will be the fluxion of the momentum, whose fluent is $\frac{p r x^4}{8 a^2}$, which, being divided by

$\frac{p r x^3}{6 a^2}$, the fluent of $\frac{p r x^2 \dot{x}}{2 a^2}$, the fluxion of the mass, will give $\frac{3}{4} x = \frac{3}{4} A P$, for the distance of the center of gravity of the portion AMN from the vertex A; and when AP becomes equal to AC, x will be equal to a; and therefore the center of gravity of the whole cone is distant from the vertex $\frac{3}{4}$ of AC. And in the same manner is found the distance of the center of gravity from the vertex of the pyramid $\frac{3}{4} A C$: and therefore all pyramids of the same altitude have the same center of gravity.

14. To determine the center of gravity in an isosceles triangle BAC (fig. 45.) Draw the right line AD, bisecting the base BC in D which will be also perpendicular to it; since $\triangle B A D = \triangle D A C$, each may be divided into the same number of little weights, applied in the same manner on each side to the common axis AD; so that the center of gravity of the $\triangle B A C$, will be in AD. To determine the precise point in that, let AD = a, BC = b, AP = x, MN = y; then will AP : MN :: AD : BC; or, $x : y :: a : b$.

Hence, $y = \frac{b x}{a}$. Consequently $y x \dot{x}$, which represents the fluxion of the mass at the term MN, divided by $y \dot{x}$ expressing the fluxion of the area AMN, will be equal to $\frac{b x^2 \dot{x}}{a} \div \frac{b x \dot{x}}{a} = \frac{x^2 \dot{x}}{x}$; the fluent of which quantity will be $\frac{\frac{1}{3} x^3}{\frac{1}{2} x^2} = \frac{2 x}{3}$, and at the term BC, when $x = A D$, $\frac{2}{3} A D$; and therefore the distance of the center of gravity of the \triangle from the vertex, will be found $\frac{2}{3} a$.

In the very same manner the center of gravity of any other plain triangle will appear to be at $\frac{2}{3}$ of a line drawn from one angle to bisect the opposite side, or the diameter of gravity, from the vertex.

The same center may be otherwise ascertained without fluxions, thus. Since a line drawn from any angle to the middle of the opposite side passes through the center of gravity, the point of intersection of any two such lines will be that center: so that the center of gravity is in the line AD, (fig. 46.) and it is also in the line CG bisecting AB; and consequently in the point of their intersection, S. In order to determine the distance of S from any angle, as A, produce CG to meet BH parallel to AS in H; then the two triangles AGS, BGH are mutually equal and similar, because the opposite angles at G are equal, and also the alternate angles at H and S, and at A and B, and the line AG = BG; therefore the other sides BH, AS are equal. But the triangles CDS, CBH are similar, and the side CB = 2 CD; therefore BH or its equal AS = 2 DS; that is AS = $\frac{2}{3}$ AD, the same as before. And in like manner CS = $\frac{1}{3}$ CG.

15. To determine the center of gravity of a trapezium. Divide the figure (fig. 47.) into two triangles by the diagonal AC, and find the centers of gravity E and F of these triangles; join EF, and find the common center G of these two by this proportion, viz. ABC : ADC :: FG : EG, or ABCD : ADC :: EF : EG. In a similar manner, the center of gravity may be found in any other figure, whatever be the number of sides, by dividing it into several triangles, and finding the center of gravity of each; then connecting two centers together, and finding their common center as above; then connecting this and the center of a third, and finding the common center of these; and so on, always connecting the last found common center to another center, till all are included in the process; and thus the last common center will be that which is required.

16. For the center of gravity in a parabola (fig. 48.) Let AE = a, SH = b, AP = x, PN = y. Then will $2 y \dot{x}$ be the fluxion of the whole weight; but from the nature of the parabola, and the parameter being a constant quantity, $1 x = y^2$; whence $x^{\frac{1}{2}} = y$, and $2 x^{\frac{1}{2}} = 2 y$: substituting $2 x^{\frac{1}{2}}$ instead of 2 y in the above expression, we shall have $2 x^{\frac{1}{2}} \dot{x}$

for the fluxion of the mass, whose fluent $\frac{4 x^{\frac{3}{2}}}{3}$ will be the mass itself. Then, multiplying $2 x^{\frac{1}{2}} \dot{x}$ by x, we shall have $2 x^{\frac{1}{2}} x \dot{x}$ or $2 x^{\frac{3}{2}} \dot{x}$ for the fluxion of the momentum, whose fluent $\frac{4 x^{\frac{5}{2}}}{5}$ will be the momentum itself. Divide this by the whole weight, and the quotient $\frac{\frac{4}{5} x^{\frac{5}{2}}}{\frac{4}{3} x^{\frac{3}{2}}} = \frac{3}{5} x$, will be the distance of the center of gravity of the space NAZP from the vertex A; and when AP becomes equal to AE, or $x = a$, $\frac{3}{5} a$, or $\frac{3}{5} A E$, will be the distance of the center of gravity of the whole parabolic space from the vertex A. Now $y^m = 1 x$, being a general equation for all kinds of parabolas, we shall have $y = x^{\frac{1}{m}}$, and therefore $x^{\frac{1}{m}} \dot{x}$ will be

the fluxion of the whole mass, and $x^{\frac{1}{m} + 1} \dot{x}$ the fluxion of the momentum: the fluent of this last expression, viz.

$\frac{m}{2m+1} x^{\frac{1}{m} + 2}$, being divided by the fluent of $x^{\frac{1}{m}} \dot{x}$ or

$\frac{m}{m+1} x^{\frac{1}{m} + 1}$, will give $\frac{m+1}{2m+1} x$, for the distance of the center of gravity of the space ZAN from the vertex A, and $\frac{m+1}{2m+1} a$ will be the distance of the center of gravity of the whole parabolic space from A. When $m = 2$, as in the common

CENTER.

common parabola, this expression will be $\frac{3}{2}a$. If $m = 3$, as in the cubical parabola, then the expression will be $\frac{4}{3}a$; when $m = 4$, as in a biquadratic parabola, we shall have $\frac{5}{2}a$ of the axis for the distance; and in a sursolid parabola, when $m = 5$, the expression will give $\frac{6}{1}a$ for the required distance. If $m = \frac{1}{2}$, which is the property of the concave or supplemental space, then the axis becomes a tangent to the vertical point, and $\frac{3}{2}a$ will be the distance required. In the exterior parabola A S T, as may be easily found, by reasoning on similar principles, the center of gravity is at the distance A L, equal to $\frac{3}{2}A Q$. In the cubical parabola, $\frac{4}{3}A Q$. In a biquadratic parabola, $\frac{5}{2}A Q$. In a sursolid parabola, $\frac{6}{1}A Q$.

17. *The center of gravity of the arc of a circle, as ABD (fig. 49.) considered as a physical line, having gravity.*

It is evident that the center of gravity, G, of the arc, will be somewhere in the axis, or middle radius B C, C being the center of the circle, which is considered as the point of suspension. Suppose F indefinitely near to A, and F H parallel to B C. Put the radius B C or A C = r , the semi-arc A B = z , and the semi-chord A E = x ; then A H = \dot{x} , and A F = \dot{z} , the fluxion of the weights, and therefore C E $\times \dot{z}$ is the fluxion of the momenta. But by similar triangles, A C or r : C E :: A F or \dot{z} : A H or \dot{x} ; therefore $r \dot{x} = C E \times \dot{z}$, and consequently $r \dot{x}$ is also the fluxion of the momenta; the fluent of which is $r x$, and this, divided by z , the weight, gives $\frac{r x}{z} = \frac{A C \times A E}{A B} = \frac{A C \times A E}{A B D}$ = C G, the distance of the center of gravity from the center C of the circle; and it is manifestly a fourth proportional to the given arc, its chord, and the radius of the circle. When the arc becomes the semi-periphery A B K, the above expression becomes $\frac{I C^2}{I B}$ or $\frac{r^2}{1.5708 r} = \frac{r}{1.5708} = .6366 r$ viz. a third proportional to a quadrant and the radius.

18. *Let A B D C (fig. 49.) be a circular sector; and the center of gravity will be somewhere in the axis or middle radius, B C, as in the former case.* With any lesser radius describe the concentric arc L M N, and put the radius A C or B C = r , the arc A B D = a , its chord A E D = c , and the variable radius, C L, or C M, = y ; then $r : y :: a : \frac{a y}{r}$

the arc L M N, and $r : y :: c : \frac{c y}{r}$ = the chord L O N; and also by the last article the distance of the centre of gravity of the arc L M N is $\frac{C M \times L O N}{L M N} = \frac{C M \times A E D}{A B D}$

= $\frac{c y}{a}$: hence the arc L M N or $\frac{a y}{r}$ multiplied by y gives $\frac{a y^2}{r}$, the fluxion of the weights, and this multiplied by

$\frac{c y}{a}$, the distance of the common center of gravity, gives $\frac{c y^2 y}{r}$ the fluxion of the momenta; the fluent of which, viz.

$\frac{c y^3}{3 r}$ divided by $\frac{a y^2}{2 r}$, the fluent of the weights, gives $\frac{2 c y}{3 a}$ for the distance of the center of gravity of the sector C L E N from the center C: and when $y = r$, it becomes $\frac{2 c r}{3 a} = C G$ for that of the sector C A B D proposed; being $\frac{2}{3}$ of a fourth-proportional to the arc of the sector, its chord, and the radius of the circle. Hence, when the sector becomes a semi-circle, the last expression becomes

$\frac{4 r^2}{3 a} = \frac{2 I C^2}{3 I B}$, or $\frac{2}{3}$ of a third proportional to a quadrantal arc and the radius: or, it is equal to $\frac{4 r}{3 p} = .4244 r$ from the

center C, where $p = 3.1416$.

19. *To find the center of gravity of an hemisphere, A B O, (fig. 50).* Put the axis or radius A D = a , D P = x , and M P, parallel to the base, = y . Then P M D being a right-angled triangle, we have $M P^2 = M D^2 - D P^2$, i. e. $y^2 = a^2 - x^2$. And putting c for the circumference of a circle whose diameter is unity, the circumference of a circle whose diameter is M E, or $2 y$, will be $2 c y$, and its area will be $2 c y \times \frac{1}{2} y$, viz. $c y^2$, or (by substituting for $y y$ its value as above found, i. e. $a^2 - x^2$) $c a^2 - c x^2$; and this is a section of the hemisphere parallel to the base. Then, $c a^2 - c x^2 \times \dot{x}$ is one of the infinitely small weights into which the hemisphere is supposed to be divided; and its fluent $c a^2 x - \frac{c x^3}{3}$ is the sum of all those weights. Also,

$c a^2 - c x^2 \times x \dot{x}$ is the fluxion of the momentum of the small weight; the fluent of which, viz. $\frac{c a^2 x^2}{2} - \frac{c x^4}{4}$ is the sum of all the momenta. And, when x is equal to the whole axis A D, those two fluents become $(c a^3 - \frac{c a^3}{3} = \frac{2 c a^3}{3})$ and $(\frac{c a^4}{2} - \frac{c a^4}{4} = \frac{c a^4}{4})$.

Then, dividing the latter fluent by the former, we have $\frac{c a^4}{4} \div \frac{2 c a^3}{3} = \frac{3 c a^4}{8 c a^3} = \frac{3}{8} a$: so that the center of gravity is distant from the point D, $\frac{3}{8}$ ths of the axis, or of the radius A D.

The centers of gravity of other bodies may be found in a similar manner. Thus the altitude of the segment of a sphere, or spheroid, or conoid, being x , the whole of the axis itself being a , the distance of the center of gravity in each of these bodies from the vertex will be as follows: viz.

$\frac{4 a - 3 x}{6 a - 4 x} x$ in the sphere or spheroid.

$\frac{3}{8} x$ in the semi-sphere or semi-spheroid (as above).

$\frac{3}{8} x$ in the parabolic conoid.

$\frac{4 a + 3 x}{6 a + 3 x} x$ in the hyperbolic conoid.

These, and such cases, however, are more operose, and also more uncommon, and we shall therefore refer for a more ample account of the center of gravity to writers on this subject; among whom we may reckon Archimedes, Pappus, Guldinus, Wallis, Casatus, Carre, Hays, Wolfius, Hodgson, Simpson, &c. &c.

To find the value of any surface or solid by means of the center of gravity; see *CENTROBARYC Method*.

20. *To determine the center of gravity in any body mechanically.* Lay the given body H I (fig. 51.) on an extended rope, or on the edge of a triangular prism F G, bringing it this and that way, till the parts on either side are in equilibrium; the plane, whose side is K L, passes through the center of gravity. Balance it again on the same, only changing its situation; then will the chord, or the side M N, pass through the center of gravity; so that the intersection of the two lines M N and K L determines the point O in the surface of the body required.

The same may be done by laying the body on an horizontal table (as near the edge as is possible, without its falling)

in two positions, lengthwise and breadthwise: the common intersection of the two lines contiguous to the edge will be its center of gravity. Or it may be done by placing the body on the point of a style, &c. till it rest in equilibrio. It was by this method that Borelli found the center of gravity in a human body to be between the nates and pubes; so that the whole gravity of the body is there collected, where nature has placed the genitals: an instance (says Wolfius) of the wisdom of the Creator, in placing the membrum virile in that place which of all others is the most convenient for copulation; nevertheless, this law does not take place in the greater number of animals.

Or thus. Suspend the body by any point; then a plumb-line hung over the same point will pass through the center of gravity; because that center will always descend to the lowest point when the body comes to rest, which it cannot do except when it falls in the plumb-line. Therefore, marking that line upon it, and suspending the body by another point, with the plummet, to find another such line, the intersection of the two will give the center of gravity.

Otherwise. Hang the body by two strings from the same tack or nail, but fixed to different points of the body; then a plummet, hung by the same tack, will fall on the center of gravity.

CENTER of gyration, is that point of a body revolving about an axis, into which, if the whole quantity of matter were collected, the same moving force would generate the same angular velocity in the body. This point differs from the center of oscillation, because, in this latter case, the motion of the body is produced by the gravity of its own particles; but in the case of the center of gyration, the body is put in motion by some other force acting at one place only. Let a body, p , revolve about C , (*Plate VII. Mechanics, fig. 52.*) and let a force act at D to oppose its motion. Then the momentum of p varies, as $p \times$ its velocity, or as $p \times pC$, which may be considered as a power acting at p , in opposition to the force at D ; but this power acting at the distance, pC , from the center of motion, its effect to oppose a force at D must (by the property of the lever), be as $p \times pC \times pC = p \times pC^2$. This effect of p to persevere in its motion, or, which is the same, to prevent any change in its motion, is called its "inertia."

To find the center of gyration of a body. Let a body be conceived to be made up of the particles A, B, C , &c. whose distances from the axis are a, b, c , &c. and let x be the distance of the center of gyration from the axis; then, by the preceding observation, the inertia of A, B, C , &c. will be as $A \times a^2, B \times b^2, C \times c^2$, &c. and the inertia of all the matter at the distance x , will be as $A + B + C + \&c. \times x^2$: and as the moving force is the same in both cases, the inertia must be the same when the same angular velocity is generated; hence, $A + B + C + \&c. \times x^2 = A \times a^2 + B \times b^2 + C \times c^2 + \&c.$; therefore, $x = \sqrt{\frac{A \times a^2 + B \times b^2 + C \times c^2 + \&c.}{A + B + C + \&c.}}$: that is, if \dot{s} be the fluxion of the body at the distance z from the axis,

$$x = \sqrt{\frac{\text{flu. } z^2 \dot{s}}{s}}.$$

E. G. 1. Let the straight line, CA , (*fig. 53.*) revolve about C ; to find O the center of gyration. Put $z = Cp$, then $s = z$, and $\dot{s} = \dot{z}$, and therefore $z^2 \dot{s} = z^2 \dot{z}$, whose fluent is $\frac{1}{3} z^3 =$ (when $z = CA$) $\frac{1}{3} CA^3$; hence, $CO = \sqrt{\frac{1}{3} CA^3} = CA \sqrt{\frac{1}{3}}$. 2. Let a circle, AB , (*fig. 54.*) revolve in its own plane about its center C ; to find O , its center of gyration. Put $p = 6.28318$, &c. the circumference of a circle

whose radius $= 1, z = Cp$; then the circumference $pq = pz$, and $p \dot{z} \dot{z} = \dot{s}$; hence, the fluent of $z^2 \dot{s}$, or of $p z^3 \dot{z}$ is $\frac{1}{4} p z^4 =$ (when $z = CA = r$) $\frac{1}{4} p r^4$. Also, the area of the circle $= \frac{1}{2} p r^2$; hence, $CO = \sqrt{\frac{1}{2} r^2} = r \sqrt{\frac{1}{2}}$. The same must be true for a cylinder revolving about its axis; as it is true for every section parallel to the end. 3. Let $RADB$ be a sphere revolving about the diameter, RD ; to find O , its center of gyration. Draw CA perpendicular, and sr parallel to RD ; put $Cr = r, Cp = z$, then $pr = \sqrt{r^2 - z^2}$; and if $p = 6.28318$, &c. the surface of the cylinder, generated by sr revolving about RD , is $p z \times 2 \sqrt{r^2 - z^2}$; hence $\dot{s} = 2 p z \dot{z} \sqrt{r^2 - z^2}$, and $z^2 \dot{s} = 2 p z^3 \dot{z} \sqrt{r^2 - z^2}$. In order to find this fluent, put $r^2 - z^2 = y^2$, then $z^2 = r^2 - y^2$, and $z^4 = r^4 - 2 r^2 y^2 + y^4$; therefore $z^3 \dot{z} = -r^2 y \dot{y} + y^3 \dot{y}$; hence, $2 p z^3 \dot{z} \sqrt{r^2 - z^2} = 2 p \times \frac{r^2 y^2 \dot{y} + y^4 \dot{y}}{y}$, whose fluent is $2 p \times -\frac{1}{3} r^2 y^3 + \frac{1}{5} y^5$; and when $z = 0$, this fluent ought to vanish, but y is then $= r$; and the fluent becomes $2 p \times -\frac{1}{15} r^5$; hence, the correct fluent is $2 p \times \frac{2}{15} r^5 - \frac{1}{4} r^2 y^3 + \frac{1}{5} y^5$; and the whole fluent, when $z = r$ (in which case $y = 0$), will be $\frac{4}{15} p r^5$. And as the content of the sphere $= \frac{2}{3} p r^3$; hence, $CO = \sqrt{\frac{2}{5} r^2} = r \sqrt{\frac{2}{5}}$. Vince's Principles of Fluxions, p. 98, &c.

CENTER of heavy bodies is, in our globe, the same with the center of the earth towards which all heavy bodies at or near the surface have a kind of tendency. It should be observed, however, that the tendency of heavy bodies towards the center is strictly applicable only to the earth, considered as perfectly spherical; but as the earth is flatted towards the poles, or an oblate spheroid, heavy bodies will not be found to tend exactly towards the same point. Nevertheless, as the figure of the earth does not differ much from that of a sphere, the deviation of the tendency of heavy bodies from the same point is not very considerable; and in common language the center of the earth may be regarded as the center of heavy bodies.

CENTER of an hyperbola, is a point in the middle of the axis, or of any other diameter; being the point without the figure, in which all the diameters intersect one another; and it is common to all the four conjugate hyperbolas.

CENTER of the magnet, and Magnetic center. See MAGNET.

CENTER of magnitude, is that point which is equally distant from all the external parts of a body. In homogeneous bodies that can be cut into similar and equal parts, according to their length, as in a cylinder or prism, it is the same with the center of gravity.

CENTER of motion, is a point round which one or more heavy bodies, that have one common center of gravity, revolve; v. gr. If the weights, P and Q (*fig. 55.*) revolve about the point, N , so that when P descends, Q ascends, N is said to be the center of motion.

It is demonstrated in mechanics, that the distance, IN , of the center of gravity of any particular weight, from the common center of gravity, or the center of motion, N , is perpendicular to the line of direction, IP .

The center of motion of a ship is the point upon which a vessel oscillates or rolls, when put in motion.

CENTER of oscillation, is that point, in the axis or line of suspension of a vibrating body, into which, if the whole was contracted, the angular velocity, and the time of vibration, would remain unaltered. Hence, in a compound pendulum, its distance from the point of suspension is equal to the length of a simple pendulum, whose oscillations are isochronal with those of the compound one.

CENTER of oscillation, laws of. From what we shall demonstrate

monstrate under CENTER of *percussion* it will appear, that in the case of two bodies connected together, the product of the body on one side of the center of oscillation multiplied by both its distance from the point of suspension and its distance from the center of oscillation is equal to the product of the body on the other side of the center of oscillation, multiplied both by its distance from the point of suspension, and its distance from the center of oscillation. The reasoning from which this theorem is deduced may also be applied to a pendulum consisting of more than two bodies connected together, or to the different parts of the same pendulous body; and hence may be deduced the following general law: viz. if the weight of each part of a simple or compound pendulum be multiplied both by its distance from the center of suspension, and its distance from the center of oscillation (or percussion), the sums of the products on each side of the center of oscillation will be equal to each other. In order to illustrate this law, and the mode of applying it, let a pendulum consist of any number of parts or small bodies A, B, C, D, E, joined together; let a, b, c, d, e represent their respective distances from the point of suspension, and let x be the distance of the center of oscillation from the point of suspension. The distances of those parts or bodies, from the center of oscillation, will be $x - a, x - b, x - c, x - d, x - e$; D and E being supposed to be farther from the point of suspension, than the center of oscillation is. By multiplying every one of those bodies, both by its distance from the center of suspension and its distance from the center of oscillation, we have, agreeably to the above-mentioned law, the equation $Aax - Aaa + Bbx - Bbb + Ccx - Ccc = Ddx - Ddd + Eex - Eee$; which, by transposition and division, is resolved into the following; viz.

$$x = \frac{Aaa + Bbb + Ccc + Ddd + Eee}{Aa + Bb + Cc + Dd + Ee}.$$

Should any of the bodies, as for instance A and B, in the preceding instance, be situated above the center of suspension, then their distances aa, bb , will be negative, viz. $-a, -b$, though their squares aa, bb , are always positive. In this case the value of x is
$$= \frac{Aaa + Bbb + Ccc + Ddd + Eee}{-Aa - Bb + Cc + Dd + Ee}.$$

Since the center of gravity of a body, or system of bodies, is that point wherein all their matter may be conceived to be condensed, therefore the product of all the matter or sum of the different weights A, B, C, D, E, multiplied by the distance of the common center of gravity from the point of suspension, is equal to the sum of the products of each body multiplied by its distance from the point of suspension. Hence the above stated value of x becomes $Aaa + Bbb + Ccc + Ddd + Eee$ divided by the product of the whole body or sum of the weights, multiplied by the distance of the center of gravity from the point of suspension. And being expressed entirely in words, it forms the following general

Rule 1. "If all the bodies or parts of a body, that forms a pendulum, be multiplied each by the square of its distance from the point or axis of suspension, and the sum of the products be divided by the product of the whole weight of the pendulum, multiplied by the distance of the center of gravity from the point of suspension; the quotient will be the distance of the center of oscillation or percussion from the point of suspension."

The situation of the centre of oscillation may also be found by means of another rule, which we shall likewise lay down, and shall demonstrate; since in some cases this rule will be found preferable to the first.

Rule 2. "If the sum of the products of all the parts or weights, multiplied each by the square of its distance from

the center of gravity, or from a line passing through the center of gravity parallel to the axis of vibration, be divided by the product of the whole mass or body, multiplied by the distance of the center of gravity from the point of suspension, the quotient will be the distance of the center of oscillation from the center of gravity; which being added to the distance of the center of gravity from the point of suspension, will be the distance of the center of oscillation from the point of suspension."

Let C A B (*Plate VII. Mechanics, fig. 56.*) represent any sort of body regular or irregular, suspended at C; O its centre of oscillation; G its center of gravity; C O B its axis or right line, passing through the point of suspension, and centers of gravity and oscillation. This body may be conceived to consist of an indefinite number of extremely small parts or weights. Let W be one of those small weights; join W C and W G, and from W drop W F perpendicular to C O. Then the product of W, by the square of its distance from C, is $W \times \overline{CW}^2$. But (Eucl. v. 47, B. i.) $\overline{CW}^2 = \overline{WF}^2 + \overline{CF}^2$; and $\overline{GW}^2 = \overline{GF}^2 + \overline{FW}^2$ (Eucl. p. 7. B. ii.) $\overline{CG}^2 + \overline{GF}^2 = \frac{2}{2} \overline{CG} \times \overline{GF} + \overline{CF}^2$; and by transposition $\overline{CF}^2 = \overline{GF}^2 + \overline{CG}^2 - \frac{2}{2} \overline{CG} \times \overline{GF}$. Then by substitution (viz. by putting instead of \overline{CF}^2 , its equal $\overline{GF}^2 + \overline{CG}^2 - \frac{2}{2} \overline{CG} \times \overline{GF}$) the above stated equation becomes $\overline{CW}^2 = \overline{WF}^2 + \overline{GF}^2 + \overline{CG}^2 - \frac{2}{2} \overline{CG} \times \overline{GF}$ = (putting \overline{GW}^2 for its equal $\overline{GF}^2 + \overline{FW}^2$) $\overline{GW}^2 + \overline{CG}^2 - \frac{2}{2} \overline{CG} \times \overline{GF}$. And multiplying both sides by W, we have the sum of all the products $W \times \overline{CW}^2$ = the sum of all the $W \times \overline{GW}^2$ + all the $W \times \overline{CG}^2$ - the sum of all the $W \times \frac{2}{2} \overline{CG} \times \overline{GF}$.

But by the nature of the centre of gravity the sum of all the $W \times \overline{GF}$ is 0; for those which are on one side of the axis must balance those which are on the other side; and of course all the $W \times \frac{2}{2} \overline{CG} \times \overline{GF}$ also become = 0. Therefore there remains the sum of all the $W \times \overline{CW}^2$ = sum of all the $W \times \overline{GW}^2$ + sum of all the $W \times \overline{CG}^2$ = sum of all the $W \times \overline{GW}^2$ + the whole body $\times \overline{CG}^2$. Or, (taking away the sum of all the $W \times \overline{GW}^2$ from both sides of the equation) the sum of all the $W \times \overline{CW}^2$ = the whole body $\times \overline{CG}^2$.

Then $CO = \frac{\text{sum of all the } W \times \overline{CW}^2}{\text{whole body} \times \overline{CG}}$ (by rule the 1st) $= CG + \frac{\text{sum of all the } W \times \overline{GW}^2}{\text{the whole body} \times \overline{CG}}$. And lastly, $GO = CO - CG = \frac{\text{sum of all the } W \times \overline{GW}^2}{\text{the whole body} \times \overline{CG}}$; which is rule the 2d.

In the application of the above-mentioned rules, it is frequently very difficult to find the sum of the products of all the weights multiplied by the squares of their respective distances. The method of fluxions is undoubtedly the most extensive, as it may be applied to all such figures or bodies as have some regularity of shape, or such as may be expressed by an algebraical equation. But in some cases the irregularity of form is so very great, that the center of oscillation can only be found out by means of the mechanical method subjoined.

In order to find the sum of the weights, &c. you must consider an indefinitely small part, or increment, or fluxion, of the figure, as being a small weight, and multiply it by the square of its distance from the center of suspension or axis of vibration, according to rule the 1st, or else multiply it

by the square of its distance from the center of gravity, or from a line passing through the center of gravity, and parallel to the axis of vibration, according to rule the 2d.; then the fluent of that expression will be the sum of the products of all the weights, multiplied by the squares of their respective distances, either from the axis of vibration, or from the center of gravity, &c. Lastly, this fluent must be divided by the product of the whole body (to be had by common mensuration) multiplied by the distance of the center of gravity, from the point of suspension; and the quotient will be the distance of the center of oscillation either from the point of suspension, or from the center of gravity, according as the operation was performed either by rule the first, or rule the second. Before we proceed to state and apply another method for investigating the center of oscillation, it will be necessary to premise the following lemma.

Suppose two exceeding small weights, C and P, acting on each other by means of an inflexible line (or wire), PC, to vibrate in a vertical plane, ROPCM, about the center O; and it be required to determine how much the motion of one is affected by the other. Let CH and PQ (Plate VII. Mechanics, fig. 57.) be perpendicular to the horizontal line OR; and let PB and CS be perpendicular to OP and OC respectively. If the force of gravity be denoted by unity, the forces acting in the directions CS and PB, whereby the weights, in their descent, are accelerated, will, according to the resolution of forces, be represented by $\frac{OH}{OC}$ and $\frac{OP}{OP}$. Moreover, since

the velocities are always in the ratio of the radii OC and OP, if the aforefaid forces were to be in that ratio, or that of P was to become $\frac{OH}{OC} \times \frac{OP}{OC}$, instead of $\frac{OP}{OP}$, in that case it is plain, that the weights would continue their motion without affecting each other, or acting at all on the line of communication PC (or PB). Whence, the excess of $\frac{OP}{OP}$ above $\frac{OH}{OC} \times \frac{OP}{OC}$ must be the accelerative force whereby the weight, P, acts upon the line (or wire), OC, in the direction PB; which multiplied by the weight, P, gives

$P \times \frac{OP}{OP} - \frac{OH \times OP}{OC^2}$ for the absolute force in that direction; which, therefore, in the perpendicular direction NB, is $P \times \frac{OP}{OP} - \frac{OH \times OP}{OC^2} \times \frac{OP}{OB}$; whereof the part acting upon C being to the whole as OB to OC, is truly defined by $P \times \frac{OP}{OC} - \frac{OH \times OP^2}{OC^2}$. If P be supposed to act upon C by means of PC (instead of PB) the conclusion will be in no respect different. For, let F denote

the force $\left(P \times \frac{OP}{OP} - \frac{OH \times OP^2}{OC^2} \right)$ in the direction PB, found above; then the action thereof upon PC (according to the principles of mechanics) will be expressed by $F \times \frac{\text{Radius}}{\text{Cotane CPB}}$; which, therefore, in the direction SC, perpendicular to OC, is $F \times \frac{\text{Radius}}{\text{Cof. CPR}} \times \frac{S.PCO}{\text{Radius}} =$

$$\frac{S.PCO}{\text{Cof. CPB}} = \frac{S.PCO}{S.OPC} = F \times \frac{OP}{OC}, \text{ the same as before.}$$

To determine the center of oscillation of a body. Let LMS (fig. 58.) be a section of the body by a plane, perpendicular to the horizon and the axis of motion, passing through the center of gravity, G, and the point of suspension, O; and

suppose all the particles of the body to be transferred to this section, in such places of it as they would be projected into (orthographically) by perpendiculars falling thereon. (Nor does this supposition at all affect the conclusion, the angular motion continuing the same.) Moreover, let C be the center of oscillation, or that point in the axis, OS, where a particle of matter (or a small weight) may be placed so as to be neither accelerated nor retarded by the action of the other particles of matter situate in the plane. Then, if from C, and any other point, P, in the plane, LMS, two perpendiculars, CH and PQ, be let fall upon the horizontal line, OR, the force of a particle (or weight) at P to accelerate the weight at C, will (according to the preceding lemma) be

represented by $P \times \frac{OQ}{OC} - \frac{OH \times OP^2}{OC^2}$: which, supposing GN perpendicular to OR, will also be expressed by $P \times \frac{OQ}{OC} - \frac{ON}{OG} \times \frac{OP^2}{OC^2}$, or its equal $P \times \frac{OQ \times OG}{OC^2} \times \frac{OC - ON \times OP^2}{OG}$. In the same manner the force of any other particle, P', will be represented by $P' \times \frac{OQ' \times OG \times OC - ON \times OP'^2}{OC^2 \times OG}$, &c. &c. Conse-

quently, the forces of all the particles destroying each other (by hypothesis), the sum of all the quantities $P \times \frac{OQ \times OG \times OC - ON \times OP^2}{OC^2 \times OG} + P' \times \frac{OQ' \times OG \times OC - ON \times OP'^2}{OC^2 \times OG}$, &c. &c. must be equal to nothing. Whence $P \times \frac{OQ \times OG \times OC - ON \times OP^2}{OC^2 \times OG} + P' \times \frac{OQ' \times OG \times OC - ON \times OP'^2}{OC^2 \times OG}$, &c. &c. = $P \times \frac{ON \times OP^2}{OG} + P' \times \frac{ON \times OP'^2}{OG}$, &c. &c. and consequently $OC = \frac{ON}{OG} \times \frac{P \times OP^2 + P' \times OP'^2}{P \times OQ + P' \times OQ'}$

But the sum of all the quantities $P \times \frac{OQ \times OG \times OC - ON \times OP^2}{OC^2 \times OG} + P' \times \frac{OQ' \times OG \times OC - ON \times OP'^2}{OC^2 \times OG}$, &c. is equal to the content of the body, multiplied by the distance, ON, of the center of gravity, G, from the line LM, (perpendicular to OC); whence OC is also = $\frac{ON}{OG} \times \frac{P \times OP^2 + P' \times OP'^2}{ON \times \text{the body}}$ = $\frac{P \times OP^2 + P' \times OP'^2}{OG \times \text{the body}}$; which expression continuing the same in all inclinations of the axis, OS, the point, C, thus determined, is a fixed point, agreeable to the definition, and appears to be the same with the CENTER of percussion.

Hence it follows, that if PD, P'D', &c. be perpendicular to OS, the numerator of the fraction, found above, will become $P \times OG^2 + GP^2 - 2OG \times GD + P' \times OG^2 + GP'^2 - 2OG \times GD' + \&c. \&c.$ (since $OP^2 = OG^2 + GP^2 - 2OG \times GD, \&c.$); which, because all the quantities $P \times -2OG \times GD + P' \times 2OG \times GD', \&c.$ or $P \times -GD + P' \times GD', \&c.$ (by the nature of the center of gravity) destroy one another, and be barely = $P \times OG^2 + GP^2 + P' \times OG^2 + GP'^2 +, \&c. \&c.$ = $P + P' +, \&c. \times OG^2 + P \times GP^2 + P' \times GP'^2 +, \&c. = \text{mafs} \times OG^2 + P \times GP^2 + P' \times GP'^2 +, \&c.$ Whence it is evident, that OC is, also, $\left(= \frac{\text{mafs} \times OG^2 + P \times GP^2 + P' \times GP'^2}{\text{mafs} \times OG} +, \&c. \&c. \right) = OG + \frac{P \times GP^2 + P' \times GP'^2 +, \&c.}{\text{mafs} \times OG}$; and consequently

$$CG = \frac{P \times GP^2 + P' \times GP'^2 + \&c. \&c.}{\text{mafs} \times OG}. \text{ Whence}$$

it appears, that, if a body be turned about its center of gravity, in a direction perpendicular to the axis of the motion, the place of the center of oscillation will remain unaltered; because the quantities $P \times GP^2$, $P' \times GP'^2$ are no way affected by such a motion of the body. It also appears, that the distance of the center of gravity from that of oscillation (if the plane of the motion of the body remains unaltered) will be reciprocally as the distance of the former from the point of suspension. Consequently, if that distance be found when the point of suspension is in the vertex, or so posited, that the operation may become the most simple, the value thereof in any other proposed position of that point will likewise be given by one single proportion.

In order to shew how these conclusions may be reduced to practice, let it be observed, that the product of any particle of the body by the square of its distance from the axis of motion is (here) called the force thereof, (its efficacy to turn the body about the said axis being in that ratio). According to which, and the first general value of OC , it appears that, if the sum of all the forces be divided by the product of the body into the distance of the center of gravity from the point of suspension, the quotient thence arising will give the distance of the center of percussion, or oscillation, from the said point of suspension.

In the following examples, let the distance of the center of gravity from the point of suspension be g , and the distance of the center of percussion, or oscillation, from the same point, be C .

1. To find the center of oscillation of a right line, OS , (fig. 59.) suspended at one of its extremes. If the part, OP , considered as variable, be denoted by x , the force of \dot{x} particles, at P , will be expressed by $\dot{x} \times x^2$; and $\frac{1}{3}x^3$, the fluent of this quantity will express the force of all the particles in OP , or the sum of all the products, under each particle, and the square of its distance from O , the point of suspension. This quantity, when x becomes $= OS$, being divided by $OS \times \frac{1}{2} OS$, according to the rule above stated, will give $\frac{\frac{1}{2} OS^3}{\frac{1}{2} OS^2} = \frac{2}{3} OS$ for the value of C , the true distance of the center of oscillation (or percussion) from the point of suspension.

2. Let AB , (fig. 60.) be a line, vibrating in a vertical plane, having its two extremes, A and B , equally distant from the point of suspension, O . If OG , perpendicular to AB , be put $= a$, and $GP = x$, the force of \dot{x} particles at P , will be denoted by $\dot{x} \times \frac{a^2 + x^2}{2} = \dot{x} \times OP^2$; and the fluent of this quantity, divided by ax , or $PG \times OG$, will give $\frac{a^2 x + \frac{1}{3} x^3}{ax} = a + \frac{x^2}{3a} = OG + \frac{BG^2}{3OG} = C$, when x becomes $= GB$.

3. Let $APSQ$ (Plate VIII. Mechanics, fig. 61.) be a circle, vibrating in a vertical plane; any diameter of which is PQ . Thus $OP^2 + OQ^2$ being $= 2OG^2 + 2PG^2$, the sum of the forces of two particles at P and Q (putting $OG = a$, and $AG = r$) will be $= a^2 + r^2 \times 2$; whence the sum of all the particles, in the whole periphery, will be expressed by their number, multiplied by $a^2 + r^2$, or by $a^2 + r^2 \times$ periphery $APSQ$; which, if p be put $= 3.141$, &c. will be $= a^2 + r^2 \times 2pr = 2pa^2r + 2pr^3$. Hence the force of the circle itself is also given, being equal to the fluent of $2pa^2r + 2pr^3 \times \dot{r} = pa^2r^2 + \frac{1}{2}pr^4 = a^2 + \frac{1}{2}r^2 \times$ circle $APSQ$. If the two expressions thus found be divided by $a \times$ periphery $APSQ$, and $a \times$ cir-

cle $APSQ$ respectively, we shall have $a + \frac{r^2}{a}$, and $a + \frac{r^2}{2a}$, for the two corresponding values of C .

4. Let $AHBE$, (fig. 62.) be a circle, having its plane (always) perpendicular to the axis of suspension GO . Let AGB be that diameter of the circle which is parallel to the axis of motion RS ; and let EF be any chord parallel to AB and RS ; whose distance, GP , from the center of the circle may be denoted by x ; and put $OG = a$, and $AG = r$. Then, by the nature of the circle, $EF = 2\sqrt{r^2 - x^2}$, whose distance, OP , from the axis of motion, RS , is also given $= \sqrt{a^2 + x^2}$. Hence it appears, that the force of all the particles in the line, EF , will be represented by $\frac{a^2 + x^2 \times 2\sqrt{r^2 - x^2}}{2\sqrt{r^2 - x^2}}$. Consequently, $\dot{x} \times a^2 + x^2 \times 2\sqrt{r^2 - x^2}$ is the fluxion of the force of the plane $AHBE$; whose fluent, when $x = r$, is $= a^2 + \frac{1}{4}r^2 \times$ area $AHBE$; which, if p be put for the area of the circle whose radius is unity, will be $= a^2 + \frac{1}{4}r^2 \times \frac{1}{2}pr^2$; whereof the double ($pa^2r^2 + \frac{1}{4}pr^4$) is the force of the whole circle $AHBE$; whose fluxion, $2par\dot{r} + pr^3\dot{r}$ (supposing r variable), being divided by \dot{r} , we likewise get $2pa^2r + pr^3 (= a^2 + \frac{1}{2}r^2 \times$ periphery $AHBE$) for the force of the periphery $AHBE$. But the center of gravity, whether we regard the circle itself or its periphery, is in the center of the circle; therefore the distance of the center of oscillation from the point of suspension will, in these two cases, be exhibited by $a + \frac{r^2}{4a}$ and $a + \frac{r^2}{2a}$ respectively. If the circle, instead of

being perpendicular to GO , either coincides, or makes a given angle with it, the value of C will be exactly the same, provided that the diameter, AB , still continues parallel to the axis of motion, RS .

5. Let the proposed figure be a curve, AEF , (fig. 63.) moving, as it were, flatwise, so that the plane described by the axis OAS may be perpendicular to that of the curve. Here, putting $AP = x$, $PN = y$, $AN = z$, $OA = d$, $OG = g$, and $AG = a$, the force of the particles in MN will be expressed by $2y + d + x^2$. Consequently the fluent of $2y\dot{x} \times \frac{d + x^2}{2}$ will be as the whole force of the plane, NAM (or AEF , when $x = AS$), and, consequently, $C = \frac{\text{Flu. } d + x^2 \times y\dot{x}}{\text{Flu. } d + x \times y\dot{x}}$; which, therefore, when the point

of suspension is in the vertex A , will become $C = \frac{\text{Flu. } yx^2\dot{x}}{\text{Flu. } yx\dot{x}}$.

Let this value be denoted by v ; then, the distance of the centers of gravity and oscillation being $v - a$, we have

$g : a :: v - a : \frac{a \times v - a}{g}$, the distance of the same centers, when the point of suspension is at O ; and consequently,

C , in that case, $= g + \frac{a \times v - a}{g}$; which form will be found

in most cases more commodious than the foregoing. After the same manner the value of C , with respect to the arc, AEF ,

will appear to be $= \frac{\text{Flu. } (d + x)^2 \times \dot{z}}{\text{Flu. } d + x \times \dot{z}} = g + \frac{a \times v - a}{g}$,

supposing $v = \frac{\text{Flu. } x^2\dot{z}}{\text{Flu. } x\dot{z}}$.

The preceding theorem may be exemplified in the following instances. First, let EAF be considered as an isosceles triangle; in which case $AP(x)$ and $PN(y)$ being in a con-

a constant ratio, we have $y = \frac{bx}{c}$ (supposing $SF = b$, and $AS = c$). Hence, $C = \frac{\text{Flu. } \overline{d+x}^2 \times y \dot{x}}{\text{Flu. } d^2 \times \dot{x} + 2d \times x \dot{x} + x^2 \dot{x}} = \frac{\frac{1}{2} d^2 + \frac{2}{3} dx + \frac{1}{4} x^2}{\frac{1}{2} d + \frac{1}{4} x} = \frac{6d^2 + 8dx + 3x^2}{6d + 4x}$: or, according to the second form,

because $v = \frac{\text{Flu. } y x^2 \dot{x}}{\text{Flu. } y x \dot{x}} = \frac{3x}{4}$, and a is known to be $\frac{2x}{3}$, we have $C = \left(g + \frac{a \times v - a}{g} \right) = g + \frac{x^2}{18g}$, where $g = (d + a) = d + \frac{2}{3}x$. Again, because \dot{z} and \dot{x} are in a constant ratio, we also have $\frac{\text{Flu. } \overline{d+x}^2 \times \dot{z}}{\text{Flu. } d + x \times \dot{z}} =$

$\frac{\text{Flu. } \overline{d+x}^2 \times \dot{x}}{\text{Flu. } d + x \times \dot{x}} = \frac{d^2 + dx + \frac{1}{3}x^2}{d + \frac{1}{2}x}$; whence the center of oscillation of the lines EH and AF is given.

Secondly, let $EA F$ be supposed a parabola of any kind, whose equation is $y = \frac{x^n}{c^{n-1}}$; then, according to the second

form, we shall first have $v = \left(\frac{\text{Flu. } y x^2 \dot{x}}{\text{Flu. } y x \dot{x}} \right) = \frac{\text{Flu. } x^{n+2} \dot{x}}{\text{Flu. } x^{n+1} \dot{x}} = \frac{n+2 \times x}{n+3}$; whence, a being $\frac{n+1 \times x}{n+2}$, we also ob-

tain $C = \left(g + \frac{a \times v - a}{g} \right) = g + \frac{n+1 \times x^2}{n+2 \times n+3 \times g}$; where $g = d + \frac{n+1 \times x}{n+2}$. But with respect to the arc

of the curve, $v = \left(\frac{\text{Flu. } x^2 \dot{z}}{\text{Flu. } x \dot{z}} \right) = \frac{\text{Flu. } x^2 \dot{x} \sqrt{c^{2n-2}}}{\text{Flu. } x \dot{x} \sqrt{c^{2n-2}} +$

$\frac{nnx^{2n-2}}{nnx^{2n-2}}$: from which value found by infinite series, and even without it in some cases, that of C will also be given.

6. Let the proposed figure be a curve vibrating edgewise, so that the motion of the axis may be in the plane of the curve. Then the force of all the particles in the line PN (fig. 63) being defined $OP^2 \times PN + \frac{1}{3}PN^3$, or $\overline{d+x}^2 \times y + \frac{1}{3}y^3$ (retaining the notation above) we have $C = \frac{\text{Flu. } \overline{d+x}^2 \times y \dot{x} + \frac{1}{3}y^3 \dot{x}}{\text{Flu. } d + x \times y \dot{x}}$; which, when the point of

suspension is in the vertex A , will become $\frac{\text{Flu. } y x^2 \dot{x} + \frac{1}{3}y^3 \dot{x}}{\text{Flu. } y x \dot{x}}$.

Denote this, when found, by v ; then it appears from the preceding case, that the general value of C will also be represented by $g + \frac{a \times v - a}{g}$.

In the same manner, the value of C , with respect to the arc $EA F$, will be expounded by $\frac{\text{Flu. } \overline{d+x}^2 \times y^2 \times \dot{z}}{\text{Flu. } d + x \times y^2 \times \dot{z}}$ or by $g + \frac{a \times v - a}{g}$, supposing $v = \frac{\text{Flu. } x^2 + y^2 \times \dot{z}}{\text{Flu. } x \dot{z}}$.

E. G. Let the equation of the given curve be $y = \frac{x^n}{c^{n-1}}$, then $v = \left(\frac{\text{Flu. } y x^2 \dot{x} + \frac{1}{3}y^3 \dot{x}}{\text{Flu. } y x \dot{x}} \right) =$

$$\frac{\text{Flu. } c^{1-n} x^{n+2} \dot{x} + \frac{1}{3} c^{3-3n} x^{3n} \dot{x}}{\text{Flu. } c^{1-n} x^{n+1} \dot{x}} = \frac{n+2 \times x}{n+3} + \frac{1}{3} \frac{c^{2-2n} x^{3n+1} \times n+2}{3n+1 \times x^{2n-1}} = \frac{n+2 \times x}{n+3} + \frac{n+2}{3 \times 3n+1} \times \frac{y^2}{x}$$

From which the value of C is also given; and from whence it appears, that if n be expounded by o , v will become $= \frac{2x}{3} + \frac{2y^2}{3x} = \frac{2}{3} \times \frac{x^2 + y^2}{x}$; in which case the figure will degenerate into a rectangle: but, if n be denoted by 1 , the figure $EA F$ will then be an isosceles triangle, and $v = \frac{3x}{4} + \frac{y^2}{4x}$: and, lastly, if n be taken $= \frac{1}{2}$, the curve will be the common parabola, and $v = \frac{5x}{7} + \frac{c}{3}$.

7. Let the figure $AEFH$ (fig. 64.) be a solid, generated by the rotation of a curve $EA F$ about its axis AS ; having its base HH parallel to the axis of motion BOC . It appears from Art. 4. (above) that the force of all the particles in the circular section hh , parallel to HH , will be expressed by $OP^2 + \frac{1}{4}PN^2 \times \text{circle } hh$, or $OP^2 \times PN^2 + \frac{1}{4}PN^4 \times p$ (p being $= 3.1415$, &c.) which, in algebraic terms, is $\overline{d+x}^2 \times y^2 + \frac{1}{4}y^4 \times p$. Hence we have $C = \frac{\text{Flu. } \overline{d+x}^2 \times y^2 + \frac{1}{4}y^4 \times p \dot{x}}{\text{Flu. } d + x \times p y^2 \dot{x}} = \frac{\text{Flu. } \overline{d+x}^2 \times y^2 \dot{x}}{\text{Flu. } d + x \times y^2 \dot{x}} + \frac{\frac{1}{4}y^4 \dot{x}}{y^2 \dot{x}}$. Which, when the point of suspension is in the

vertex A , becomes $\frac{\text{Flu. } y^2 x^2 \dot{x} + \frac{1}{4}y^4 \dot{x}}{\text{Flu. } y^2 x \dot{x}} = v$; and consequently, $C = g + \frac{a \times v - a}{g}$, as in the preceding cases.

But with regard to the superficies of the solid, it is found (Art. 4. above) that the force of the particles in the periphery $MbNh$ is expressed by $OP^2 + \frac{1}{2}PN^2 \times \text{periph. } MbNh = \overline{d+x}^2 \times 2py + py^3$. Hence the fluent of $\overline{d+x}^2 \times 2py + py^3 \times \dot{z}$, divided by that of $d+x \times 2py \dot{z} = \frac{\text{Flu. } \overline{d+x}^2 \times 2y \dot{z} + y^3 \dot{z}}{\text{Flu. } d + x \times 2y \dot{z}}$ will give the true value of C with respect to the curve surface $EhAbF$: which, putting $v = \frac{\text{Flu. } 2y x^2 \dot{z} + y^3 \dot{z}}{\text{Flu. } 2y x \dot{z}}$, is likewise expressed by $g + \frac{a \times v - a}{g}$.

E. G. 1. Let $EA F$ be considered as a cone: then, putting $AS = f$, $SF = b$, and $AF = c$, we have $y = \frac{bx}{f}$, and $z = \frac{cx}{f}$; and; therefore, $C = \left(\frac{\text{Flu. } \overline{d+x}^2 \times y^2 \dot{z}}{\text{Flu. } d + x \times y^2 \dot{z}} \right) = \frac{20d^2 + 30fd + 12f^2 + 3b^2}{20d + 15f}$, when $x = f$. But with respect to the convex superficies, C will be found $= \frac{12d^2 + 16df + 6f^2 + 3b^2}{12d + 8f}$.

E. G.

E. G. 2. Let E A F be considered as a sphere, whose center is S, and radius A S = r ; in which case, y^2 being = $2rx - x^2$, we have $v = \frac{\text{Flu. } y^2 x^3 \dot{x} + \frac{1}{4} y^4 \dot{x}}{\text{Flu. } y^2 x \dot{x}} = \frac{\text{Flu. } r^2 x^2 \dot{x} + r x^3 \dot{x} - \frac{3}{4} x^4 \dot{x}}{2 r x^2 \dot{x} - x^3 \dot{x}} = \frac{\frac{1}{2} r^2 + \frac{1}{4} r x - \frac{3}{20} x^2}{\frac{2}{3} r - \frac{1}{4} x}$; whence C also is given. But when $x = 2r$ (or the whole sphere is taken) $v = \frac{7r}{5}$; therefore, a being = r , and $g = \text{O S}$, in

this case, we have $C = \left(g + \frac{a \times \overline{v-a}}{g} \right) = g + \frac{r \times \frac{2r}{5}}{g} = g + \frac{2r^2}{5g}$.

S. Let the figure proposed be a solid (as before), but with its axis A G parallel to the axis of motion O R S (fig. 65.). Then, if R P (O G) be put = g , 3.1459 &c. = p , A P = x , the force of the particles in the circle N M (parallel to E F) will be exhibited by $g^2 + \frac{1}{2} y^2 \times p y^2$, or $p g^2 y^2 + \frac{1}{2} p y^4$ (Art. 3.)

Hence $C = \frac{\text{Flu. } p g^2 y^2 \dot{x} + \frac{1}{2} p y^4 \dot{x}}{g \times \text{solid}} = \frac{\text{Flu. } p g^2 y^2 \dot{x} + \frac{1}{2} p y^4 \dot{x}}{g \times \text{Flu. } p y^2 \dot{x}}$

$= g + \frac{\text{Flu. } \frac{1}{2} y^4 \dot{x}}{g \times \text{Flu. } y^2 \dot{x}}$. With respect to the superficies, the

force of the particles in the periphery of the said circle M N

being $2 p g^2 y + 2 p y^3$, we have, in this case, $C = \frac{\text{Flu. } 2 p g^2 y + 2 p y^3 \times \dot{x}}{g \times \text{Su-}}$

perificies $\frac{\text{Flu. } 2 p g^2 y \dot{x} + 2 p y^3 \dot{x}}{g \times \text{Flu. } 2 p y \dot{x}} = g + \frac{\text{Flu. } y^3 \dot{x}}{g \times \text{Flu. } y \dot{x}}$.

E. G. 1. Let E A F be a segment of a sphere, whose radius is r ; then y^2 being = $2rx - x^2$, we shall have $C = \left(g + \frac{\text{Flu. } \frac{1}{2} y^4 \dot{x}}{g \times \text{Flu. } y^2 \dot{x}} \right) = g + \frac{\text{Flu. } 2 r^2 x^2 \dot{x} - 2 r x^3 \dot{x} + \frac{1}{2} x^4 \dot{x}}{g \times \text{Flu. } 2 r x \dot{x} - x^2 \dot{x}}$

$= g + \frac{\frac{2}{3} r^2 x - \frac{1}{2} r x^2 + \frac{1}{10} x^3}{g \times r - \frac{1}{3} x} = g + \frac{20 r^2 - 15 r x + 3 x^2 \times x}{30 r - 10 x \times g}$.

This quantity, when x is denoted either by r or $2r$, becomes = $g + \frac{2r^2}{5g}$, for the true value of C , as the hemi-

sphere, or the whole sphere, is taken. But, with regard to the center of oscillation of its superficies, we have $\dot{x} = \frac{r \dot{x}}{\sqrt{2 r x - x x}}$: and, therefore, $g + \frac{\text{Flu. } y^3 \dot{x}}{g \times \text{Flu. } y \dot{x}}$

$= g + \frac{\text{Flu. } 2 r x - x x \times r \dot{x}}{g \times \text{Flu. } r \dot{x}} = g + \frac{r x - \frac{1}{3} x^2}{\frac{2r^2}{3g}}$; which,

when $x = r$, or $x = 2r$, becomes $g + \frac{2r^2}{3g}$.

E. G. 2. Let the solid, E A F, be a paraboloid, whose generating curve is defined by the equation $y = \frac{x^n}{c^{n-1}}$; then

$C = g + \frac{\text{Flu. } \frac{1}{2} y^4 \dot{x}}{g \times \text{Flu. } y^2 \dot{x}} = g + \frac{\text{Flu. } \frac{1}{2} x^{4n} \dot{x} \times c^{4-4n}}{g \times \text{Flu. } x^{2n} \dot{x} \times c^{2-2n}} = g + \frac{2n+1 \times x^2}{4n+1 \times 2g}$. Here,

taking $n = 0$, the figure will become a cylinder, and $C = g + \frac{y^2}{2g}$; but if n be expressed by 1, the figure will be a

cone, and $C = g + \frac{3y^2}{10g}$. If n be taken = $\frac{1}{2}$, the figure

will be the solid generated from the common parabola, and

$C = g + \frac{y^2}{3g}$.

E. G. 3. Let the body be a circle, and the axis of vibration pass through C perpendicular to its plane (fig. 66.) Put G A = r , C G = d , G O = x , and $p = 6, 283, \&c.$ Then $p x$ = the circumference $v w z$, and the fluxion of the sum of all the particles multiplied into the square of their distances from G = $p x \times x^2 \times \dot{x}$, whose fluent, when $x = r$, is $\frac{p r^4}{4}$; and the area of the circle $\times d = \frac{p r^2}{2} \times d$; hence

$\text{C O} = d + \frac{r^2}{2d}$. If C coincide with A, then C O = $\frac{3}{2} r$.

Hence it follows that the same must be true for a cylinder, whose axis is parallel to the axis of vibration. See Simpson's Fluxions, vol. i. p. 214, &c. Hodgson's Fluxions, p. 431, &c. Vince's Principles of Fluxions, section 5. Cavallo's Elem. of Nat. and Exp. Philos. vol. i.

Mr. Huygens, in his "Horologium Oscillatorium," was the first person who shewed how to find the center of oscillation. Merfennus, he says, first proposed the problem to him, when he was very young, requiring him to resolve it in the cases of sectors of circles suspended by their angles, and by the middle of their bases, both when they oscillate side-ways and flat-ways; as also for triangles and the segments of circles, either suspended from their vertices, or the middle of their bases. But, as he proceeds to observe, not having immediately discovered any thing that would open a passage into this business, I was repulsed at first setting out, and stopped from the further prosecution of it; till, being farther incited to it by adjusting the motion of the pendulums of my clock, I surmounted all difficulties, going far beyond Descartes, Fabri, and others, who had done the thing in a few of the most easy cases only, without any sufficient demonstration; and solving not only the problems proposed by Merfennus, but many others that were much more difficult, and shewing a general way of determining this center in lines, superficies, and solids. In the Leipzig acts for 1691 and 1714, this doctrine is discussed by the two Bernouillis; and the same is also done by Hermann, in his treatise "De Motu Corporum Solidorum et Fluidorum." But it has been since more amply investigated in various treatises on the inverse method of fluxions, in which it is introduced as one of the examples of that method by Hayes, Carré, Wolfius, Simpson, &c. &c. A specimen of the application of this method to several cases has been given above; from which it appears, that in a right line, or rectangle, or cylinder, or any other prism, whose constant section is y , or the constant quantity a : then $y x^2 \dot{x}$ is $a x^2 \dot{x}$, whose fluent is $\frac{1}{3} a x^3$; also $y x \dot{x}$ is $a x \dot{x}$, whose fluent is $\frac{1}{2} a x^2$; and the quotient of the former $\frac{1}{3} a x^3$ divided by the latter $\frac{1}{2} a x^2$, is $\frac{2}{3} x$ for the distance of the center of oscillation below the vertex in any such figure; namely, having every where the same breadth or section, that is, at two-thirds of its length. In like manner, the centers of oscillation are found for various figures, vibrating flat-ways, and are as they are expressed in the subjoined summary:

Nature of the figure, when suspended by the vertex.

Isoceles triangle - - $\frac{3}{4}$ of its altitude

Common parabola - - $\frac{5}{8}$ of its altitude

Any parabola - - $\frac{2m+1}{3m+1} \times$ its altitude;

m being 2 in the common parabola; 3 in the cubic parabola; 4 in the biquadratic.

The investigation of the center of oscillation in figures moved laterally or side-ways, or edge-ways, that is, about an axis perpendicular to the plane of the figure, is somewhat difficult; because all the parts of the weight in the same horizontal plane, on account of their unequal distances from the point of suspension, do not move with the same velocity;

city: as is shewn by Huygens, in his Horol. Oscill. He found, in this case, the distance of the center of oscillation, from the axis; in a circle, to be $\frac{2}{3}$ of the diameter: in a rectangle, suspended by one of its angles, $\frac{2}{3}$ of the diagonal: in a parabola, suspended by its vertex, $\frac{2}{3}$ of its axis, and $\frac{1}{3}$ of the parameter; suspended from a point in the middle of the basis, $\frac{2}{3}$ of the axis, and $\frac{1}{2}$ the parameter: in the sector of a circle, $\frac{2}{3}$ of a right line, which is to the radius as the arc to the subtense: in a cone, $\frac{2}{3}$ of the axis, and $\frac{1}{3}$ of the third proportional to the axis, and a semidiameter of the base: in a sphere (as is usually the case in pendulums) $\frac{2}{3}$ of a third proportional to two quantities composed of the semidiameter and length of the thread, and the semidiameter itself: in a cylinder, $\frac{2}{3}$ of the altitude, and $\frac{1}{2}$ a right line, which is to the semidiameter of the base, as that is to the altitude. See the preceding part of this article.

To find the center of oscillation mechanically or experimentally. Let the body be made to oscillate about its point of suspension; and hang up also a simple pendulum of such a length that it may vibrate or just keep time with the other body: then the length of the simple pendulum is equal to the distance of the center of oscillation of the body below the point of suspension. Or it may be still better found in the following manner: Suspend the body very freely by the given point, and make it vibrate in small arcs, counting the vibrations it makes in any portion of time, as a minute, by a good stop-watch; and let that number of oscillations made in a minute be called n ; then shall the distance of the center

of oscillation be $SO = \frac{140850}{nn}$ inches. For, the length

of the pendulum vibrating seconds, or 60 times in a minute, being $39\frac{1}{8}$ inches, or more accurately 39.1196 inches, and the lengths of pendulums being reciprocally as the squares of the number of vibrations made in the same time; there-

fore $n^2 : 60^2 :: 39\frac{1}{8} : \frac{140850}{nn}$, the length of the pendulum

which vibrates n times in a minute, or the distance of the center of oscillation below the axis of motion. Or again: divide 60 seconds by the number of vibrations performed by the pendulous body in question in one minute; and the quotient is the time of one vibration. Square this time, and multiply its square by the length of the pendulum that vibrates seconds, viz. by 39.1196 inches, and the last product shews the distance in inches of the center of oscillation or percussion from the point of suspension in the proposed pendulum.

E. G. 1. Let a cylindrical stick about a yard long be suspended by one extremity, and caused to vibrate. Let the number of its vibrations be 76 in a minute; divide 60 seconds by 76, and the quotient, or 0".79 (79 hundredths of a second), is the time in which the proposed pendulum performs one vibration. Then, the lengths of pendulums being as the squares of the times of vibration, say, as the square of one second, i. e. unity, is to the square of 0".79, viz. 0.6241, so is the length of the pendulum which vibrates seconds, viz. 39.1196, to the length sought; therefore multiply 39.1196 by 0.6241, and the product, 24.4, is the distance sought: so that the center of oscillation in the stick is 24 inches and $\frac{4}{10}$ tenths distant from its extremity by which it is suspended; that is, about $\frac{2}{3}$ of its length.

E. G. 2. Let an irregular body, suspended by one end, perform 20 vibrations in a minute; and the time of one vibration is $\frac{60}{20} = 3$ seconds; the square of this is 9, and $39.1196 \times 9 = 352.0764$ inches, or nearly 29 feet, the distance of the center of oscillation from the point of suspension.

Center of percussion, in a moving body, is that point

where the percussion is the greatest, in which the whole percussive force of the body is supposed to be collected: or about which the impetus of the parts is balanced on every side: so that it may be stopped by an immoveable obstacle at this point, and rest on it, without acting on the center of suspension: or, the center of percussion is that point in the axis of a vibrating or revolving body, which, striking against an immoveable obstacle, causes the whole motion, estimated in the plane of the body's motion, to be destroyed. It is obvious, that if the obstacle be opposed to the moving body at different distances from the point of suspension, the stroke or percussion will not be equally powerful: and it is evident, that this center of percussion does not coincide with the center of gravity. Let the body, AB, (*Plate VIII. Mechanics, fig. 67.*) consisting of two equal balls fastened to a stiff rod, move in a direction parallel to itself, and it is evident that the two balls must have equal momentums, since their quantities of matter are equal, and they move with equal velocities. Now if in its way, as at N. II. an obstacle C be opposed exactly against its middle E, the body will thereby be effectually stopped, nor can either end of it move forwards, for they exactly balance each other, the middle of this body being its center of gravity. Now should an obstacle be opposed to this body, not against its middle, but nearer to one end, as at N. III. then the stroke being not in the direction of the center of gravity, is in fact an oblique stroke, in which case, agreeably to the laws of congress, a part only of the momentum will be spent upon the obstacle, and the body advancing the end A, which is farthest from the obstacle, as shewn by the dotted representation, will proceed with that part of the momentum which has not been spent upon the obstacle; consequently in this case the percussion is not so powerful as in the foregoing. Therefore there is a certain point in a moving body which makes a stronger impression on an obstacle than any other part of it. In the present case, indeed, this point coincides with the center of gravity; because the two ends of the body before the stroke moved with equal velocities. But in a pendulum the case is different; for let the same body of *fig. 67.* be suspended by the addition of a line AS, *fig. 68.* which line we shall suppose to be void of weight and flexibility, and let it vibrate round the point of suspension S. It is evident that now the two balls will not move with equal velocities; for the ball B, by describing a longer arc than the ball A in the same time, will have a greater momentum; and of course the point where the forces of the two balls balance each other, which is the center of percussion, lies nearer to the lower ball B; consequently this point does not coincide with the centre of gravity of the body AB; but it is that point wherein the forces of all the parts of the body may be conceived to be concentrated. Hence the center of oscillation and the center of percussion coincide; or rather they are exactly the same point, whose two names only allude, the former to the time of vibration, and the latter to its striking force.

If in *fig. 67.* the balls A and B be not equal, their common center of gravity will not be in the middle at E, but it will lie nearer to the heavier body, as at D, supposing B to be the heavier body; so that the distances, BD, AD, may be inversely as the weights of those bodies. Now when the above-mentioned body is formed into a pendulum, as in *fig. 68.* though the weights A and B be equal, yet by their moving in different arcs, viz. with different velocities, their forces or momentums become actually unequal; therefore in order to find the point where the forces balance each other, so that when an obstacle is opposed to that point, the moving pendulum may be effectually stopped,

and

and no part of it may preponderate, in which case the obstacle will receive the greatest impression; we must find first the momentums of the two bodies A and B, then the distances of those bodies from the center of percussion, or of equal forces, must be inversely as those momentums. Thus the velocities of A and B are represented by the similar arcs which they describe, and those arcs are as the radii SA, SB. Therefore the momentum of A is the product of its quantity of matter multiplied by SA, and the momentum of B is the product of its quantity of matter multiplied by SB; consequently AD must be to BD, as the weight of B multiplied by SB is to the weight of A multiplied by AS. Then D is the center of percussion. And since, when four quantities are proportional, the product of the two extremes is equal to the product of the two means; therefore if the weight of A multiplied by AS, be again multiplied by AD, the product must be equal to the product of the weight of B multiplied by BS, and again multiplied by BD.

CENTER of percussion, laws of the.—1. *The center of percussion is the same with the center of oscillation*, where the percussive body revolves round a fixed point; and is determined in the same manner, viz. by considering the impetus of the parts, as so many weights applied to an inflexible right line, void of gravity; i. e. by dividing the sum of the products of the forces of the parts, multiplied by their distances from the point of suspension, by the sum of the forces. What, therefore, has been above shewn of the *center of oscillation*, will hold of the *center of percussion*, where the percussive body moves round a fixed point: *e. g.* that the center of percussion in a cylinder is at $\frac{2}{3}$ of its length from the point of suspension; or that a stick of a cylindrical figure, supposing the center of motion at the hand, will strike the greatest blow at a point about two-thirds of its length from the hand. See *CENTER of oscillation*.

2. *The center of percussion is the same with the center of gravity*, if all the parts of the percussive body be carried with a parallel motion, or with the same celerity: for the momenta are the products of the weights into the celerities. Wherefore, to multiply equiponderating bodies by the same velocity, is the same thing as to take equimultiples; but the equimultiples of equiponderating bodies themselves equiponderate; therefore, equivalent momenta are disposed about the center of gravity: consequently the center of percussion in this case coincides with that of gravity; and what is shewn of the one, will hold of the other.

To find the center of percussion of a body. Let ABD (fig. 69.) be a plane passing through the center of gravity G of the body, and perpendicular to the axis of suspension which passes through C; and conceive the whole body to be projected upon this plane in lines perpendicular to it, or parallel to the axis: then, as each particle is thus kept at the same distance from the axis, the effect, from the rotatory motion about the axis, will not be altered, nor will the center of gravity be changed. Let O be the center of percussion, and draw pnv perpendicular to pC , and Ow perpendicular to pw ; also pv perpendicular to Cn . As the velocity of any particle p is as pC , the momentum of p in the direction pw is as $p \times pC$, it being as the velocity and quantity of matter conjointly; and by the property of the lever, the efficacy of this force to turn the body about O is as $p \times pC \times Ow =$ (because $On : Ow :: pC : vC$) $p \times vC \times On = p \times vC \times CO - Cn = p \times vC \times CO - p \times vC \times Cn =$ (as $Cn : Cp :: Cp : vC$) $p \times vC \times CO - p \times Cp$. Now that the efficacy of all the particles to turn the body about O may be $= 0$, we

must make the sum of all the quantities $p \times vC \times CO =$ sum of all the quantities $p \times Cp^2 = 0$; hence $CO =$ sum of all the $p \times Cp^2$ / sum of all the $p \times Cp$, these two sum of all the $p \times vC$ / body $\times CG$, these two denominators being equal from the property of the center of gravity. Although the body by striking at O may have no tendency to move in the plane of its previous motion, and this only is included in the common definition here adopted, yet it may have a tendency to revolve about A O. If therefore the center of percussion were defined to be that point where the whole motion would be destroyed, we must find the plane parallel to ABD, such that the sum of all the forces to turn the body about the line joining the center of percussion and the axis of vibration in that plane, is also $= 0$. But this is a problem of more difficult solution. As the force acting at O destroys the motion, let us suppose a force to act at O and to generate the motion back again; then it is manifest, that the body would begin to return under all the same circumstances in which its motion ceased; that is, it would begin its motion by revolving about C. In this case C is called the *CENTER of spontaneous rotation*; making therefore the point at which a force acts upon a body that can move freely the center of percussion, the center of spontaneous rotation coincides with the center of rotation corresponding to that center of percussion. Vince's Principles of Fluxions, p. 102. Parkinson's System of Mechanics, &c. p. 194.

CENTER of a parallelogram, the point wherein its diagonals intersect.

CENTER of position, denotes a point of any body, or system of bodies, so selected, that we may properly estimate the situation and motion of the body or system by those of this point. It is evident that, in mechanical discussions, the point, by the position of which we estimate the position and distance of the whole, must be so determined, that its position and distance, estimated in any direction whatever, shall be the average of the positions and distances of every particle of the mass, estimated in the same direction. Accordingly this will be the case, if the point be so selected that, when a plane is made to pass through it in any direction whatever, and perpendiculars are drawn to this plane from every particle in the body or system, the sum of all the perpendiculars on one side of this plane is equal to the sum of all the perpendiculars on the other side. If there be such a point in the body, the position and motion of this point are the average of the positions and motions of all the particles. For if P (Plate IX. Mechanics, fig. 70.) be a point so situated, and if QR be a plane (perpendicular to the paper) at any distance from it, the distance Pp of the point from this plane is the average of the distances of all the particles from it. For let the plane APB be passed through P, parallel to QR. The distance CS of any particle C from the plane QR is equal to DS-DC, or to Pp-DC. And the distance GT of any particle G, lying on the other side of APB, is equal to HT+GH, or to Pp+GH. Let n be the number of particles on that side of AB which is nearest to QR, and let o be the number of those on the remote side of AB, and let m be the number of particles in the whole body, and therefore equal to $n+o$. It is evident that the sum of the distances of all the particles, such as C, is n times Pp, after deducting all the distances, such as DC. Also the sum of all the distances of the particles, such as G, is o times Pp, together with the sum of all the distances, such as GH. Therefore the sum of both sets is $n+o \times Pp +$ sum of GH - sum of DC, or $m \times Pp +$ sum of GH - sum of DC. But the sum of GH, wanting the sum of DC, is nothing, by

by the supposed property of the point P. Therefore $m \times Pp$ is the sum of all the distances, and Pp is the m th part of this sum, or the average distance.

Now suppose that the body has changed both its place and its position with respect to the plane Q R, and that P (fig. 71.) is still the same point of the body, and $\alpha P \beta$ a plane parallel to Q R. Make $p \pi$ equal to pP of fig. 70. It is plain that Pp is still the average distance, and that $m \times Pp$ is the sum of all the present distances of the particles from Q R, and that $m \times p \pi$ is the sum of all the former distances. Therefore $m \times P \pi$ is the sum of all the changes of distance, or the whole quantity of motion estimated in the direction πP . $P \pi$ is the m th part of this sum, and is therefore the average motion in this direction. The point P has therefore been properly selected; and its position, and distance, and motion, in respect of any plane, is a proper representation of the situation and motion of the whole.

It follows from the preceding discussion, that if any particle C (fig. 70.) moves from C to N, in the line C S, the centre of the whole will be transferred from P to Q, so that P Q is the m th part of C N; for the sum of all the distances has been diminished by the quantity C N, and therefore the average distance must be diminished by the m th part of C N, or PQ is $= \frac{CN}{m}$.

But it may be doubted whether there is in every body a point, and but one point, such that if a plane pass through it, in any direction whatever, the sum of all the distances of the particles on one side of this plane is equal to the sum of all the distances on the other.

It is easy to shew that such a point may be found, with respect to a plane parallel to Q R. For if the sum of all the distances D C exceed the sum of all the distances G H, we have only to pass the plane A B a little nearer to Q R, but still parallel to it. This will diminish the sum of the lines D C, and increase the sum of the lines G H. We may do this till the sums are equal.

In like manner we can do this with respect to a plane L M (also perpendicular to the paper), perpendicular to the plane A B. The point wanted is somewhere in the plane A B, and somewhere in the plane L M. Therefore it is somewhere in the line in which these two planes intersect each other. This line passes through the point P of the paper where the two lines A B and L M cut each other. These two lines represent planes, but are, in fact, only the intersection of those planes with the plane of the paper. Part of the body must be conceived as being above the paper, and part of it behind or below the paper. The plane of the paper therefore divides the body into two parts. It may be so situated, therefore, that the sum of all the distances from it to the particles lying above it shall be equal to the sum of all the distances of those which are below it. Therefore the situation of the point P is now determined, namely, at the common intersection of three planes perpendicular to each other. It is evident that this point alone can have the condition required in respect of these three planes.

But it still remains to be determined whether the same condition will hold true for the point thus found, in respect to any other plane passing through it; that is, whether the sum of all the perpendiculars on one side of this fourth plane is equal to the sum of all the perpendiculars on the other side. Therefore

Let A G H B (fig. 72.), A X Y B, and C D F E, be three planes intersecting each other perpendicularly in the point C, and let C I K L be any other plane, intersecting the first in the line C I, and the second in the line C L. Let P be any particle of matter in the body or system.

Draw P M, P O, P R, perpendicular to the first three planes respectively, and let P R, when produced, meet the oblique plane in V; draw M N, O N, perpendicular to C B. They will meet in one point N. Then P M N O is a rectangular parallelogram. Also draw M Q perpendicular to C E, and therefore parallel to A B, and meeting C I in S. Draw S V; also draw S T perpendicular to V P. It is evident that S V is parallel to C L, and that S T R Q and S T P M are rectangles.

All the perpendiculars, such as P R, on one side of the plane C D F E, being equal to all those on the other side, they may be considered as compensating each other; the one being considered as positive or additive quantities, the other as negative or subtractive. There is no difference between their sums, and the sum of both sets may be called 0 or nothing. The same must be affirmed of all the perpendiculars P M, and of all the perpendiculars P O.

Every line, such as R T, or its equal Q S, is in a certain invariable ratio to its corresponding Q C, or its equal P O. Therefore the positive lines R T are compensated by the negative, and the sum total is nothing.

Every line, such as T V, is in a certain invariable ratio to its corresponding S T, or its equal P M, and therefore their sum total is nothing.

Therefore the sum of all the lines P V is nothing; but each is in an invariable ratio to a corresponding perpendicular from P on the oblique plane C I K L. Therefore the sum of all the positive perpendiculars on this plane is equal to the sum of all the negative perpendiculars, and the proposition is demonstrated, viz. that in every body, or system of bodies, there is a point such, that if a plane be passed through it in any direction whatever, the sum of all the perpendiculars on one side of the plane is equal to the sum of all the perpendiculars on the other side.

The point P, thus selected, may, with great propriety, be called the *center of position* of the body or system.

If A and B (fig. 73.) be the centers of position of two bodies, whose quantities of matter (or numbers of equal particles) are a and b , the center C lies in the straight line joining A and B, and $AC : CB = b : a$, or its distance from the centers of each are inversely as their quantities of matter. For let $\alpha C \beta$ be any plane passing through C. Draw A α , B β , perpendicular to this plane. Then we have $a \times A \alpha = b \times B \beta$, and $A \alpha : B \beta = b : a$, and, by similarity of triangles, $CA : CB = b : a$.

If a third body D, whose quantity of matter is d , be added, the common center of position E of the three bodies is in the straight line D C, joining the center D of the third body with the center C of the other two, and $DE : EC = a + b : d$. For passing the plane $\delta E \kappa$ through E, and drawing the perpendiculars D δ , C κ , the sum of the perpendiculars from D is $d \times D \delta$; and the sum of the perpendiculars from A and B is $a + b \times C \kappa$, and we have $d \times D \delta = a + b \times C \kappa$; and therefore $DE : EC = a + b : d$.

In like manner, if a fourth body be added, the common center is in the line joining the fourth with the center of the other three, and its distance from this center and from the fourth is inversely as the quantities of matter; and so on for any number of bodies.

If all the particles of any system be moving uniformly, in straight lines, in any directions, and with any velocities whatever, the center of the system is either moving uniformly in a straight line, or is at rest.

For, let m be the number of particles in the system. Suppose any particle to move uniformly in any direction. It is evident from the reasoning in a former paragraph, that

the motion of the common center is the m th part of this motion, and is in the same direction. The same must be said of every particle. Therefore the motion of the center is the motion which is compounded of the m th part of the motion of each particle. And because each of these was supposed to be uniform and rectilinear, the motion compounded of them all is also uniform and rectilinear; or it may happen that they will so compensate each other that there will be no diagonal, and the common center will remain at rest.

Cor. 1. If the centers of any number of bodies move uniformly in straight lines, whatever may have been the motions of each particle of each body, by rotation or otherwise, the motion of the common center will be uniform and rectilinear.

Cor. 2. The quantity of motion of such a system is the sum of the quantities of motion of each body, reduced to the direction of the center's motion. And it is had by multiplying the quantity of matter in the system by the velocity of the center.

The velocity of the center is had by reducing the motion of each particle to the direction of the center's motion, and then dividing the sum of these reduced motions by the quantity of matter in the system.

By the selection of this point, we render the investigation of the motions and actions of bodies incomparably more simple and easy, freeing our discussions from numberless intricate complications of motion, which would frequently make our progress almost impossible. That there is in every body such a point has been demonstrated in the manner above stated by Dr. Robison (after Bosovich) in his *Elements of Mechanical Philosophy*, &c. 8vo. 1804, p. 79, &c.

CENTER of pressure, in *Hydraulics*, is that point of a surface, against which any fluid presses, in which the whole pressure may be conceived to be united; or, as Mr. Cotes has defined it, it is that point, to which, if the total pressure on any plane were applied, its effect upon the plane would be the same as when it was distributed unequally over the whole; or again, it is that point to which, if a force were applied, equal to the total pressure, but with a contrary direction, it would exactly balance or restrain the effect of the pressure, and keep the surface at rest. Thus if $abcd$ (*Plate IX. Mechanics*, fig. 74.) be a vessel of water, and the side ac be pressed upon with a force equivalent to 20 pounds of water, this force is unequally distributed over ac ; for the parts near a being at a lesser depth, are less pressed upon than the parts near c , which are at a greater depth, and therefore the efforts of all the particular pressures are united in some point as z , which is nearer to c than to a , and that point z is what may be called the centre of pressure. If to that point a force equivalent to 20 pounds weight be applied, it will affect the plane ac in the same manner as before by the pressure of the water distributed unequally over the whole; and if to this same point we apply the same force with a contrary direction to that of the pressure of the water, the force and pressure will balance each other, and by contrary endeavours destroy each other's effects. Suppose at z a cord zpw were fixed, which passing over the pulley, p , has a weight, w , of 20 pounds annexed to it, and that the part of the cord zp were perpendicular to ac ; the effort of the weight w is equal, and its direction contrary to that of the pressure of the water. Now if z be the center of pressure, these two powers will be in equilibrio, and mutually defeat each other's endeavours.

To find the center of pressure of a plane surface. Let $ABCD$ (fig. 75.) be the surface of the fluid, VW the plane, in which produced, let cd be its intersection

with the surface, P the center of pressure, and G the center of gravity; and conceive the whole plane to be divided into an indefinite number of indefinitely small parts, of which one is x ; draw PQ , Gg , perpendicular to the surface, and Pa , Gn , xm , perpendicular to cd ; and join Qa , gn , vm : then it is manifest that the triangles PQa , Ggn , xvm , are similar. Now the pressure on x perpendicular to VW is as $x \times xv$ (being as the particle or number of particles \times the depth); and its effect to turn the plane about cd is as $x \times xv \times xm$; but, by similar triangles,

$Gn : Gg :: xm : xv = xm \times \frac{Gg}{Gn}$: hence the effect of the pressure at x to turn the plane about cd is as $x \times xm^2 \times \frac{Gg}{Gn}$; therefore the whole effect is as the sum of all the

$x \times xm^2 \times \frac{Gg}{Gn}$. But if A = the area of VW , the pressure on VW is as $A \times Gg$; therefore the effect of that pressure at P to turn the plane about cd is as $A \times Gg \times Pa$. Hence $A \times Gg \times Pa$ = the sum of all the $x \times xm^2 \times \frac{Gg}{Gn}$: Consequently $Pa = \frac{\text{Sum of all the } x \times xm^2}{A \times Gn}$.

Hence it appears, that P is at the same distance from cd as the center of percussion is, cd being the axis of suspension. They do not, however, in general lie in the same line, that is, in the line nG ; for the efficacy of the pressure at x , to turn the plane about nG , is as $x \times xv \times mn$, or (since xv varies as xm) as $x \times xm \times mn$; but the sum of all the $x \times xm \times mn$ is not generally $= 0$; therefore the whole pressure will not necessarily balance itself upon the line nG . The situation of the line aP must therefore be determined, by making the sum of all the $x \times xm \times mn = 0$. The centers of pressure and percussion do not therefore in general coincide, taking the center of percussion in its usual acceptance. Obs. The center of percussion has always been defined to be that point in the line nG at which all the motion of the body would be destroyed, estimating the motion of the body about the line cd ; and the computations have been always made upon this principle. But the body, after its action against that center, may still have a tendency to turn about the line nG . If, therefore, we were to define the center of percussion to be that point at which the whole motion of the body would be destroyed, the centers of pressure and percussion would not, in general, coincide; in which case, the position of the line aP must be computed on the above principle. Cotes's *Hydrostatical and Pneumatical Lectures*, p. 40, &c. Vince's *Principles of Hydrostatics*, p. 20.

CENTER of a regular polygon, or *regular body*, is the same as that of the inscribed or circumscribed circle or sphere.

CENTER of rotation, is that point about which a body, otherwise at liberty, revolves or tends to revolve, when it is acted upon unequally at different points, or by a force the direction of which does not pass through its center of gravity. M. I. Bernoulli was the first who published any thing on this subject; and he first found the point about which a body at rest would begin to revolve, when struck by another body, and he called this point the "spontaneous center of rotation," to distinguish it from the center of forced rotation. He observes, however, that D. Bernoulli had discovered the same: he has also mentioned the curve described by that point in the progressive motion of the body, and has directed a method of inquiry by which the velocities of the bodies may be found after the stroke. Two years afterwards D. Bernoulli published a paper on progressive and rotatory motion, containing nothing more than what I. Bernoulli had before given. Euler has also investigated the velocities of the

the bodies after impact in a manner somewhat different, but he has rendered it much more intricate by a fluxional calculus. Mr. Vince has treated this subject much at large and with great perspicuity in the Philosophical Transactions, vol. lxx. (for 1780) p. 546, &c. He begins with the most simple cases, and then proceeds to those that are more complicated; and he comprehends the whole in a variety of distinct propositions.

1. Let *A* and *B* (*Pl. IX. Mechanics, fig. 76.*) be two indefinitely small bodies connected by a lever void of gravity; and suppose a force to act at any point *D* perpendicularly to the lever; and it be required to find the point about which the bodies will begin to revolve.

By the property of the lever, the effort of the force acting at *D* on the body is to the effect on *B* :: *BD* : *AD*; and therefore the ratio of the spaces *Am*, *Bn*, described by the bodies *A* and *B* in the first instant of their motion will be as $\frac{BD}{A} : \frac{AD}{B}$; join *mn*, and produce it if necessary, and also

AB to meet in *C*, and this will be the point about which the bodies begin to revolve. Hence from similar figures

BC : *AC* :: $\frac{AD}{B}$ (*Bn*) : $\frac{BD}{A}$ (*Am*) :: *A* × *AD* : *B* ×

BD; or *DC* - *DB* : *AD* + *DC* :: *A* × *AD* : *B* ×

BD; and consequently *DC* = $\frac{A \times AD^2 + B \times BD^2}{B \times BD - A \times AD}$;

and therefore *D* is the center of percussion or oscillation to the point of suspension *C*. Hence, whatever be the magnitude of the stroke at *D*, the point *C* will remain the same. Moreover, if the force acts at the center of gravity, *G*, the bodies will have no circular motion; for in this case *B* × *BD* - *A* × *AD* = 0; and therefore *DC* becomes infinite. Further, if the force acts at one of the bodies, the center of rotation, *C*, will coincide with the other body. Also, if the lever had been in motion before the stroke, the point *C*, at the instant of the stroke, would not have been disturbed.

2. Let a given quantity of motion be communicated to the lever at *D*, to determine the velocity of the center of gravity, *G*. The

space *Am* is as $\frac{DB}{A}$; and *CG* = *CD* - *DG* = *CD* -

$\frac{A \times AD^2 + B \times BD^2}{B \times BD - A \times AD}$ - *AG* + *AD*

= $\frac{B \times BD \times BG + A \times AD \times AG}{B \times BD - A \times AD}$; also *CA* =

$\frac{A \times AD^2 + B \times BD^2}{B \times BD - A \times AD}$ + *DA* =

$\frac{B \times BD \times AB}{B \times BD - A \times AD}$; hence we have $\frac{B \times BD \times AB}{B \times BD - A \times AD}$

(*AC*) : $\frac{BD}{A}$ (*mA*) :: $\frac{B \times BD \times GB + A \times AD \times AG}{B \times BD - A \times AD}$

× *AG* (*CG*) : $\frac{B \times BD \times GB + A \times AD \times AG}{A \times B \times AB}$

or *Gw*, the velocity of the center of gravity; hence if the

motion be communicated at *G*, the velocity becomes as $\frac{B \times GB^2 + A \times AG^2}{A \times B \times AB}$.

Let the motion, supposed to be actually communicated to the rod at *D*, be equivalent to the motion

of a body whose magnitude is *G*, and moving with a velocity *v*; then, if that motion be communicated

at *G*, the velocity of the center of gravity is well known

to be = $\frac{G \times v}{A + B}$; hence $\frac{B \times BG^2 + A \times AG^2}{A \times B \times AB}$:

$$\frac{B \times BD \times BG + A \times AD \times AG}{A \times B \times AB} :: \frac{G \times v}{A + B} :$$

$$\frac{G \times v}{A + B} \times \frac{B \times BG \times BD + A \times AD \times AG}{B \times BG^2 + A \times AG^2} =$$

the velocity of the center of gravity, when the same motion is actually communicated to any point *D*. Now *BD* =

BG + *GD*, and *AD* = *AG* - *GD*; hence *B* × *BG*

× *BD* + *A* × *AD* × *AG* = *B* × *BG*² + *A* ×

*AG*² + *GD* × *B* × *BG* - *A* × *AG* = (because

B × *BG* - *A* × *AG* = 0) *B* × *BG*² + *A* × *AG*²;

consequently, the velocity becomes $\frac{G \times v}{A + B}$; and hence

the center of gravity moves with the same velocity, wherever the motion is communicated.

3. Let a given elastic body *P*, moving with a given velocity, be supposed to strike the lever at the point *D*, in a direction perpendicular to it; and it be required to determine the velocity of the center of gravity *G* after the stroke. Suppose, first, the

body to be non-elastic, and let *v* be the velocity of the center of gravity after the stroke, and *V* the velocity of the

striking body: then *CG* : *CD* :: *v* : $\frac{v \times CD}{CG}$ = the ve-

locity of the point *D*, after the stroke, or of the body *P*;

for the same reason $\frac{v \times CA}{CG}$ and $\frac{v \times CB}{CG}$ equal the veloci-

ties of *A* and *B* respectively. Now, because in revolving

bodies, the momenta arising from the magnitude of the bo-

dies, their distance from the center of rotation and velocity

conjunctly, remain the same after the stroke as before, we

shall have $P \times V \times DC = \frac{v \times CD^2 \times P}{CG} + \frac{v \times CA^2 \times A}{CG}$

+ $\frac{v \times CB^2 \times B}{CG}$, and therefore $v = \frac{P \times V \times DC}{P \times DC^2 + A \times$

$\frac{AC^2 + B \times BC^2}{A + B \times CG + P \times DC}$;

hence if *P* be supposed an elastic body, we shall have

$\frac{2 \times P \times V \times CG}{A + B \times CG + P \times DC}$ for the velocity of the cen-

ter of gravity after the stroke, in *ipso motus initio*.

4. Let a motion be communicated to the lever obliquely, and it

be required to determine the point about which the bodies begin to

revolve. Let *FD* (*fig. 77.*) represent the force communi-

cating the motion at the point *D*, and resolve it into two

others, *FH*, *HD*, the former *FH* parallel to the lever, and the latter *HD* perpendicular to it. Let *C* be the

point about which the bodies would have begun to revolve, if the force *HD* alone had acted, which may be found by

Art. 1; and suppose in this case *mg* *n* to have been the next

position of the lever after the commencement of the motion, or that the bodies *A*, *B*, and center of gravity *G*, had

been carried to *m*, *g*, and *n*, respectively. But as the force *FH* acts at the point *D* at the same time in the direction

of the rod, if we take *Gg* : *Gg* as *FH* : *HD*, then whilst the center of gravity would have moved from *G* to *g* in consequence of the force *HD*, it will by means of the force *FH* be carried in the direction of the lever from *G* to *g*, and also every other point of the lever will be carried in the same direction with the same velocity; take therefore *Ap* and *Br* each equal to *Gg*, and complete the parallelograms *Aa*, *Gw* and *Bb*, and the bodies *A*, *B*, and center of gravity *G* will, at the end of that time, be found at *a*, *b*, and *w* respectively, and *awb* will be the position of the lever. Now it is evident, that *C* is not the point about which the bodies begin to revolve, for

(considering the lever to be produced to C) that point must have moved over a space Cc equal to Gg , when the lever is come into the position awb : draw CO perpendicular to CB , and GO perpendicular to Gw , and O will be the center of rotation at the commencement of the motion. For conceive CO to be a lever, then the lever ABC has a circular motion about C , whilst that point is moving from C to c , and consequently the point O is carried forward in a direction parallel to Cc by this motion; but as the lever CO is carried by a circular motion about C in a contrary direction, it is evident that that point of the lever CO must be at rest where these two motions are equal, as they are in contrary directions. Now the velocity of C in the direction Cc : velocity of G about C :: Gg : Gg :: (by sim. triang.) CO : CG , and the velocity of the point G about C : velocity of the point O about C :: CG : CO ; hence *ex aquo* the velocity of C in the direction of Cc , or of O in the direction OP parallel to Cc , is equal to the velocity of the same point O in a contrary direction arising from its rotation about C , and consequently O being a point at rest, must be the center of rotation *in ipso motus initio*. Also, because ma is equal and parallel to nb , ab must be equal and parallel to mn , therefore the angular velocity is just the same as if the force FH had not acted. The center O of rotation at the beginning of the motion being thus determined, every thing relative to the motion of the bodies, after they are at liberty to remove freely, may be determined as in the preceding propositions.

Cor. 1. Hence it appears, that whatever be the magnitude or direction of the force communicating the motion, or the point at which it acts, the center of gravity will move in a line parallel to the direction of the force, for the triangles FHD , Gqw being similar, Gw must be parallel to FD .

Cor. 2. The same is manifestly true for any number of bodies; for let (*fig. 78.*) E be a third body, and conceive it to be connected with the other two bodies A and B in their center of gravity G ; then if FD represents the force acting at the point D , it is evident from the last Corol. and the second Prop. that the center of gravity moves with the same velocity and in the same direction, as if the same motion had been communicated at G in a line RG parallel to FD , and that the center of gravity has the same velocity communicated to it, as if the two bodies had been placed at G ; conceive therefore the bodies A and B to be placed at G , and let the force act at D , and then from the last Corol. the center of gravity g , of the three bodies, will move in a line parallel to the direction of the force communicated. In the same manner it may be proved for any number of bodies.

The method here used for determining the point of rotation *in ipso motus initio*, when a single force acts at any point D , may be applied, when any number of forces act at different points at the same time. For let (*fig. 76.*) α , β , γ , &c. represent the forces acting on the lever at the points D , E , F , respectively, &c. then from the same principles the effect of all the forces on A : the effect on B :

$$\frac{\alpha}{AD} + \frac{\beta}{AE} + \frac{\gamma}{AF} + \&c. : \frac{\alpha}{BD} + \frac{\beta}{BE} + \frac{\gamma}{BF} + \&c. \text{ which quantities put equal to } P \text{ and } Q \text{ respectively,}$$

$$\text{and then } \frac{P}{A} : \frac{Q}{B} :: Am : Bn :: AC : BC, \text{ from whence}$$

it appears, that (putting $GC + GA = AC$ and $GC - GB = BC$) the distance $GC = \frac{A \times Q \times AG + B \times P \times BG}{B \times P - A \times Q}$.

The same conclusion might have been deduced from this consideration; that if any number of forces act on a lever, the effect on any point of that lever is just the same as if a force, equivalent to the sum of these forces, had acted at their common center of gravity; find therefore their common center of gravity, and conceive a force equivalent to them all to be communicated to that point, and the problem is reduced to the case of the first proposition. If any of the forces had acted on the opposite side of the lever, such forces must have been considered as negative.

If there be any number of bodies placed on the lever, and a single force acts at D , it will appear from the same principles that the point C , about which they begin to revolve, will be the point of suspension to the center of percussion D ; and the same conclusion will be obtained, if the bodies be not situated in a straight line.

5. If a force acts upon a body in any given direction not passing through the center of gravity; to determine the plane of rotation, the direction in which the center of gravity begins to move, and its motion after. Conceive a plane $AyBZ$ (*fig. 79.*) to be supported upon a line AB passing through its center of gravity G , and suppose a force to act at any point D in that line, and in a direction perpendicular to the plane; then it is manifest, that such a force can give the plane no rotatory motion about AB . Imagine now the support to be taken away whilst the force is acting at D , then it is evident, that as the plane had no tendency to move about AB as an axis, and the taking away of the support can give it no such motion, it will, by Cor. 2. Art. 4. begin its progressive motion in the direction in which the force acts; and as the force is supposed not to act at the center of gravity, it must at the same time have a rotatory motion about some axis, which, as it has no motion about AB , must lie somewhere in the plane, and perpendicular to AB ; and consequently *in ipso motus initio* the plane of rotation must be perpendicular to the plane $AyBZ$. Let LCM , perpendicular to AB , be the axis about which the plane begins to revolve, and p , q be two equal particles of the plane similarly situated in respect to AB , also qb , pa perpendicular to LCM . Now the centrifugal force of p , or its force in the direction ap is $p \times ap$, and that of q in the direction bq is $q \times bq$; to determine now how these forces will affect the motion of the plane, we may observe, in the first place, that the force $p \times ap$, acting at a in the plane, must tend to give it a motion about an axis perpendicular to the plane; but as an equal force $q \times qb$ acts at q to give it a motion in a contrary direction, it is evident that the two forces will destroy each other, so far as they tend to generate any motion in the plane about an axis perpendicular to it; and hence it is manifest, that if the parts of the plane AyB , AZB , be similar, and similarly situated in respect to AB , the plane, after the commencement of the motion, will have no tendency to revolve about an axis perpendicular to it. Also, as the centrifugal force of each particle acts in a direction parallel to AB , it can give the plane no tendency to revolve about that line as an axis, and consequently the plane of rotation will be preserved as *in ipso motus initio*. Conceiving therefore the plane on each side the line AB to be similar, and similarly situated, suppose another plane to be fixed upon this, whose parts on each side AB are similar, and similarly situated, and the force to act as before, then it is manifest, that as each plane endeavours to preserve the same plane of rotation, the

two planes connected will also continue to move in the same plane of rotation, for the action of one plane on another, on each side the plane of rotation, being equal, cannot tend to disturb the motion in that plane; and as this must be true for any number of planes thus similar and similarly situated, it is evident, that if a force should act upon a body, and each section, perpendicular to the direction of the force, should be similar on each side the plane passing through the direction of the force, and the center of gravity of the body, that that plane would be the plane of rotation in which the body would both begin and continue its motion. It appears also, from what has been proved, that if every section on each side that plane had not been similar, the plane of rotation would not necessarily have continued the same after the commencement of the motion. Hence all bodies, formed by the revolution of any plane figure, will have the axis about which they were generated, a fixed axis of rotation; to determine, however, every other axis of a body about which it would continue to revolve, would be foreign to the present subject. Supposing therefore the plane of rotation to continue the same, imagine all the particles of the body to be referred to that plane orthographically, which supposition not affecting the angular motion of the body, the centrifugal force of all the particles, to cause the body to revolve about an axis perpendicular to that plane, will remain unaltered. Let LMNO (fig. 80.) be that plane, and suppose a force to act at A in the direction PA lying in the same plane, which produce until it meets LN, passing through the center of gravity G, perpendicularly in D; then by Cor. 2. Art. 4. the center of gravity G will begin its motion in a line parallel to PA, or perpendicular to LN; and consequently the center C, about which the body begins to revolve, must lie somewhere in the line LN. Now the centrifugal force of any particle p is $p \times pc$; let fall pa perpendicular to LN, then the effect of that force at C, in a direction perpendicular to LN, will be $p \times pa$, and in the direction CL it will be $p \times Ca$; but as the sum of all the quantities $p \times pa = 0$, and the sum of all the quantities $p \times Ca =$ the body multiplied into CG, it follows from the same reasoning as in Art. 3. that the point G will continue to move in a direction perpendicular to LN; and also, as the forces $p \times Ca$ act in a direction perpendicular to that in which the center of gravity moves, its motion must be continued uniform. In the following proposition, therefore, we suppose the axis of the body, after the commencement of the motion, to continue perpendicular to the plane passing through the direction of the force and the center of gravity of the body, and that the body itself is orthographically projected upon that plane; also in the case of the action of two bodies on each other, the plane passing through the direction of the striking body and point of percussion is supposed to pass through the centers of gravity of each body; that the axis of each body after it is struck continues perpendicular to that plane, and that each body is reduced to it in the manner above described.

6. To determine the point about which a body, when struck, begins to revolve. Let LMNO (fig. 80.) represent the body, G the center of gravity, and PA the direction of the force acting at A, which produce till it meets LN, passing through G, perpendicularly in the point D; draw pb perpendicular to pc , on which (produced if necessary) let fall the perpendicular Dw ; C being supposed the point about which the body begins to revolve, and which, from the last proposition, is somewhere in the line LN. Because the body, in consequence of the force acting at D, begins to revolve about C, and consequently if immediately

after the beginning of the motion a force were applied at D equal to it, and in a contrary direction, the motion of the body would be destroyed, it is evident, that the efficacy of the body revolving about C, to turn the body about D, should any obstacle be opposed to its motion at that point, must be equal to nothing; for were it not, the body, when stopped at D, would still have a rotatory motion about that point, and consequently two equal and opposite forces applied at D would not destroy each other's effects, which would be absurd. Now the force of a particle p , in the direction pw , being $p \times pC$, its efficacy to turn the body about the point D is $p \times pC \times Dw$; but by sim. triang.

$$Dw : Db :: aC : pC, \therefore Dw = \frac{Db \times aC}{pC}, \text{ and consequently}$$

ly the efficacy to turn the body about D $= p \times Db \times aC = p \times Ca \times DC - Cb = p \times Ca \times DC - p \times pC^2$; hence the sum of all the $p \times Ca \times DC$ — the sum of all the $p \times pC^2 = 0$, and consequently $CD =$ $\frac{\text{sum of all the } p \times pC^2}{\text{sum of all the } p \times Ca}$, therefore D is the center of percussion, the point of suspension being at C.

For further particulars relating to this subject, see Vince's paper above referred to. See also Parkinson's System of Mechanics, &c. p. 187, et seq.

For an account of the position of the center of rotation, and the changes to which the angle of rotation is subject in the theory of working ships; see the Elements and Practice of Rigging and Seaman'ship, Vol. ii. p. 249, &c.

CENTER of a sphere is a point from which all the lines drawn to the surface are equal.

The centre of the semicircle, by whose revolution the sphere is generated, is also that of the sphere. See SPHERE.

Hermes Trismegistus defines God an intellectual sphere, whose center is every-where, and circumference no-where.

CENTER division, column, or squadron of a fleet, that which is under the immediate orders of the commander in chief, or admiral of the fleet; and its position is between the van and the rear divisions, which are under the command of their respective admirals. The ships of each division are distinguished by the position of their colours; those of the first or center squadron carry their pendant at the main-top-gallant-mast head: the ships of the second division carry their pendants at the fore-top-gallant-mast head; and those of the third division at the mizen-top-mast head. Each squadron ought, as nearly as possible, to consist of the same number of ships, and to be of the same force, in order that each may be equally able to attack, or repulse the enemy, and when in a line, the several parts will be equally strong. When the fleet is very numerous, each squadron is sometimes divided in a similar manner into three divisions of center, van, and rear. The term is also applied to that column in the order of sailing, which is between the weather and the lee columns.

CENTER-wheel of a watch. See WATCH-work.

CENTERING, in Carpentry. See CENTER in Architecture.

CENTERING of an optic glass, the grinding it so as that the thickest part is exactly in the middle.

M. Cassini the younger has a discourse exprefs on the necessity of well centering the object glass of a large telescope, that is, of grinding them so, that the center may fall exactly in the axis of the telescope. Mem. Acad. Sc. an. 1710, p. 299, seq.

One of the greatest difficulties in grinding large optic glasses is, that in figures so little convex, the least difference will put the center two or three inches out of the middle. Dr. Hook notes, that though it were better the thickest

part of a long object glass were exactly in the middle, yet it may be a very good one when it is an inch or two out of it. Phil. Transf. N^o 4. p. 57. Id. ibid. p. 64. seq. See OBJECT GLASS.

CENTESIMA usura, in *Roman Antiquity*, that wherein the interest in an hundred months became equal to the principal; i. e. where the money is laid out at one *per cent.* per month, answering to what in our stile would be called 12 *per cent.* for the Romans reckoned their interest not by the year, but by the month.

CENTESIMUM, in *Ancient Geography*, a place of Italy, in Umbria, S.W. of Nuceria. Its name indicates its distance from Rome.

CENTESIMATION, in *Ancient Military History*, a punishment resorted to in cases of mutiny, desertion or the like, by which every one hundredth man only was executed or punished with death.

CENTESM, the 100th part of any thing.

CENTGRAVIUS, in *Middle Age Writers*, the same with **CENTENARIUS**,

CENTIARE, in *French Superficial Measure*, 100 square metres, or 948.31 square feet. See **MEASURE**.

CENTIBAR, in *French Measures of Capacity*, the hundredth part of a *bar*, called also *decal*, containing 10 cubic decimetres of water, and weighing 20.444 French pounds. See **MEASURE**.

CENTICADE, or a bushel, 10 cubic decimetres, or 10½ Paris pints, or .789 Paris bushel. See **MEASURE**.

CENTIGRAVE, or dram, the hundredth part of a *Grave*, weighing 2 gros, 44.41 grains. A piece of silver coin weighing a centigrave, is denominated a *Franc* of silver, and, according to the former standard, will be worth 40 sols 10¾ deniers.

CENTIGRAVET, contains .00001 cubic decimetre, and weighs 0.18841 grain.

CENTILOQUIUM, from *centum*, a hundred, and *loquor*, I speak, denotes a collection of an hundred sentences, opinions, or sayings.

CENTIME, in *French Money*, the hundredth part of a livre. See **MONEY**.

CENTIMETRE, in *French long Measure*, is the hundredth part of a metre or 4.434 lines. A cubic centimetre of water is named a *Gravet* or *Maille*, and weighs 18.841 grains.

CENTINEL or *Centry*, in French *Sentinelle*, is a soldier from a guard, placed at any post for the security of the said guard, or any other body of troops, for watching the enemy, preventing surprises, and stopping those who might wish to pass without orders, and without making themselves known. All centinels ought to be very vigilant on their posts, should avoid singing, smoking, making any noise themselves, or suffering any to be made near them by others. They should keep their arms in their hands during the whole time they are on duty, should not sit down, or on any account go to sleep, as on their attention and watchfulness depend the lives of many; but should keep moving about, if the weather will permit them. They ought never to move farther from their posts in any directions, than to distances from which they can have distinct views of them, as well as of the intervening and interjacent spaces. And should the weather be ever so bad, they ought not to go under any other cover than that of their centry boxes. Not one of them should be allowed to quit his post without leave from his commanding officer. And in order to prevent desertion, marauding, or other irregularities; they should be strictly charged to let no soldier pass them.

CENTINEL perdu, in French *Sentinelle perdue*, is a soldier placed at a very hazardous post, or in a situation where he

is in constant danger of being attacked, taken, or killed by the enemy without any prospect of aid, help (holp) or relief. Hence the phrase *forloin holp*, commonly pronounced *forloin hope*.

CENTINEL, *Great and Little*, in *Geography*, two islands in the Indian Sea: the former six leagues from the Great Andaman; and the latter seven leagues N.W. from the Little Andaman.

CENTINODIUM, an officinal plant, popularly called *knot-grass*; by the botanists *polygonum*; reputed an astringent and vulnerary.

CENTIPES, **CENTIPEDES**, in *Entomology*. See **SCOLOPENDRA**.

CENTIUM PUTEI, in *Ancient Geography*, a place of Asia in Syria, seated on a large plain, and surrounded by mountains.

CENTLANCES, in *Military Language*, a name given to a Scottish company of gendarmes, established in 1422 by Charles VII. of France.

CENTLIVRE, **SUSANNA**, in *Biography*, a dramatic writer, was the daughter of Mr. Freeman, a gentleman of Lincolnshire, who, being attached to the parliamentary cause, took refuge in Ireland at the restoration. She is supposed to have been born in Ireland about the year 1667. Discovering an early propensity to poetry and a romantic disposition, and being ill-treated by those who had the care of her after the death of her mother, she resolved on a visit to London; and in the course of her journey, which she performed on foot, she was met by Anthony Hammond esq. then a student at the University of Cambridge. This gentleman caused her to assume a boy's garb, and took her with him to college, where she spent some months in his company; but fearing a discovery, he persuaded her to go to London, where, being in her 16th year, she married a nephew of sir Stephen Fox. Having in about a year lost her husband, she soon after married Mr. Carrol, an officer in the army, whom she lost in a duel about a year and a half after their union. She then commenced her course as a dramatic writer, and made her first attempt in tragedy. Accordingly in 1700 her "*Perjured Husband*" was performed at Drury-lane. She afterwards wrote several comedies, which were chiefly translations from the French, and which obtained temporary success. One of them, entitled "*The Gamester*," was honoured with a prologue by Rowe. She also made some trial, without rising to any great reputation, as an actress. Under this character, however, she performed before the court on the stage at Windsor, and captivated the heart of Mr. Joseph Centlivre, yeoman of the mouth to queen Anne, whom she married in 1706. Of the number of her comedies, which she produced with great fertility, we may reckon "*The Busy Body*," performed in 1708; "*The Wonder, a Woman keeps a Secret*," in 1714; and "*A bold Stroke for a Wife*," in 1717. The licentiousness which at that time characterized the English stage is too apparent in her productions. She lived, however, on terms of friendship and familiarity with most of the wits of that period, as Steele, Rowe, Farquhar, and Budgell; but upon incurring the displeasure of Pope, she was introduced into the Dunciad. Her person was handsome, her conversation sprightly, and her disposition friendly and benevolent. She died in 1723. Her dramatic works were printed in 1761, in 3 vols. 12mo. Her verses and letters were collected and published by Mr. Boyer. *Biog. Brit.*

CENTNER, or *Docimastic HUNDRED*, in *Metallurgy* and *Assaying*, is a weight divisible, first into an *hundred*, and thence into a greater number of other smaller parts; but though the word is the same, both with the assayers and metallurgists,

metallurgists, yet it is to be understood as expressing a very different quantity in their different acceptation of it. The weights of the metallurgists are easily understood, as being of the common proportion, but those of the assayers are a thousand times smaller than these, as the portions of metals or ores examined by the assayers are usually very small.

The metallurgists, who extract metals out of their ores, use a weight divided into an *hundred* equal parts, each part a pound; the whole they call a *centner* or *hundred weight*; the pound is divided into thirty-two parts, or half ounces; and the half ounce into two quarters of ounces, and these each into two drams.

These divisions and denominations of the metallurgists are easily understood; but the same words, though they are equally used by assayers, with them express very different quantities; for as the centner of the metallurgists contains a hundred pounds, the centner of the assayers is really no more than one dram, to which the other parts are proportioned.

As the assayers' weights are divided into such an extreme degree of minuteness, and are so very different from all the common weight, the assayers usually make them themselves, in the following manner, out of small silver, or fine folder plates, of such a size, that the mark or their weight, according to the division of the dram, which is the docimastic, or assaying centner, may be put upon them. They first take for a basis one weight, being about two thirds of a common dram: this they mark (*64lb.*) Then having at hand some granulated lead, washed clean, well dried, and sifted very fine, they put as much of it in one of the small dishes of a fine balance, as will equipoise the *64lb.* (as it is called) just mentioned: then dividing this granulated lead into very nice halves, in the two scales, after taking out the first silver weight, they obtain a perfect equilibrium between the two scales; they then pour the granulated lead out of one dish of the scales, and instead of it put in another silver weight, which they make exactly equiponderant with the lead in the other scale, and mark it (*32lb.*) If this second weight, when first put into the scale, exceed by much the weight of the lead, they take a little from it by a very fine file; but when it comes very near, they use only a whetstone to wear off an extremely small portion at a time. When it is brought to be perfectly even and equal to the lead, they change the scales to see that no error has been committed, and then go on in the same manner till they have made all the divisions, and all the small weights. Then to have an entire *centner*, or *hundred weight*, they add to the *64lb.* (as they call it) a *32lb.* and a *4lb.* and weighing against them one small weight, they make it equal to them, and mark it (*10lb.*) This is the docimastical, or assaying centner, and is really one dram. Cramer, *Art. Ass.* p. 108.

CENTO, in *Poetry*, a work wholly composed of verses, or passages, promiscuously taken from other authors; only disposed in a new form, or order: so as to compose a new work, and make a new meaning.

The word is Latin, *cento*, which primarily signifies a cloak made of patches, and that from *κεντρον*.

Ausonius has laid down the rules to be observed in composing centos. The pieces, he says, may be taken either from the same poet, or from several; and the verses may be either entire, or divided into two; one half to be connected with another half taken elsewhere; but two verses are never to be taken running, nor is much less than half a verse to be taken. Agreeably to these rules, he has made a pleasant nuptial cento from Virgil.

Proba Falconia has written the life of Jesus Christ in centos taken from Virgil: the like is done by Alex. Ross, in his

Christiados; and by Stephen de Pleurre, canon regular of St. Victor at Paris.

CENTOBIRICA, in *Ancient Geography*, a town of Spain, in Celtiberia.

CENTON, a fortress of Thrace, in Lower Mysia, the walls of which were repaired by Justinian. Procopius.

CENTONARE. In Italy, a plagiarist in musical composition, where melody and harmony are mere patch-work, is said to *centonare*. Sometimes an opera consisting of airs selected by the Maestro, or by the singers themselves from the works of various composers, is called a *cento*. See PASTICCIO.

CENTONARIII, in *Antiquity*, a sort of officers or operators, whose business was to make *centones*, or coats patched of leather and cloth, wherewith to cover the *vinces*, under which the besiegers made their approaches, as well as the towers and machines used to batter the place, and prevent their being set on fire by the enemy. In the Theodosian code we have a title *De centonariis & dendrophoris*. And in ancient inscriptions, the centonarii are joined with the *ignarii*, or carpenters, *ferrarii*, or smiths, &c. who made but one company, under the denomination of *collegium fabrorum & centonariorum*.

CENTONIER, *French*. See CENTONARE, *Ital*.

CENTO-POZZI, in *Geography*, a town of Naples, in the province of Bari; three miles N. of Matera.

CENTORBI, the ancient *Centuripa*, a city of Sicily, mentioned by Cicero in his oration against Verres. It is seated on five points of rocks, and resembles a star-fish; being very difficult of access, and incommodious for habitation. Yet, in the time of the Romans, it was very populous; but it retains no vestige of its ancient splendour, except a few ruins. Its long suburbs, terminated in a point, are miserable and depopulated; and it is destitute of money and commerce. The convent of the reformed Augustines is a large building, but in as depopulated a state as the town. To the westward of the town there are considerable ruins of baths, built with beautiful mattoni, lined with marble in the Roman style, like that of the baths of Baia. To the east of the town is the ruin of a castle, called the castle of Conradin. Frederic, the grandfather of this Conradin, destroyed Centorbi about the beginning of the 13th century, and razed its foundations. It was, however, again rebuilt, with the castle; for in 1268, after the defeat of Conradin, Conrad Capetius, aspiring to become king of Sicily, and finding himself abandoned by the Sicilians, who declared for Charles of Anjou, shut himself up in this fortress. Montfort, having forced him to surrender, put out his eyes, and afterwards hanged him; and then destroyed the city. A greater number of gold and silver coins, precious stones of every kind, vases, statues, cinerary urns, &c. have been found at Centorbi than in any other place in Sicily. A considerable part of the riches of the museum of the prince of Biscaris has been furnished by this town. The number of inhabitants in this ancient and once large city is now reduced to 3000, who are very poor and wretched. The neighbouring country, planted chiefly with vineyards, produces an indifferent wine; and there are soft rocks of an imperfect free-stone, mixed with a marine tufa, even to the summit of the mountain. The soil in one part of the town is formed of marine concretions, mixed with shells: and under the vegetable earth lies tufa, with the fore-mentioned concretions, and gritty stone; and at a greater depth, scorix and lava, beneath which is a fresh bed of grit. The lava probably forms the basis of the mountain, and indicates, by being covered with marine concretions to the depth of 600 feet below the present level of the sea, the antiquity of the

CENTRAL FORCES.

the volcano that produced it. De Non's Journey in Sicily and Malta. p. 85.

CENTORES, in *Ancient Geography*, a people of Scythia, mentioned by Valerius Flaccus.

CENTORIO, ASCANIO, in *Biography*, an Italian writer of the 16th century, originally of Rome, and after his expulsion from this city, a resident at Milan. His profession was military; but in the interval of peace he composed "Military and Historical Memoirs," collected from his own knowledge and from the information of others. They were published at Venice in 1565 and 1569, in 2 vols. 4to. The first part contains an account of the wars of Transylvania; the second, of those of his own time. They are held in high estimation. *Nouv. Dict. Hist.*

CENTRAL, something relating to a centre, or CENTER. Thus, we say, central eclipse, central forces, central rule, &c.

CENTRAL *eclipse*, is that in which the centers of the luminaries exactly coincide, and are directly in a line with the eye of the observer. See ECLIPSE.

CENTRAL *forces*, are the forces which tend to or from some point or center; or they are forces which cause a moving body to tend towards the center of motion, or to recede from it. Accordingly they are divided into two kinds, with regard to their different relations to the center, viz. the *centripetal* and the *centrifugal*.

The doctrine of central forces, a very considerable branch of the Newtonian philosophy, has been much cultivated by mathematicians, on account of its extensive use in the theory of gravity, and other physico-mathematical sciences.

In this doctrine it is supposed, that a body at rest never moves itself; and that a body in motion never of itself changes the velocity or the direction of its motion; but that every motion would continue uniform, and its direction rectilinear, unless some external force or resistance affected it. Hence, when a body at rest always tends to move, or when the velocity of any rectilinear motion is accelerated or retarded continually, or when the direction of a motion is continually varied, and a curve line is described; these changes are supposed to proceed from the influence of some power that acts incessantly; which power may be measured either by the pressure of the quiescent body against the obstacle that hinders it to move, in the first case; or by the degree of acceleration or retardation of the motion, in the second; or by the flexure of the curve described, in the third case; due regard being had to the time in which these effects are produced, and other circumstances, according to the principles of mechanics. Effects of the power or force of gravity of each kind fall under our constant observation near the surface of the earth; for the same power which renders bodies heavy while they are at rest, accelerates them when they descend perpendicularly, or retards them when they ascend, and bends the course of their motion into a curve line when they are projected in any other direction than that of their gravity. But we can judge of the forces or powers that act on the celestial bodies by effects of the last kind only. And hence it is that the doctrine of central forces is of so much use in the theory of the planetary motions.

Sir Isaac Newton has treated of central forces in book i. § 2. of his *Principia*; and has demonstrated this fundamental theorem respecting them, viz. that the areas which revolving bodies describe by radii drawn to an immoveable center, lie in the same immoveable planes, and are proportional to the times in which they are described. *Princip. lib. i. prop. 1.* A late eminent mathematician observes, that this law, which is originally Kepler's, is the only general principle in the doctrine of centripetal forces; but since this law, as Sir Isaac Newton himself has proved, cannot hold whenever a body

has a tendency by its gravity or force to any other than one and the same point, there seems to be wanting some law that may serve to explain the motions of the moon and satellites which have a gravity towards two different centers: the law he lays down for this purpose is as follows; namely, that where a body is urged by two forces tending constantly to two fixed points, it will describe, by lines drawn from the two fixed points, equal solids in equal times, about the line joining those fixed points. See Machin, on the laws of the moon's motion, in the postscript. This short treatise is published at the end of the English translation of Sir Isaac Newton's *Principia*. See a demonstration of this law by Mr. W. Jones in the *Phil. Transf.* vol. lix. art. 12. p. 74, &c. The same subject has been elaborately discussed, when the motion respects, not two centers only, but several centers, by many ingenious authors; and practical rules have been laid down for computing the places, &c. of planets and satellites; as by La Grange, La Place, Waring, &c. &c. See Berlin Memoirs; those of the Academy of Sciences at Paris; the Philosophical Transactions of the Royal Society of London; and various treatises of astronomy.

M. de Moivre has given elegant general theorems relating to central forces in the *Phil. Transf.* and in his *Miscel. Analyt.* p. 231.

Let MPQ (*Plate X. Mechanics, fig. 81.*) be any given curve in the perimeter of which a body moves: let P be the place of the body in the curve at any time; S the center of force, or the point to which the central force acting on the body is always directed; PG the radius of concavity or curvature at the point P; and ST the perpendicular drawn from the center of force to the tangent PT of the curve in P, then will the centripetal force be every where proportional to the quantity $\frac{SP}{PG \times ST^3}$.

Monsieur Varignon has also given two general theorems on this subject in the *Memoirs of the Acad. Scienc.* an. 1700, 1701, and has shewn their application to the motions of the planets. See also the same *Memoirs*, ann. 1706, 1710. Mr. Mac-Laurin has also treated the subject of central forces very fully in his *Fluxions*, from art. 416 to 493, where he gives a great variety of expressions for these forces, and several elegant methods of investigating them.

CENTRAL *forces, laws of.* 1. The following rule, for which we are obliged to the marquis de l'Hôpital, is very clear and comprehensive. Suppose a body of any determinate weight to move uniformly round a center, with any given velocity; find from what height it must have fallen to acquire that velocity; then, as the radius of the circle it describes is to double that height, so is its weight to its centrifugal force.

Let b represent the body, or its weight or quantity of matter, v its velocity, and r the radius of the circle described, and g be $= 16\frac{1}{2}$ feet, the space fallen through in the first second of time, and $2g$ will express the velocity acquired; then, since the squares of the velocities are as the spaces (see ACCELERATION) $4g^2 : v^2 :: g : \frac{v^2}{4g}$, or the height pertaining to the velocity v ; and $r : \frac{v^2}{2g} :: b : \frac{v^2 b}{2gr} = f$ the centrifugal force. Hence, if the centrifugal force be equal to the gravity, the velocity acquired is equal to that acquired by falling through half the radius.

2. The central force of a body moving in the periphery of a circle, is as the versed sine of the indefinitely small arc, A E, or as the square of the said arc divided by the diameter, A B: or, as the square of the arc, A E, directly, and the diameter

meter, A B inversely, (*Plate X. Mechanics, fig. 82.*) Let this arc be the distance which the body describes in a given particle of time; then, from the nature of the circle (A E being very small, and consequently nearly equal to its chord)

$AE^2 = AB \times AM$, and therefore $AM = \frac{AE^2}{AB}$. Now

A M is the space through which the body is drawn from the tangent in the given time; and though 2 A M is the proper measure of the central force, yet when the forces compared are all computed in the same manner, from the nascent, or indefinitely small subtenses of contemporaneous arcs, it is of no consequence whether we consider those subtenses, or their doubles, as the measures of the forces, since the ratio is in both cases the same. Since then a body, by an equable motion, in equal times describes equal arcs A E; the central force by which the body is impelled in the periphery of the circle is constantly the same.

3. If two bodies describe different peripheries by an equable motion, their central forces are in a ratio, compounded of the duplicate ratio of their velocities directly, and the reciprocal ratio of their diameters: because the ratio of the velocities is in this case the same with that of the arcs or spaces described in the same time; and the velocities are evidently in the subduplicate of the products of the diameters multiplied by the forces. Thus, $F : f :: \frac{V^2}{D} : \frac{v^2}{d} :: \frac{V^2}{R} : \frac{v^2}{r}$; for,

by the last article, the force is as $\frac{AE^2}{AB}$ or $\frac{AE^2}{D}$, and the

velocity v is as the space A E uniformly described. Hence, if the velocities be equal, the central forces will be reciprocally as their diameters; and if the diameters A B and H L be equal, i. e. if each moveable proceed in the same periphery, but with unequal velocities, the central forces will be in a duplicate ratio of the velocities. Hence, if the radii or diameters be reciprocally in the duplicate ratio of the velocities, the central forces will be reciprocally in the duplicate ratio of the radii, or directly as the 4th powers of the velocities: that is, if $V^2 : v^2 :: R : r$, then $F : f :: R^2 : r^2 :: V^4 : v^4$; for $V^2 R = v^2 r$, and $F : f \left(:: \frac{V^2}{R} : \frac{v^2}{r} :: \frac{V^2 \times V^2 R}{R} : \frac{v^2 \times v^2 r}{r} \right) :: V^4 : v^4$.

If the central forces of the two bodies moving in different peripheries be equal, the diameters of the circles A B and H L will be in a duplicate ratio of the celerities. For in this case, $\frac{V^2}{R} = \frac{v^2}{r}$ and $V^2 r = v^2 R$; therefore $R : r :: V^2 : v^2$.

4. The central forces are in a ratio compounded of the direct ratio of the diameters, and the reciprocal one of the squares of the periodic times. For the diameters are as the peripheries, which are the spaces run in the periodic times; and these are in the compound ratio of their times and velocities directly: therefore, representing the times by T, t, the velocities by V, v, and the diameters by D, d; $D : d :: V \times T : v \times t$; consequently, $\frac{V^2 \times T^2}{D^2} = \frac{v^2 \times t^2}{d^2}$, and $\frac{t^2}{d} : \frac{T^2}{D} :: \frac{V^2}{D} : \frac{v^2}{d}$; and therefore by Art. 3. the central forces are in the proportion required; i. e. $F : f \left(:: \frac{V^2}{D} : \frac{v^2}{d} \right)$

$:: \frac{t^2}{d} : \frac{T^2}{D} :: t^2 \times D : T^2 \times d$. And when the circles are equal, the central forces are reciprocally as the squares of the times. D being = d.

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5. If two bodies, equal in weight, describe peripheries of unequal circles in equal times, their central forces are as their diameters A B and H L. For $F : f :: t^2 \times D : T^2 \times d$; but $T^2 = t^2$; $\therefore F : f :: D : d$; or $R : r$. And hence, if the central forces of two bodies, describing peripheries of two unequal circles, be as their diameters, they pass over the same in equal times. For $Fd = fD$, and $F T^2 \times d = f \times t^2 \times D$; \therefore by equal division, $T^2 = t^2$ and $T = t$.

6. If two bodies, moving in unequal peripheries, be acted on by the same central force, the time in the larger is to that in the smaller, in a sub-duplicate ratio of the greater diameter A B, to the less H L; for F being = f , $T^2 \times d = t^2 \times D$, and $T^2 : t^2 :: D : d$, and $T : t :: D^{\frac{1}{2}} : d^{\frac{1}{2}}$; wherefore, $T^2 : t^2 :: D : d$, that is, the diameters of the circles in whose peripheries those bodies are acted on by the same central force, are in a duplicate ratio of the times. Hence also the times wherein similar peripheries or arcs are run over by bodies impelled by the same central force, are in proportion to their velocities.

7. If the times wherein the bodies are carried through the same entire peripheries, or similar arcs, be as the diameters of the circles, the central forces are reciprocally as the same diameters. For $T : t :: D : d$, and $T^2 : t^2 :: D^2 : d^2$; $\therefore F : f \left(:: \frac{t^2}{d} : \frac{T^2}{D} \right) :: \frac{d^2}{d} : \frac{D^2}{D} :: d : D$.

8. If a body move uniformly in the periphery of a circle, with the velocity it acquires by falling the height A F; the central force will be to the gravity, as double the altitude A F to the radius C A. If, therefore, the gravity of the body be called G, the centrifugal force will be $2 A F \times G \div C A$. See Art. 1.

9. If a heavy body move equably in the periphery of a circle, and with the velocity which it acquires by falling through a height equal to half the radius; the central force will be equal to the gravity. And again, if the central force be equal to the gravity, it moves in the periphery of a circle, with the same gravity which it acquires in falling a height equal to half the radius.

10. If the central force be equal to the gravity, the time it takes up in the entire periphery, is to the time of its fall through half the radius, as the periphery to the radius.

11. If two bodies move in unequal peripheries, and with an unequal velocity, which is reciprocally in a subduplicate ratio of the diameters; the central forces are in a duplicate ratio of the distances from the center of the forces, taken reciprocally. For $F : f :: d^{\frac{1}{2}} : D^{\frac{1}{2}}$, and $F : f :: \frac{V^2}{D} : \frac{v^2}{d}$; $\therefore F : f \left(:: \frac{d}{D} : \frac{D}{d} \right) :: d^2 : D^2$ or $:: r^2 : R^2$.

12. If two bodies move in unequal peripheries, with velocities which are reciprocally as the diameters or distances from the center; their central forces will be reciprocally as the cubes of their distances from the center, or directly as the cubes of the velocities. Thus, if $V : v :: r : R$, $F : f \left(:: \frac{V^2}{R} : \frac{v^2}{r} :: \frac{r^2}{R} : \frac{R^2}{r} \right) :: r^3 : R^3$, or $V^3 : v^3$.

13. If the velocities of two bodies, moving in unequal peripheries, be reciprocally in a subduplicate ratio of the diameters, or central distances; the squares of the times wherein they pass the whole peripheries, or similar arcs, are in a triplicate ratio of the distances from the center of the forces; wherefore, if the central forces be reciprocally in a duplicate ratio of the distances from the center, the squares of the times wherein the entire peripheries, or similar arcs, are passed over, are also in a triplicate ratio of the distances. If $V : v :: d^{\frac{1}{2}} : D^{\frac{1}{2}}$; or $V^2 : v^2 :: d : D$; then $T^2 : t^2 :: D^3 : d^3$

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$\therefore \mathbf{D}^3 : d^3$ or $\mathbf{R}^3 : r^3$: and if $\mathbf{F} : f :: r^2 : \mathbf{R}^2$, then $\mathbf{T}^2 : t^2 :: \mathbf{R}^3 : r^3$.

14. However the central forces differ from one another, they may be compared together; for they are always in a ratio compounded of the ratio of the quantities of matter in the revolving bodies, and the ratio of the distances from the center; and also in an inverse ratio of the squares of the periodical times. If then you multiply the quantity of matter in each body by its distance from the center, and divide the product by the square of the periodical time, the quotients of the division will be to one another in the said compound ratio, that is, as the central forces.

15. When the quantities of matter are equal, the distances themselves must be divided by the squares of the periodical times, to determine the proportion of the central forces: in that case, if the squares of the periodical times be to one another as the cubes of the distances, the quotients of the divisions, as well as the central forces, will be an inverse ratio of the squares of the distances.

From the foregoing theorems we may deduce the velocity and periodic time of a body revolving in a circle, by means of its own gravity, at any given distance from the earth's center. Let g be the space through which a heavy body descends at the surface of the earth, in the first second of time, or $16\frac{1}{2}$ th feet, = AM , in the preceding figure; then $2g$ will be the measure of the force of gravity at the surface: and r being assumed for the earth's radius, AC , the velocity in a circle at its surface, in one second, will be $AE = \sqrt{AB \times AM} = \sqrt{2rg}$, by Art. 2. Hence, if we put $c = 3.14159$, &c. the circumference of the earth being $2cr = 25,000$ miles nearly, or $132,000,000$ feet (in round numbers), we shall have $\sqrt{2gr} : 2cr :: 1'' : c$

$\sqrt{\frac{2r}{g}} = 5078$ seconds nearly, or $1^h 24^m 38^s$, the periodic time at the circumference; and the velocity there, or $\sqrt{2gr}$, is $= 2600$ feet per second nearly. Let R represent the radius of another circle described by a projectile about the earth's center; since the force of gravitation varies inversely as the square of the distance, we shall have (by Art. 12 and 13.) $R^{\frac{1}{2}} : r^{\frac{1}{2}} :: v$ or 26000 feet, the velocity in a second at the surface, to $26000 \times \sqrt{\frac{r}{R}}$, the velocity

in the circle whose radius is R : and by Art. 13, $r^{\frac{3}{2}} : R^{\frac{3}{2}} :: t$ or 5078 seconds, the periodic time at the surface : $5078 \times \sqrt{\frac{R^3}{r^3}} = T$, the time of revolution in the circle R. In

order to apply this to the case of the moon, revolving about the earth at the distance of 60 semidiameters, let $R = 60r$, or the distance of the moon from the earth, and the above

expressions will become $V = 26000 \sqrt{\frac{1}{60}} = .3357$ feet per second, or $38\frac{1}{7}$ miles per minute, for the velocity of the moon in her orbit; and $T = 5078 \sqrt{\frac{60^3}{1^3}} = 2360051$ fe-

conds, or 27.3 days nearly for the periodic time of the moon in her orbit at that distance. This is nearly equal to what the astronomers reckon it, viz. $27^d\ 7^h\ 34'$; and it would have come out exactly like it, if the distances had been precisely stated, and other circumstances, omitted for the sake of brevity, had been taken into the account, which interfere with that period. Similar calculations may be instituted with respect to all the planets of our solar system, and the result of the calculations will be found to coincide,

with surprising exactness, with the appearances; and this affords a strong confirmation of the Newtonian theory of universal gravitation.

Thus also the ratio of the forces of gravitation of the moon towards the sun and earth may be estimated. For, 1 year, or $365\frac{1}{4}$ days, being the periodic time of the earth and moon about the sun, and $27\frac{3}{8}$ the periodic time of the moon about the earth; and also 60 being the distance of the moon from the earth, and 23920 the distance from the sun, in semidiameters of the earth, we shall have (by Art. 4.)

$$\frac{60}{27.5} : \frac{23920}{365.25} :: f \text{ or } I : \frac{23920}{60} \times \frac{27.3^2}{365.25^2} = 2\frac{2}{9};$$

that is, the proportion of the moon's gravitation towards the sun is to that towards the earth, as $2\frac{2}{9}$ to 1 nearly.

Farther, the mean distance of the moon from the center of the earth is 1267200000 feet, or about 60 femidiameters of the earth. Also, the force of gravity at different distances is inverfly as the squares of the distances, and the radius of the earth is 21000000 feet; therefore, as the square of 1267200000 is to the square of 21000000, so is the force of gravity at the surface of the earth to the force of gravity at the distance of the moon; viz. 1605795840000000000 : 441000000000000 :: 1 : 0.000274; so that the force of gravity at the surface of the earth is to the force of gravity at the moon as 1 is to 0.000274; or as 1000000 to 274. And since near the earth falling bodies pass over $16\frac{1}{13}$, or 16.087 feet, in the first second of time; therefore we may say, 1000000 : 274 :: 16.087 : 0.0044 of a foot; which shews that the moon, if its velocity should cease at once, would fall towards the earth, and in the first second of time would descend through not more than $\frac{44}{100000}$ ths of a foot.

Again, we may hence compute the centrifugal force of a body at the equator, arising from the earth's rotation. The time of revolution, when the centrifugal force would become equal to that of gravity, as has been shewn above, is 5078 seconds; and, by Art. 4. $\frac{86160^2}{5078^2}$, which is the square of the number of seconds in 23 hours, 56 minutes, the time of the earth's entire rotation on its axis, is to $\frac{1}{289}$, as the force of gravity, which may be denoted by unit, to $\frac{1}{289}$, the centrifugal force required, which is the 289th part of gravity at the earth's surface. Simpson's Fluxions, vol. i. p. 240, &c.

Otherwise, it appears (by Art. 4.) that, when the distances from the center are equal, or in the same circle, the central forces are inversely $\frac{1}{r^2}$ the squares of the periodical times; and we have above shewn, that the velocity, which near the surface of the earth is equivalent to gravity, is = 26000 feet per second nearly. Then say, as the square of the earth's diurnal rotation round its axis is to the square of the periodical time in the case above stated, viz. $1^h 24' 38''$, or nearly $85'$, so is the force of gravity (e.g. 1.) to the centrifugal force of bodies near the equator of the earth; i.e. $2073600'$ (the square of 24 hours) : $7225' :: 1 : 0.003485$ = the centrifugal force near the equator; i.e. the force by which bodies that are near the equator are attracted towards the center is to the force with which they endeavour to fly off, in consequence of the earth's diurnal rotation round its axis, as 1 is to 0.003485; or as 1000000 to 3485; or the former is almost 300 times more powerful than the latter.

By similar means we may determine the centrifugal force of bodies in different latitudes; for as the earth turns round its axis, it is evident that those bodies on the surface of it, which lie nearer to the axis, or, which is the same thing, are nearer

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nearer to the poles, perform circles smaller than those which lie nearer to the equator; though they are all performed in the same interval of 24 hours. Hence, the periodical times being equal, or the same, the central forces are as the radii of the circles, and as in different latitudes the radii are equal to the cosines of the latitudes, we may use the following proportion; viz. as the radius is to the cosine of a given latitude, so is the centrifugal force of bodies situated at the equator to the centrifugal force of bodies at that given latitude. Now as the cosines decrease in length the nearer they approach the poles, so the tendency of bodies to fly off from the surface of the earth is greatest at the equator, but diminishes in approaching towards the poles; and hence we perceive why the earth has been found, by means of unquestionable measurements and other observations, to be an oblate spheroid, whose polar diameter is the shortest. This circumstance furnishes a convincing evidence of the earth's daily rotation about its axis.

For another example of the application of the theory of central forces above stated, we may suppose A to be a ball of one ounce, whirled about the center C, so as to describe the circle ABE (fig. 82.), each revolution being made in half a second; and the length of the cord AC = 2 feet. Here $t = \frac{1}{2}$, $r = 2$; and as it has been already found that

$c \sqrt{\frac{2R}{g}} = T$ is the periodic time at the circumference of the earth, when the centrifugal force is equal to gravity; hence then, (by Art. 4.) $\frac{R}{T^2} : \frac{r}{t^2} :: F \text{ or } 1 : f$; and this

proportion becomes $\frac{g}{2c^2} : \frac{r}{t^2} :: 1 : \frac{2c^2 r}{gt^2} = \frac{16c^2}{g} = \frac{16 \times 3.1416^2}{16 \times 5} = 9.819$ = the centrifugal force, or that

by which the string is stretched, viz. nearly 10 ounces, or 10 times the weight of the ball. This central force may be called centripetal or centrifugal, according as it is applied to the tenacity of the parts of the string, or to the force of the body; so that the body is said to be retained by a centripetal force 9.8 times as great as the force of terrestrial gravity; or it may be said, that the centrifugal force of the revolving body stretches the string as much as if a weight of 9.8 pounds were simply suspended to it.

Again, suppose the string and ball to be suspended from a point, D, (fig. 83.) and to describe in its motion a conical surface, ADB; thus, putting DC = a, AC = r, and AD = b; and F = 1, the force of gravity as before; the body will now be affected by three forces, viz. gravity acting parallel to DC, a centrifugal force in the direction CA, and the tension of the string, or force by which it is stretched, in the direction DA: hence these three powers will be as the three sides of the triangle ADC respectively;

and, therefore, as CD or a : AD or b :: 1 : $\frac{b}{a}$ the tension of the string as compared with the weight of the body.

Also, CD or a : AC or r :: 1 : $\frac{2c^2 r}{gt^2}$, the general expression for the centrifugal force above found: hence $gt^2 = 2ac^2$, and consequently $t = c \sqrt{\frac{2a}{g}} = 1.108 \sqrt{a}$ = the periodical time.

16. When the force by which a body solicited towards a point is not every where the same, but is either increased or diminished, in proportion to some power of the distance from the center; several curves will thence arise in a certain

proportion according to that power. If the force decreases in an inverse ratio of the squares of the distances from that point, the body will describe an ellipsis, which is an oval curve, in which there are two points called *foci*, and the point, towards which the force is directed, falls upon one of them; so that in every revolution the body once approaches to, and once recedes from it: and the eccentricity of the ellipsis is greater or less, according to the projectile force: and when the eccentricity is nothing, the curve becomes a circle, which may also be described, in certain circumstances, by a moving body. The body may also (by supposing a greater degree of velocity in certain proportions, describe the two remaining conic sections, viz. the parabolic and hyperbolic curves, which do not return into themselves: on the contrary, if the force increases with the distance, and that in a ratio of the distance itself, the body will again describe an ellipsis: but the point to which the force is directed is the centre of the ellipse; and the body, in each revolution, will twice approach to, and again twice recede from, that point. In this case also a body may move in a circle, for the reason above mentioned.

In order to explain these particulars more at large, let ACD (fig. 84.) represent a circular orbit, A z S an elliptical, A r E a parabolic, and A K F an hyperbolic orbit; and let the bodies be supposed to move with certain velocities under the influence of a force at N, which is the center of the circle, and the focus of the conic sections. Let AB, perpendicular to AD, represent the velocity which is necessary to retain the body in the circular orbit, and let it be denoted by 1; as the standard with which the other degrees of velocity may be compared. Also, let a body be projected from A in the direction AI with any other degree of velocity n. It is now proposed to determine the nature of the curve, which will be described with this other velocity n, or rather to ascertain what the value of n must be in order to produce each particular conic section. Draw mK parallel to AI, intersecting the circle as well as the other curves. Let AN be denoted by d; the semi-transverse axis of any of the conic sections by a; the semi-conjugate by b; and Am (= BC = Gz = Hr = IK) by x. Then the ordinate mC in the circle will be = $\frac{2dx - xx^{\frac{1}{2}}}{2ax + xx^{\frac{1}{2}}}$; but the ordinate mz of the ellipse, and mK of the hyperbola, may both be represented by $\frac{b}{a} \times \frac{2ax \mp xx^{\frac{1}{2}}}{2ax + xx^{\frac{1}{2}}}$. The fluxions of these ordinates are

$\frac{d\dot{x} - x\dot{x}^{\frac{1}{2}}}{2dx - xx^{\frac{1}{2}}}$, and $\frac{b}{a} \times \frac{a\dot{x} \mp x\dot{x}^{\frac{1}{2}}}{2ax + xx^{\frac{1}{2}}}$ respectively; which fluxions are to each other as the velocities in every point of their respective curves in the direction AI; and in the like proportion are the quantities $\frac{d-x}{2d-x}^{\frac{1}{2}}$, and $\frac{b}{a} \times \frac{a+x}{2a+x}^{\frac{1}{2}}$; these quantities being the abovementioned fluxions divided by the same quantity, $\frac{\dot{x}}{x^{\frac{1}{2}}}$. Now, when the point in the

curve approaches the point A so near as to coincide with it, then Am vanishes, or x = 0; and the above expressions become $\frac{d}{2a}^{\frac{1}{2}}$, and $\frac{b}{a} \times \frac{a}{2a}^{\frac{1}{2}}$: so that at the point A the velocity which retains the body in the circular orbit is to the velocity which retains the body in the ellipse or the hyperbola, as $\frac{d}{2a}^{\frac{1}{2}} : \frac{b}{a} \times \frac{a}{2a}^{\frac{1}{2}} :: d^{\frac{1}{2}} : \frac{b}{a}^{\frac{1}{2}} :: 1 : n$; therefore $nd^{\frac{1}{2}} = \frac{b}{a}^{\frac{1}{2}}$; and $nnd = \frac{bb}{a}$, or $annnd = bb$. When

$x = d = AN$, then $2y$ is the parameter, and (the parameter being a third proportional to the transverse and conjugate diameters) $2a : 2b :: 2b : 2y$, or $a : b :: b : y = \frac{bb}{a} = \frac{b}{a} \times \sqrt{2ax \mp xx}^{\frac{1}{2}} = \frac{b}{a} \times \sqrt{2ad \mp dd}^{\frac{1}{2}} = \frac{2ab^2d \mp b^2d^2}{aa}^{\frac{1}{2}}$; which equation being squared, becomes $\frac{2ab^2d - b^2d^2}{aa} = \frac{b^4}{a^2}$ for the ellipse, and $\frac{2ab^2d + b^2d^2}{a^2} = \frac{b^4}{a^2}$ for the hyperbola. And being divided by $\frac{b^2}{a^2}$, these expressions become $2ad - d^2 = b^2 = ann$ for the ellipse, and $2ad + d^2 = b^2 = ann$ for the hyperbola. Consequently,

In the ellipse $\left\{ \begin{array}{l} \text{the semi-transverse axis is } a = \frac{d}{2-n} \\ \text{the semi-conjugate axis is } b = \frac{nd}{2-nn}^{\frac{1}{2}} \end{array} \right.$
 In the hyperbola $\left\{ \begin{array}{l} \text{the semi-transverse is } a = \frac{d}{n^2-2} \\ \text{the semi-conjugate is } b = \frac{nd}{nn-2}^{\frac{1}{2}} \end{array} \right.$

Having determined these values of the transverse and conjugate diameters, in which n is the only indeterminate value, we may, by introducing certain substitutes instead of n , ascertain what its value must be in order to produce one curve or another. Thus, by making $n = 1$, each of the above values becomes equal to d ; therefore the two diameters become equal to each other, and the curve is of course a circle: and, accordingly, the velocity, which retains the revolving body in a circular orbit, has been denominated 1, or unity.

If we make $n = 2^{\frac{1}{2}}$, then $a = \frac{d}{2-nn} = \frac{d}{2-2} = \frac{d}{0}$, which is an algebraical expression of infinity: and all the other expressions will likewise become infinite; so that the transverse and conjugate diameters in that case becoming infinite, the curve is the parabola.

If we make n equal to a quantity less than the square root of 2 (viz. less than the square root of twice that velocity which is required to retain the body in a circular orbit); then the values $\frac{d}{2-n^2}$ and $\frac{nd}{2-nn}^{\frac{1}{2}}$, viz. of a and b , will be positive;

whereas, by the same substitution, the value $\frac{nd}{nn-2}^{\frac{1}{2}}$ becomes impossible; which shews, that when n is less than the square root of 2, the curve can only be the ellipse.

But if we make n equal to any thing greater than the square root of 2; then the values of a and b for the hyperbola become positive: whereas those for the ellipse become impossible; and, therefore, in this case, the curve must be the hyperbola. Cavallo's Elem. of Nat. and Exp. Philos. vol. i. Simpson's Fluxions, vol. i. sect. 12. See CENTRIFUGAL FORCE.

CENTRAL Rule, is a rule or method discovered by our countryman Thomas Baker, rector of Nympton in Devon, for finding the center of a circle designed to cut the parabola in as many points as an equation to be constructed hath real roots. See the article BAKER.

Its principal use is in the construction of equations; and he has applied it with good success as far as biquadratics.

The central rule is chiefly founded on this property of the parabola: that if a line be inscribed in that curve perpendicular to any diameter, a rectangle formed of the segments of this line is equal to a rectangle made of the intercepted part of the diameter and the parameter of the axis.

The central rule has the advantage over Cartes's and De Lattres's methods of constructing equations, as both these are subject to the trouble of preparing the equation by taking away the second term. This we are freed from in Baker's method, which shews us how to construct all equations not exceeding the fourth power, by the intersection of a circle and parabola, without the omission or change of any terms. See Phil. Trans. N^o 157.

CENTRALIS RETINÆ, in *Anatomy*, an artery, which is sent from the ophthalmic, and is chiefly distributed to the retina. See ARTERIES and EYE.

CENTREVILLE, in *Geography*, the chief town of Queen Anne's county, and on the east side of Chesapeake bay in the state of Maryland, in America. It lies between the forks of Corfica creek, which runs into Chester river; 18 miles S. of Chester; 34. S.E. by E. of Baltimore; and 95 S.W. by S. of Philadelphia, N. lat. 39° 6'.

CENTRIFUGAL FORCE is that whereby a body revolving round a centre or another body endeavours to recede from it.

It is one of the established laws of nature, that all motion is of itself rectilinear; and that the moving body never recedes from its first right line, till some new impulse be superadded in a different direction: after that new impulse, the motion becomes compounded, but it continues still rectilinear, though the direction of the line be altered. To move in a curve, it must receive a new impulse, and that in a different direction every moment; a curve not being reducible to any number of finite right lines. If then a body continually drawn towards a center be projected in a line that does not go through that center, it will describe a curve; in each point whereof, A (*Plate X. Mechanics, fig. 82.*) it will endeavour to recede from the curve, and proceed in the tangent A D; and, if nothing hindered, it would actually proceed to it; so as in the same time wherein it describes the arc A E, it would recede the length of the line D E, perpendicular to A D, by its centrifugal force. The centrifugal force, therefore, is as the right line D E, perpendicular to A D; supposing the arch A E indefinitely small.

The effect of the centrifugal force is such, that a body obliged to describe a circle, always describes the largest it possibly can; a greater circle being, as it were, less circular, and less distant from a right line, than a small one. A body therefore suffers more violence, and exerts its centrifugal force more, when it describes a little circle than a large one: that is, the centrifugal force is always proportional, other circumstances being alike, to the circumference of the curve in which the revolving body is carried round.

It is the same in other curves as in circles; for a curve, whatever it be, may be esteemed as composed of an infinity of arcs of indefinitely small circles, all described on different radii; so that it is at those places where the curve has the greatest curvity, that the little arcs are most circular, other circumstances being equal: thus in the same curve, the centrifugal force of the body that describes it varies according to the several points wherein it is found.

The doctrine of centrifugal forces was first suggested by Huygens, at the close of his "*Horologium Oscillatorium*" published in 1673, and demonstrated in the volume of his "*Posthumous Works*" and also by Guido Grando; where he

he has given a few easy cases in bodies revolving in the circumferences of circles. But the doctrine was first fully discussed, especially in its reference to the conic sections, by sir Isaac Newton. He was succeeded by several other writers upon the same subject; as Leibnitz, Varignon in the *Mem. de l'Acad.* Keil in the *Phil. Trans.* and in his "Physics," Bernouilli, Hermann, Cotes in his "Harmonia Mensurarum," Maclaurin in his "Geometria Organica," and in his "Fluxions," and Euler in his book "De Motu," where he considers the curves described by a body acted on by centripetal forces tending to several points. The subject has also been illustrated by various writers on mechanics and astronomy. See CENTRIPETAL FORCE, and CENTRAL FORCES.

CENTRIFUGAL Machine, a curious machine invented by Mr. Erskine, for raising water by means of a centrifugal force, combined with the pressure of the atmosphere. This machine consists of a large tube of copper, &c. in the form of a cross, placed perpendicularly in the water, and resting at the bottom on a pivot. At the upper part of the tube is an horizontal cog-wheel, which touches the cogs of another in a vertical position; so that by the aid of a double winch, the whole machine is moved round with very great velocity. Near the bottom of the perpendicular part of the tube is a valve opening upwards; and near the two extremities, but on the contrary sides of the arms, or cross part of the tube, are two other valves opening outwards. These two valves are kept shut, by means of springs, till the machine is put in motion; when the centrifugal velocity of the water forces them open, and discharges itself into a cistern or reservoir placed there for that purpose. On the upper part of the arm are two holes, which are closed by pieces that screw into the metal of the tube. Before the machine can work, these holes must be opened, and water poured in through them, till the whole tube be full: by these means all the air will be forced out of the machine, and the water supported in the tube by means of the valve at the bottom. The tube being thus filled with water, and the holes closed by their screw-caps, it is turned round by the winch; when the water in the arms of the tube acquires a centrifugal force, opens the valves near the extremities of the arms, and flies out with a velocity nearly equal to that of the extremities of the said arms.

A perspective view of the centrifugal machine erected on board a ship, is exhibited in Pl. XI. *Mechanics*, fig. 93. ABC is the copper tube; D an horizontal cog-wheel, furnished with 12 cogs; E a vertical cog-wheel, having 36 cogs; FF the double winch; *a* the valve near the bottom of the tube; *b, b*, the two pivots on which the tube turns; *c* one of the valves in the cross piece; the other at *d*, but invisible, as it is on the other side of the tube; *ee* the two holes through which the water is poured into the machine; G H the cistern or reservoir; I I part of the ship's deck. The distance between the two valves, *c d*, is 6 feet; the diameter of these valves is about 3 inches; and that of the perpendicular tube is about 7 inches.

If the men who work the machine be supposed to turn the winch round in 3 seconds, the machine will move round its axis in one second; and consequently each extremity of the arms will move with a velocity of 18.8 feet in a second. A column of water, therefore, of three inches diameter will issue through each of the valves with a velocity of 18.8 feet in a second; but the area of the aperture of each of the valves is 7.14 inches; which, being multiplied by the velocity in inches = 125.6, gives 1610.784 cubic inches, the quantity of water discharged through one of the apertures in one second; so that the whole quantity discharged in that space of time through both the apertures is = 3221.568

inches; or 193294.08 cubic inches in one minute. But 60812 cubic inches make a tun, beer-measure; consequently, if we suppose the centrifugal machine to revolve round its axis in one second, it will raise nearly 3 tons 44 gallons in one minute; but this velocity is too great, at least to be maintained for any considerable time; so that, when this and other deficiencies in the machine are allowed for, two tuns are nearly the quantity that can be raised by it in one minute. As the water is forced up the perpendicular tube by the pressure of the atmosphere, it is evident that this machine cannot raise water above 32 feet high.

An attempt has been made to substitute this machine in place of the pumps commonly used on ship board; but the labour of working was found to be so great as to render the machine inferior to the chain-pump; which see. The machine might be improved by loading with a weight of lead the ends of the tubes, through which the water issues; and thus the machine would be made to turn with much greater ease, as the centrifugal force of the lead would in some measure supply the place of a fly.

CENTRIFUGAL Wheel. See WHEEL.

CENTRINA, in *Ichthyology*, the specific name of a shark. See *SQUALUS Centrina*. The fish described by Ray, Aldrovandus, and various old writers, under the name of CENTRINA and CENTRINE is of this species. This shark has been also called *Porcus Piscis*, from its somewhat triangular figure, and elevated back, which rising into a ridge, bears a remote resemblance to that of a hog.

CENTRINA, a synonymous name of CHIMAERA *Monstrofa*. *Centrina prima*, *Centrina vera*, *Simia marina Danica*. Aldrovandus.

CENTRINES, in *Physiology*, a species of insects hatched in the wild fig-tree, and used in CAPRIFICATION.

CENTRIPETAL FORCE is that by which a moving body is perpetually urged towards a center, and made to revolve in a curve, instead of a right line. Thus, the body impelled in the right line AG, (*Plate X. Mechanics*, fig. 82.) is perpetually drawn out of its rectilinear motion, and solicited to proceed in a curve. The centripetal force, therefore, is as the right line DE; supposing the arc, AE, indefinitely small. Hence, when a body revolves in a circle, the two forces, viz. the centrifugal and centripetal, are equal and contrary to each other, since neither of them gains upon the other; the body being, as it were, equally balanced by them. But when, in revolving, the body recedes farther from the center, then the centrifugal force exceeds the centripetal; as is the case in a body revolving from the lower to the higher apsis in an ellipse, and respecting the focus as the center. And when the revolving body approaches nearer to the center, the centrifugal force is less than the centripetal; as while the body moves from the farther to the nearer extremity of the transverse axis of the ellipse. For the proportion of the one to the other, see the sequel of this article.

In the first or nascent state of circular motion, the projectile force infinitely exceeds the centripetal force. For, let the circle AEB, (*fig. 82.*) represent the orbit of the body A, moving uniformly along its circumference; this body, A, is impelled by a projectile force in the direction AG, perpendicular to AC, and is at the same time constantly acted upon by an attractive or impelling force, in a direction towards the center, C: these two forces being so adjusted, or bearing such proportion to each other, as to keep the body in the circular orbit, AEB. In the very small arc AE, the line AD is to the line AM (= DE) as the force of projection is to the centripetal force at the distance AC; for whilst AD represents the uniform or equable

CENTRIPETAL FORCE.

equable movement which arises from the projectile force in a certain time, DE, represents the deviation from that course, or the force whereby the body is drawn towards the center of force in the same time. Now, $DE (= AM) : AE :: AE : AB$; and when the arc AE becomes indefinitely small, or is in its nascent state, then the diameter AB becomes infinitely greater than AE; and of course AE or AD (which in the state here supposed is nearly equal to it) becomes infinitely greater than DE or AM; i. e. the projectile force infinitely greater than the central or centripetal force. If a body move in a curve line, and in such a manner that the radius CB (*fig. 85.*) drawn from it to the fixed point C, placed in the same plane, describes areas BAC, BCE, &c. proportional to the times, or equal in any given time, it is solicited towards the point C by a centripetal force. And also, if a body proceed according to the direction of the right line AD, and be solicited by a centripetal force towards a fixed point C, placed in the same plane; it describes a curve, whose cavity is towards C, and whose several areas, comprehended between the two radii AC and CB, are proportional to the times. Moreover, the velocity of a revolving body, at any point, Q or R, (*fig. 86.*) is inversely as the perpendicular SP or ST, falling from the center of force, upon the tangent at that point. For, let two other bodies, *m* and *n*, be supposed to move uniformly from Q and R, along the tangents QP and RT, with velocities respectively equal to those of the revolving body at Q and R; then the distances Q*m* and R*n*, gone over in the same time, will be to each other as those velocities; and the areas, QSm and RS*n*, will be equal, being equal to those described by the revolving body in the same time (see QUADRATURE): whence $Qm \times SP = Rn \times ST$,

it follows that $Qm : Rn :: ST : SP :: \frac{1}{SP} : \frac{1}{ST}$.

1. To determine the law of the centripetal force tending to a given point C, (*fig. 87.*) by which a body may describe a given curve AQH. Let QP be a tangent to the curve at any point Q; upon which, from the center C, let fall the perpendicular CP: put $CQ = s$, $CP = u$; and let the velocity of the projectile at Q be denoted by *v*. Since v^2 is always as $\frac{1}{u^2}$ (by the preceding article), it is evident that if we take the fluxions of both quantities, $v\dot{v}$ will also be as $-\frac{\dot{u}}{u^3}$. But the centripetal force, whether the body moves

in a right line or a curve, is always as $\frac{-v\dot{v}}{s}$ (see CENTRAL force): consequently the centripetal force is likewise as $\frac{\dot{u}}{u^3 s}$. Otherwise, let the ray of curvature QO be denoted by R; then, because the centripetal forces in circles are as the squares of the velocities directly and the radii inversely (see CENTRAL forces); it follows that the force, tending to the point O, by which the body might be retained in its orbit at Q, or in the circle whose radius is QO, will be defined by $\frac{1}{u^2} \times \frac{1}{R}$; whence (by the resolution of forces)

it will be $CP(u) : CQ(s) :: \frac{1}{u^2 R}$ (the force in the direction QO) : $\frac{s}{u^3 R}$, the force in the direction QC, which, because $R = \frac{s\dot{s}}{\dot{u}}$ (see Radius of EVOLUTE), will be ex-

pressed by $\frac{\dot{u}}{u^3 s}$. Hence it appears, that as the force, tend-

ing to the point C, is universally as $\frac{CQ}{CP^3 \times QO}$ (or $\frac{s}{u^3 R}$)

the force to any other point *c* will, by the same argument, be as $\frac{cQ}{cp^3 \times QO}$.

Consequently, the forces to different centers C and *c* (about which equal areas are described in the same time) are to each other in the ratio of $\frac{CP^3}{CQ}$ to $\frac{cp^3}{cQ}$

inversely. Moreover, the ratio of the velocity at Q to the velocity by which the body might revolve in a circle about the center C, at the distance CQ, is easily deduced from hence: for, since the velocity at Q is that by which the body might revolve in a circle about the center O, and the forces tending to the centers, O and C, are to each other as $u(CP)$ and $s(CQ)$; it therefore follows, if the ratio

sought be assumed as *v* to *w*, that $\frac{v^2}{QO} : \frac{w^2}{QC} :: a : s$

(see CENTRAL forces): whence also $v^2 : w^2 :: u \times \frac{QO}{uR}$ ($uR : s \times QC(s^2)$); and consequently, $v : w :: \sqrt{\frac{uR}{s}}$

: 1 :: $\sqrt{\frac{u\dot{s}}{s\dot{u}}} : 1 :: \sqrt{\frac{\dot{s}}{s}} : \sqrt{\frac{\dot{u}}{u}}$ (because $R = \frac{s\dot{s}}{\dot{u}}$).

It appears farther, that if OL be made perpendicular to QC, QL will be $(= \frac{CP \times QO}{CQ}) = \frac{uR}{s}$, and $\frac{CL}{CQ} =$

$\frac{uR}{s^2}$; and therefore $v : w :: QL^{\frac{1}{2}} : CQ^{\frac{1}{2}}$; which is another proportion of the proposed celerities.

Hence, if the law of the centripetal force be given, the nature of the trajectory may be found; for since the force (F) is universally defined by $\frac{\dot{u}}{u^3 s}$, it is evident that $\frac{-1}{2u^2}$ will be = the fluent of F*s*; which, when F is given in terms of *s*, will become known; and then the relation between *u* and *s* being given, the curve itself is known.

E. G. Let it be required to find the law of the centripetal force, by which a body, tending to the focus C, is made to revolve in the periphery of an ellipse AQDB (*fig. 88.*)

From the other focus, F, draw FK parallel to CP, meeting the tangent PQ (at right angles) in K, join F, Q; putting the transverse axis AB = *a*, the semi-conjugate

OD = $\frac{1}{2}b$, and the parameter $(\frac{b^2}{a}) = p$: then, CQ and

CP being denoted as before, we have FQ (= AB - CQ, by property of the ellipse) = $a - s$; whence, by reason of the similar triangles CQP and FQK, it will be $s : u ::$

$a - s : FK = \frac{a - s \times u}{s}$. But FK \times CP is = OD²

(by the nature of the curve). Hence we get $\frac{a - s \times u^2}{s}$

= $\frac{1}{4}b^2$; and consequently $\frac{1}{u^2} = \frac{4a}{b^2 s} - \frac{4}{b^2}$; the fluxion of

which being $-\frac{2\dot{u}}{u^3} = -\frac{4a\dot{s}}{b^2 s^2}$, we obtain $\frac{\dot{u}}{u^3 s}$ (as before) =

$\frac{2a}{b^2} \times \frac{1}{s^2} = \frac{2}{ps^2}$, and $\sqrt{\frac{u\dot{s}}{s\dot{u}}} = \sqrt{\frac{2 \times a - s}{a}}$ =

\sqrt{FQ}

CENTRIPETAL FORCE.

$\sqrt{\frac{FQ}{AO}}$. Hence it appears, that the centripetal force is, in this case, as the square of the distance inversely; and the velocity at Q is to that by which the body might describe a circle at the distance CQ, every where in the ratio of $FQ^{\frac{1}{2}}$ to $AO^{\frac{1}{2}}$. If the curve had been an hyperbola; then $\frac{a+s}{s} \times u^2$ (instead of $\frac{a-s}{s} \times u^2$) would have been $= \frac{1}{4} b^2$; and so $\frac{\dot{u}}{u^{\frac{3}{2}}} = \frac{2a}{b^2} \times \frac{1}{s^2} = \frac{2}{p s^2}$, as before. If the curve had been a parabola, the equation would have been $\frac{a+s}{s} \times u^2 = \frac{1}{4} b^2$, or $\frac{u^2}{s} (= \frac{b^2}{4a}) = \frac{1}{4} p$; and the force, still, as $\frac{2}{p s^2}$. But the measure of the velocity ($\sqrt{\frac{u \dot{s}}{s \dot{u}}} = \sqrt{\frac{2a-2s}{a}}$) in this case becoming barely $= \sqrt{2}$, it follows that the velocity in a parabola is to that by which the body might describe a circle at the same distance from the centre, in the constant ratio of $\sqrt{2}$ to unity.

2. To determine the ratio of the velocities of bodies revolving in different orbits, about the same, or different centers; the orbits themselves, and the forces by which they are described, being given. Let AQH (fig. 89.) be any orbit, described about the center of force C, and let the force itself at the principal vertex be denoted by F; also let r stand for the semiparameter, or the ray of curvature at the vertex, and let CP be perpendicular to the tangent QP. Then, the celerity at A being, always, as \sqrt{rF} (by CENTRAL forces), we have $CP : CA :: \sqrt{rF}$ (the velocity at A) to $\frac{CA \times \sqrt{rF}}{CP}$, the velocity at Q (by a preceding article). This answers in all cases, let the values of AC, r and F be what they may.

Hence, if the centripetal force be as the square of the distance inversely, or F be expressed by $\frac{1}{AC^2}$, the velocity at Q will become $\frac{AC}{CP} \times \sqrt{\frac{r}{AC^2}}$, or $\sqrt{\frac{r}{CP}}$: whence the velocities, in different orbits, about the same center, are in the subduplicate ratio of the parameters, and the inverse ratio of the perpendiculars from the center of force to the tangents, conjunctly. Farther; if the celerity at Q be denoted by Qq, and Cq be drawn; then, Qq being as $\sqrt{\frac{r}{CP}}$, it follows that \sqrt{r} is as $CP \times Qq$, or as the triangle QCq. Consequently, the areas described about a common center of force in a given time, are in the subduplicate ratio of the parameters.

Moreover, since the area of the curve AQHB, &c. when an ellipse, is known to be as $(AO \times OD) AO \times \sqrt{r \times AO}$ (supposing O to be the center), if the same be applied to \sqrt{r} , expressing the area described in a given part of time (by the last article), we shall thence have $AO \times \sqrt{AO}$, or $AO^{\frac{3}{2}}$, for the measure of the time of one whole revolution. Whence it appears, that the periodic times, let the species of ellipse be what it may, are in the sesquuplicate ratio of their principal axes.

3. The centripetal force, tending to a point C, being as the square of the distances reciprocally, and the direction and velocity

of a body at any point Q being given; to determine the path in which the body moves, and the periodic time, in case it returns, (fig. 90.) The trajectory AQB is a conic section, having the point C for one of its foci. Let F be the other focus, and upon the tangent PQK let fall the perpendiculars CP and FK, and let CQ and FQ be drawn: also, put the semitransverse axis AO = a, the given focal distance CQ = d, and the sine of the angle of direction CQP (to the radius 1) = m; and let the given velocity at Q be to that by which the body might revolve in a circle about the center C, at that distance, in any given ratio of u to unity: then it will be $u : 1 :: FQ^{\frac{1}{2}} : AO^{\frac{1}{2}}$ (see a preceding article); therefore $u^2 : 1^2 :: FQ(2a-d) : AO(a)$; whence

AO(a) is given $= \frac{d}{2-u^2}$. Moreover, since CP = m \times CQ, and FK = m \times FQ, we have OD² (= CP \times FK = $m^2 \times CQ \times FQ$) = $\frac{m^2 n^2 d^2}{2-u^2}$; whence the semi-conjugate axis (OD) is given likewise. Lastly, it will be (by a preceding article) as $CT^{\frac{3}{2}} : AO^{\frac{3}{2}} :: P$ the periodic time in any given circle, whose radius is CT, to $(\frac{AO^{\frac{3}{2}}}{CT^{\frac{3}{2}}} \times P)$ the required time of one revolution, when the orbit is an ellipse; that is, when u^2 is less than 2; for

if u^2 be = 2, the curve (as its axis $\frac{2d}{2-u^2}$ becomes infinite) will degenerate to a parabola; and if u^2 be greater than 2, the axis being negative, it is then an hyperbola; whose two

principal diameters are equal to $\frac{2d}{u^2-2}$ and $\frac{2mnd}{\sqrt{u^2-2}}$. Hence it follows, that, since neither the value of AO, nor that of the periodic time, is affected with m, the principal axis, and the periodic time, will remain invariable, if the velocity Q be the same, let the direction at that point be what it may.

The same solution might be obtained by first finding the principal parameter; for it is evident, that the area described by the body about the center C, in any given time, is to the area described, in the same time, by another body revolving in a circle at the distance CQ, as mn to unity; hence it will be, $1^2 : m^2 n^2 :: d : m^2 n^2 d$, the semiparameter: from which (proceeding as above) we get $a \times m^2 n^2 d (= OD^2) = m^2 \times \frac{d}{2ad-d^2}$; and consequently $a = \frac{d}{2-u^2}$, as before.

4. To find expressions for the centrifugal and centripetal forces, and to determine their proportion to each other. Let S (fig. 91) be the center of force, PK the curve described, PT a tangent to it, SY perpendicular to PT, and PQ an indefinitely small arc; draw Qw perpendicular to SP, and with the center S describe the circular arc Qx; and let RQ be parallel to SP, and PV be the chord of the circle of curvature. Let PQ represent the motion of the body in the curve in a given time; then Pw will represent that part of the motion which is directed towards the center, and by which alone the body would be found, at the end of the given time, at the distance Sw; but on account of the motion wQ, it is found at the end of the same time at the distance SQ or Sx; so that the perpendicular motion wQ has made the body to recede from S through a space equal to wx, which therefore represents the centrifugal force; and the centripetal force is represented by QR.

Now $wx = \frac{x Q^2}{2 \times S}$ ultimately: but $x Q^2$ varies as $\frac{\text{area } SxQ^2}{x S^2}$; therefore wx varies as $\frac{\text{area } SxQ^2}{2 \times S^3}$, which varies as

$\frac{\text{area } S P Q}{S P^3}$ ultimately. Hence, in the same curve, the centri-

fugal force varies as $\frac{1}{S P^3}$, the area $S P Q$ described in a given time being given. And in different curves, if the distance is the same, the centrifugal forces are as the squares of the areas described in a given time. Hence, the centripetal force in the curve : the centrifugal force :: $Q R : \propto \tau w ::$ (because $Q R = \frac{Q P^2}{P V}$, and $\propto \tau w = \frac{\propto Q^2}{2 Q S} = \frac{\propto Q^2}{2 P S}$)
 $\frac{Q P^2}{P V} : \frac{\propto Q^2}{2 P S} ::$ (since by similar triangles $Q P^2 : Q \propto^2 ::$
 $S P^2 : S Y^2$) $\frac{S P^2}{P V} : \frac{S Y^2}{2 S P} :: 2 S P^3 : S Y^2 \times P V$.

E. G. Let the curve be an ellipse whose greater axis is $2a$, and the eccentricity $= \tau w$, and the body be at the greatest distance from the center of force; which is supposed to be in the focus; then the centripetal force : centrifugal :: $S P : \frac{1}{2} P V :: a + \tau w : \frac{a^2 - \tau w^2}{a} :: a : a - \tau w$.

Let $V P A$ (fig. 92.) be an ellipse whose focus is S and center C ; $V W$ a curve so constructed, that $S p$ may be always equal to $S P$, and the angle $V S p$ to $V S P$ in a given ratio $G : F$; then the areas $V S p$, $V S P$ will be in the same given ratio. Let a body revolve from V to P about the center of force S , in the same time in which another body revolves from V to p . Then as the area $V S P$ varies as $V S p$, and the area $V S P$ varies as the time, the area $V S p$ varies as the time; consequently the body describing $V p$ is urged by a force tending to S . Let $P v$ be the chord of curvature. Since the centrifugal forces of the two bodies are as $G^2 : F^2$, or as $\frac{G^2}{S P^3} : \frac{F^2}{S p^3}$, let them be represented by these quantities; hence the difference of the centrifugal forces is $\frac{G^2 - F^2}{S P^3}$. Now if p recede from the center by a centrifugal force which is greater by $\frac{G^2 - F^2}{S P^3}$ than that by which P recedes, it is manifest that p must be acted upon by a centripetal force which is greater by the same quantity, in order to destroy it, so that the bodies may keep at the same distance. Now $S Y^2 \times P v : 2 S P^3 :: \frac{F^2}{S P^3}$ (the centrifugal force is the ellipse at P) :

$\frac{2 F^2}{S Y^2 \times P v}$ the centripetal force in the ellipse at P ; hence, the force in the orbit $V W$ at $p = \frac{2 F^2}{S Y^2 \times P v} + \frac{G^2 - F^2}{S P^3}$. But $S Y^2 = \frac{A C \times R \times S P^2}{C D^2}$, and $P v = \frac{2 C D^2}{A C}$, R being half the latus rectum, and $C D$ the semi-conjugate diameter to $P C$: hence, the force at $P = \frac{F^2}{R \times S P^2} + \frac{G^2 - F^2}{S P^3}$, and at $p = \frac{F^2}{R \times S P^2} + \frac{G^2 - F^2}{S P^3}$; therefore the ratio of these forces is $\frac{F^2}{S P^2} : \frac{F^2}{S P^2} + \frac{R G^2 - R F^2}{S P^3}$. See Vince's Astronomy, vol. ii. chap. 31. Simpson's Fluxions, Vol. i. Section 12.

CENTRISCUS, in Ichthyology, a genus of Branchiostegous fishes, distinguished by the following characters: Head produced into a very narrow snout: mouth without

teeth: lower jaw longer than the upper: aperture of the gills broad and flat: body compressed: abdomen carinated: ventral fins united.

CENTRISCUS *Scolopax*, trumpet, or bellows fish, of Ray, is an inhabitant of the Mediterranean sea, and has been recently discovered on the coast of Cornwall. (Donov. Brit. fishes). It is specifically described as having the body scaly and rough: tail straight, and extended.

This is a small fish measuring commonly from four to five, or six inches in length, or rarely seven. The body is much compressed laterally; and is entirely covered with hard pointed scales: the colour red, or reddish, darkest or inclining to purplish on the back, and silvery on the belly, and the whole surface glossed with a tinge of gold. The first dorsal fin consists of four strong bony rays, the anterior one of which is moveable, very strong, jagged or denticulated on each side, and with the rest of the fin is situated in a small hollow on the rise of the back. This spiny ray is the only defensive weapon with which nature has furnished this species. The French call this fish *Bécasse*, the Germans *Meerfchnepp*. In the south of Europe, where it is not unfrequent, it is esteemed an edible fish; the flesh is tender, of a good flavour, and easy digestion.

CENTRISCUS *Scutatus*. Back covered with a smooth bony shell. Bloch, &c. This species has the body so much compressed as to resemble a lamina, particularly on the abdomen, where it is membranaceous: the back is covered with smooth, golden, and closely united plates: sides pellucid, yellowish, and silvery; beneath tortoiseshell, marked with transverse white lines: pectoral and ventral fins yellowish, the rest brown.

Klein calls this fish *Amphisilen*; *Ikan Pagan*, *Mesvisch*, Valent. *Ikan Peixe*, Ruysch. Length from six to eight inches: inhabits the Indian seas, and subsists on marine worms, and small crabs.

CENTRISCUS *Valutaris*. Body oblong lanceolate, rough, with small recumbent bristles at the nostrils. Linn. Pallas, &c. A native of Amboyna. Length two inches: body silvery; above, yellowish grey: before the ventral fins a triangular carination: back protected by a rhombic shield, marked by four oblique lines, in the middle a recumbent, slightly moveable, subulate, acutely pointed spine, which is rather serrated at the edge, and grooved beneath; and below this another smaller spine situated in a hollow of the back: ventral fin broad: tail slightly rounded.

CENTRISCUS is also the name given by Klein to two or more species of the Linnæan genus *Gasterosteus*, as for example, *Centriscus duobus* in dorso arcuato aculeis, &c. *Gasterosteus aculeatus*; *Centriscus aculeis* quindecim in dorso, &c. *Gasterosteus spinachia*.

CENTRITES, in Ancient Geography, a river of Asia in Armenia, which sprung from the mountains S.W. of the lake Artissa, and running to the south-west, discharged itself into the river Nicephorus. Diodorus Siculus says, that this river flowed between Armenia and Media; and in the account of Xenophon's famous retreat, it is said to have separated Armenia from the country of the people called *Carduchi*. The Greeks, under the command of this general, were obstructed by this river, 200 feet wide, in their progress to the Armenian plains, and lodged one night near its banks, refreshing themselves with the plenty and variety which the country yielded, and flattering themselves that the hardships which they had endured were just terminating. But on the following morning they were alarmed by the appearance of an army of horse and foot, drawn up in hostile array on the other side of the river, on an eminence about three or four hundred

hundred feet from it, who seemed determined to oppose their passage. These were Armenians, Mygdonians, Chaldeans, and other auxiliaries, hired by Orontas, governor of that province. The only road which the Greeks could discover led upwards, and seemed to have been made by art: and the breadth of the river inducing them to believe it fordable, they attempted to pass it there; but they had not proceeded far before they found themselves obliged to return, and encamp on the banks of the river.

CENTRO-BARYC METHOD, from *κεντρον* and *βαρυς*, heavy, in *Mechanics*, is a method of measuring or determining the quantity of a surface or a solid, by considering it as formed by motion, and multiplying it into the way of its center of gravity.

The doctrine is comprised in the following theorem, with its corollaries.

Every figure, whether superficial or solid, generated by the motion of a line or figure, is equal to the product of the generating magnitude into the way of its center of gravity, or the line which its center of gravity describes.

Demonst. For suppose the weight of the whole generating magnitude collected in the centre of gravity; the whole weight produced by its motion will be equal to the product of the weight moved into the way of the center of gravity. But when lines and figures are considered like homogeneous, heavy bodies, their weights are as their bulks; and therefore the weight moved is the generating magnitude; and the weight produced that generated. The figure generated, therefore, is equal to the product of the magnitude into the way of its center of gravity. Q. E. D.

This kind of proof, furnished by Wolsius, is very vague and unsatisfactory. But it is not difficult to supply one that is much better. Accordingly, let us suppose a lever loaded with two weights, and a fixed point in this lever. It is well known that the sum of the products of each weight by its distance from this point is equal to the product of the sum of the weights by the distance of their center of gravity from this point: then, if we imagine the lever to revolve round this fixed point, the circumferences will be proportional to the radii, and the sum of the products of each weight by the path or circumference which it describes will be equal to the product of the sum of the weights by the circumference described by the center of gravity. This demonstration, comprehending two weights, may be easily applied to any number of weights at pleasure.

Corol. 1. Since a parallelogram $ABCD$ (*Plate XI. Mechanics, fig. 94.*) is described, if the right line AB proceed according to the direction of another AC , with a motion still parallel to itself; and the way of the center of gravity E is equal to the right line EF , perpendicular to CD , that is, to the altitude of the parallelogram: its area is equal to the product of the base CD , or the describing line into the altitude EF . On this corollary we may observe, that AC is not, strictly speaking, the directrix of AB , although AB moves along AC ; but this directrix is properly the line EF , which measures the distance of AB from CD ; and the way of the center of gravity, by which we multiply the describing line, AB (or CD) is not the absolute way of this center, but its way estimated with respect to the directrix or the way it describes in a line perpendicular to the describing line. This remark is necessary in order to prevent those paralogisms which might occur, in applying without precaution the foregoing rule to the measure of surfaces and solids.

Corol. 2. In the same manner it appears, that the solidity of all bodies, described by a plane descending according to

the direction of any right line AC , is had by multiplying the describing plane by the altitude.

Corol. 3. Since a circle is described, if the radius CL , (*fig. 95.*) revolve round a center C , and the center of gravity of the radius CL be in the middle F , the way of the center of gravity is the periphery of a circle X , described by a subduple radius; consequently the area of the circle is equal to the product of the radius CL , into the periphery described by the subduple radius CF .

Corol. 4. If a rectangle $ABCD$ (*fig. 96.*) revolve about its axis AD ; the rectangle will describe a cylinder, and the side BC the superficies of a cylinder. But the center of gravity of the right line BC is in the middle, F ; and the center of gravity of the generating plane in the middle, G , of the right line EF . The way of this latter, therefore, is the periphery of a circle described by the radius EG , and that of the first the circumference of a circle described by the radius EF . Wherefore, the superficies of the cylinder is the product of the altitude BC into the periphery of a circle described by the radius EF , or the base. And the solidity of the cylinder is the product of the generating rectangle $ABCD$ into the periphery of a circle described by the radius EG , which is subduple of EF , or of the semidiameter of the cylinder.

Suppose, v. gr. the altitude of the describing plane, and therefore of the cylinder $BC = a$; the semidiameter of the base $DC = r$; then will $EG = \frac{1}{2}r$: and supposing the ratio of the semidiameter to the periphery $= 1 : m$, the periphery described by the radius $\frac{1}{2}r = \frac{1}{2}mr$. Therefore multiplying $\frac{1}{2}mr$ by the area of the rectangle $AC = ar$; the solidity of the cylinder will be $= \frac{1}{2}mar^2$. But $\frac{1}{2}mar^2 = \frac{1}{2}r \times mr \times a$; and $\frac{1}{2}mr^2$ is the area of the circle described by the radius EG . It is evident, therefore, the cylinder is equal to the product of the base into the altitude.

Corol. 5. In like manner since the center of gravity of the right line AB (*fig. 97.*) is in the middle M , and the surface of a cone is described, if the triangle ABC revolves about its axis; if $PM = \frac{1}{2}BC$; the superficies of the cone will be equal to the product of its side AB , into the periphery described by the radius PM , or the subduple of the semi-diameter of the base BC .

Suppose, v. gr. $BC = r$, $AB = a$, the ratio of the radius to the periphery $= 1 : m$; then will $PM = \frac{1}{2}r$, and the periphery described by this radius $= \frac{1}{2}mr$. Therefore multiplying $\frac{1}{2}mr$ into the side of the cone AB , the product is the superficies or $\frac{1}{2}amr$. But $\frac{1}{2}amr$ is also the product of $\frac{1}{2}a$ and mr : therefore the surface of the cone is the product of the periphery into half the side.

Corol. 6. If the triangle ACB (*fig. 98.*) revolve about its axis, it describes a cone; but if CB be bisected in D , and the right line AD be drawn, and $AO = \frac{2}{3}AD$; the center of gravity will be in O . The solidity of the cone, therefore, is equal to the product of the triangle CAB into the periphery described by the radius PO ; but $AD : AO :: BD : OP$; and $AO = \frac{2}{3}AD$, and $DB = \frac{1}{2}CB$. Therefore, $OP = \frac{2}{3}BD = \frac{1}{3}CB$.

Suppose, v. gr. $BC = r$, $AB = a$, the ratio of the radius to the periphery $= 1 : m$. Then will $OP = \frac{1}{3}r$, the periphery described by this radius $\frac{1}{3}mr$; the triangle $ACB = \frac{1}{2}ar$; and, therefore, the solidity of the cone $\frac{1}{2}mr \times \frac{1}{2}ar = \frac{1}{6}amr^2$. But $\frac{1}{6}amr^2 = \frac{1}{3}r \times mr \times \frac{1}{3}a$: Or, the product of the base of the cone into the third part of the altitude. See TRIANGLE.

Corol. 7. Let the semicircle DCA (*fig. 99.*) revolve about the diameter AD , and describe the surface of a

sphere. If there be taken $DC : FC :: FC : FH = \frac{FC^2}{DC} = \frac{4r^2}{c}$, putting r for the radius, and c for the whole circum-

ference; H will be the center of gravity of the arc DCA ; and consequently $r : c :: FH : 4r =$ the line or circumference described by H the center of gravity: and by the general rule $DCA \times 4r = \frac{1}{2}c \times 4r = 2rc =$ the surface of the sphere = the circumference into the diameter: as it ought to be by other principles. For the solidity of the sphere, we shall have $\frac{1}{2}c : 2r :: \frac{2}{3}r : \frac{8r^2}{3c} =$ the dis-

tance FH of the center of gravity of the semicircle $DCAD$ from the diameter AD ; which is two-thirds of the distance of the center of gravity of the arc DCA from the same diameter DA , in the former case: consequently, the line described by the center of gravity in this case will be two thirds of that in the former: but the describing line in the former case is to the describing space in this as 1 is to $\frac{1}{2}r$; therefore $1 : \frac{2}{3} \times \frac{1}{2}r ::$ surface of the sphere : solidity $= \frac{2}{3}r \times$ surface. Hence it follows, that the circumference of the circle whose radius is the distance of the center of gravity of the semicircumference of any circle from its center, is equal to four times the radius of that circle.

Corol. 8. For the solidity of a parabolic spindle, put $b =$ the base, and $a =$ the altitude or axis of the generating parabola, and $n = .785398$. It is known that $\frac{2}{3}a$ is the distance of the center of gravity from the base, and consequently $\frac{1}{3}a =$ the line described by the center of gravity; but $\frac{2}{3}ab$ is = the revolving area; therefore $\frac{1}{3}a \times \frac{2}{3}ab = \frac{2}{9}a^2b$ will be the content, which is $\frac{8}{15}$ of the circumscribed cylinder.

Corol. 9. For the paraboloid, let the notation be as in the last example; and $\frac{2}{3}b$ will be the distance of the center of gravity of the semi-parabola from the axis; consequently $\frac{2}{3}b \times 8n \times \frac{2}{3}ab = 2abnn =$ the solidity = half the circumscribed cylinder.

This elegant theorem, which may be ranked among the chief inventions in geometry of the last age, was taken notice of long ago by Pappus; but the jesuit Guldinus was the first who set it in its full light, and exhibited its use in a variety of examples. Several other geometers, after Pappus and Guldinus, have also used it in measuring solids, and surfaces generated by a rotation round a fixed axis; especially before the late invention of the integral calculus: and it may still take place in some cases where the integral calculus would be more difficult. *M. Leibnitz* has observed, that the method will hold, though the axis or center be continually changed during the generative motion.

CENTRON, in *Geography*, a village of Savoy in the Tarantaise, formerly a capital town of a people, called *Centrones*; 3 miles E.N.E. of Monstier.

CENTRONES, in *Ancient Geography*, a people of Belgic Gaul, placed by Cæsar in dependance on the Nervians. Some authors place them in the territory of Gand, others in that of Courtray, &c. *D'Anville* has not mentioned them. —Also, an ancient people of the Gauls, placed by Ptolemy in the Grecian Alps; and mentioned both by Cæsar and Pliny. Many authors have supposed, and not improbably, that the *Acitavones*, on the Alps, were the *Centrones*.

CENTRONIA, in *Zoology*, the name by which *Dr. Hill* distinguishes the crustaceous vermes called Sea-eggs, and by Naturalists, *Echini*. See *ECHINUS*.

CENTRUM, in *Geometry, Mechanics, &c.* See **CENTRA**.

CENTRUM phonicum, in *Acoustics*, is the place where the speaker stands in polysyllabical and articulate echoes.

CENTRUM phonocamplicum, is the place, or object, that returns the voice in an echo.

CENTRUM tendinosum, in *Anatomy*, a name applied to the tendon of the diaphragm, which occupies the center of the part. See **DIAPHRAGM**.

CENTRY BOX, a sort of box or hut for sheltering centinels in bad weather. It is commonly made of wood. But in fortifications with revetements or demi-revetements of masonry, they are often made of stone, and usually in a circular form.

CENTUM-CELLÆ, in *Ancient Geography*, *Civita-Vecchia*, a sea-port town of Italy, in Etruria. Trajan made this the place of his residence, where he entertained his friends and the great men of his court, with music, plays, and banquets, not sumptuous but moderate. In process of time, he gave it importance by erecting a harbour, which he called after his own name, and which is the present port of *Civita Vecchia*, where the pope keeps his galleys. The harbour was formed by running out two piers into the sea, and constructing in the interval between them a mole or little island, which served to break the violence of the waves, and to secure the ships in the inner basin from storms and bad weather.

CENTUM-MORBIA, in *Botany*, a name used by some authors for the common money-wort or nummularia, from its supposed virtues.

CENTUM-PUTEA, in *Ancient Geography*, a place of Dacia Trajana.

CENTUMVIRATE, among the Romans, a court composed of one hundred magistrates, or judges, appointed to decide private differences between the people. It was instituted some few years after the appointment of the "Prætor peregrinus," about the year of Rome 520, B.C. 234. at the motion of two tribunes of the people, both *Æbutii*; in order to assist the prætors, who were often obliged to take the field, and could not dispatch all civil affairs, which multiplied in proportion to the enlargement of the republic.

The centumviri were a body of men chosen, three out of each of the thirty-five tribes, so that their number amounted to five more than their name imports, and they were divided into four courts or councils, and sometimes only into two: their business, in subordination to the prætor, was to judge of matters relating to testaments, tutorage, inheritances, and such other matters of lesser weight and moment, as the prætors committed to them. After the time of Augustus, they formed the council of the prætor, and judged, in the most important cases; whence trials before them (*judicia centumviralia*) are sometimes distinguished from private trials; but these were not criminal trials, as some have thought, for in a certain sense all trials were public. Their body was afterwards increased to an hundred and eighty; though they still retained the appellation of centumviri.

The centumviri were called together by setting up a spear; at first, by those who had discharged the office of quæstor; afterwards by the decemviri, who presided in them during the absence of the prætor. Trials before them were usually held in the Basilica Julia; sometimes in the Forum. In important cases, they all judged together; nor could a cause before them be adjourned. They continued to act as judges for a whole year.

CENTUNCULUS, in *Botany*, (the name of a plant in Pliny) Dill. in Rai. syn. 1. Linn. gen. 145. Schreb. 189. Willd. 224. Lam. Ill. 226. Gært. 278. Juss. 95. Vent. 2.286. Centenille. Fr. Class and order, *tetrandria monogynia*.

nia. Nat. Ord. *Rotaceæ*, Linn. *Lyfsmachia*, Juss. *Primulaceæ*, Vent.

Gen. Ch. *Cal.* Perianth four-cleft, spreading, permanent; segments lanceolate, acute. *Cor.* monopetalous, wheel-shaped; tube short, somewhat globular; border four cleft; segments egg-shaped, spreading. *Stam.* Filaments four, naked, the length of the corolla; anthers simple. *Pist.* Germ. superior, roundish, within the tube of the corolla; style filiform, permanent; stigma simple. *Peric.* Capsule globular, one-celled, splitting horizontally; receptacle free. *Seeds* many, very small.

Eff. Char. Calyx four-cleft. Corolla wheel-shaped, four-cleft, filaments naked, capsule splitting horizontally, one-celled, many-seeded.

According to Jussieu it is sometimes petandrous with a five-cleft corolla, and then in its essential characters does not differ from *Anagallis*; but Dr. Smith is of opinion that the tubular form of the corolla, and the naked filaments, independent of the number, justify Dillenius in making it distinct.

Sp. C. minima, Linn. Mart. Lam. Willd. Gært. tab. 50. fig. 2. Lam. Illust. tab. 83. Flor. dan. tab. 177. Curt. Flor. Lond. tab. 11. Eng. bot. 531. (*Anagallis*, Vaill. par. tab. 4. fig. 2. Mentz. Pugil. tab. 7. *Anagallidastouri*, Mich. gen. tab. 18. fig. 2.) Bastard Pimpernel, small Chaff-weed. Root annual, fibrous. Stem one or two inches high, a little branched at the base, ascending, leafy, somewhat angular, smooth. Leaves alternate, sessile, spreading, egg-shaped, quite entire, smooth. Flowers solitary, axillary, sessile, white, expanded only in the most brilliant sunshine, soon withering, but permanent till forced off by the swelling capsule. Capsule globular, mucronate with the permanent style. A native of moist heaths in England, France, Italy, Germany, and Sweden, but often overlooked on account of its minuteness; it is most readily discovered by its capsules.

CENTUNCULUS, Scop. See CERASTIUM.

CENTURI, in *Geography*, a sea-port town of the island of Corfica.

CENTURIA, in *Ancient Geography*, or PINTURIA, the name as it variously occurs in Ptolemy's geography, of one of the Fortunate islands, in the Atlantic Ocean, near the coast of Africa.

CENTURIAE, an episcopal city of Africa, in Numidia; probably the same with *Centurianensis*, or *Centuro-niensis*.

CENTURIAL INSCRIPTIONS, a denomination given by some to those inscriptions inserted in the face of Severus's wall, which make mention of the centuries and cohorts by whom such parts of the wall are supposed to have been erected. In which sense, centurial inscriptions stand contradistinguished from *legionary*.

CENTURIATA Comitia, in *Antiquity*, those assemblies of the Romans, wherein the people gave their votes by centuries. See CENTURY and COMITIA.

CENTURIATORS, an appellation given to certain learned Germans of the city of Magdeburg, who in the early days of the Reformation composed a body of church history, divided into centuries of years.

Baronius is said to have written his *Annals* by way of opposition to the *centuriators* of Magdeburg.

CENTURINUM, in *Ancient Geography*, a town or burgh, seated at the point of the most northerly promontory of the island of Corfica.

CENTURION, a military officer among the Romans, who with another officer of the same denomination, commanded a company or maniple, or one of the ten separate parts, into which the hastati, as well as the principes and

triarii in each legion, were divided. From each of these descriptions of soldiers, ten men of the most approved and distinguished merit were first selected, and after them ten more. These were all called Commanders of companies or maniples. The first of these that was chosen or appointed was called *primipilus*, or *centurio primipili*, and had a seat in the military council. Two of these centurions or captains of companies or maniples were appointed to each company. And when both were present, he that was first chosen led the right, and the other the left of the company; but when either of them was absent, he who remained, conducted the whole of it. In the choice of these captains or commanders of companies, those who were the boldest and most enterprising were not esteemed the best, but rather those who were sedate and steady, prudent and skilful in command. And it was not so much required of them that they should on all occasions be eager to begin an engagement, or to precipitate themselves into action, as that when hard pressed or even overpowered by superior force and numbers, they should still maintain their posts, and rather die than desert their stations. These twenty centurions or commanders of companies chose twenty other men of distinguished conduct, prudence, and merit; two of whom were assigned to each company to take care of its rear. Besides these, two of the bravest and stoutest among the soldiers were appointed by the centurions to carry the standards in each company. And it was not without very good reason indeed, that two captains or centurions were assigned to each maniple or company, as well as two sub-captains or sub-centurions. For as it was impossible to know or ascertain before-hand what the conduct of an officer would be, or to what accidents he might be exposed; and as excuse or pretext in the affairs of war is inadmissible, that precaution and arrangement were necessary to prevent the company from being on any occasion without a leader.

A centurion is generally defined to have been a military officer, who commanded a hundred men. But this is a very erroneous definition. For when the Roman state was in its greatest vigour and perfection, which it was about the time of Hannibal's invasion of Italy, the two centurions in a maniple or company of the hastati or principes commanded twice as many men as the two centurions in a maniple of the triarii; as a maniple of each of the former then contained 120 men, whereas a maniple of the latter consisted only of sixty. The legion then consisted commonly of 4200 foot, and 300 horse. Of these 4200 infantry, 600 were triarii, 1200 were hastati, 1200 were principes, and the remainder were velites or light troops.

Anciently and before the war of Hannibal, it was the constant custom of the Romans to raise four legions annually, and to allow to each legion 4000 foot and two hundred horse, unless they were pressed by any great or unusual danger, in which case they increased the number of men composing it to 5000 foot and 300 horse. And prior to the battle of Cannæ, they ordered eight legions of 5000 men each to be raised, independent of an equal number of the allies, an expedient, to which they had never before had recourse in any of their wars. Whilst the number of foot in a legion thus varied between 4000 and 5000, the number of men commanded by a centurion in the hastati and principes also varied, though the number of those commanded by a centurion in the triarii continued invariably the same. For whatever number of men the legion consisted of, that of the triarii continued at 600, or the same, till it was so augmented as to equal that of the hastati or principes; towards the time of Julius Cæsar and the close of the mixed government of the Romans, during the continuance of which in its vigour and purity the numbers of men commanded respectively by a centurion in the hastati, or principes, and by a centurion in the triarii,

were in a ratio that frequently varied. During the same period, there were, in every legion, sixty centurions or commanders of companies or maniples, sixty officers chosen by them to take charge of the rear of the companies, who might be denominated sub-centurions or sub-captains, and sixty standard-bearers or ensigns, who were appointed by the captains or centurions.

CENFURIONES, *Ad*, in *Ancient Geography*, a place of Gaul, in the Pyrenées.

CENTURIPÆ, CENTURIPPI, now *Centorbi*, a town of Sicily on the eastern coast, at a small distance from *Catana*. This city was democratical, and, like *Syracuse*, received its liberty from *Timoleon*. Its inhabitants cultivated the fine arts, particularly sculpture and engraving. In digging for the remains of antiquities, cameos are no where found in such abundance as at *Centurippi* and its environs. The situation of the place is romantic; it is built on the summit of a vast group of rocks, which was probably chosen as the most difficult of access, and consequently the most proper in times of civil commotion. The remains of its ancient bridge afford evidence of its having been formerly a considerable city. *Cicero* speaks of it as such. It was taken by the Romans, plundered and oppressed by *Verres*, destroyed by *Pompey*, and restored by *Octavius*, who made it the residence of a Roman colony. *Houel's Voyage Pittoresque des Isles de Sicile, de Malte, et de Lipari, &c.* See CENTORBI.

CENTURY, in French *centurie*, from the Latin word *centuria*, a derivative of *centum*, a hundred. Strictly speaking, it signifies one hundred of any thing, as a hundred years, a hundred men, &c.

The term *centuria*, century, was given to the Roman horsemen or equites that belonged to each tribe, and at first amounted only to a hundred. The term, however, *centuria equitum* was continued after that number was greatly increased. It was anciently the custom of the Romans, in forming their legions, to choose their cavalry, and to add two hundred horsemen to every four thousand of their infantry. But in the time of *Polybius*, the citizens, of whom the cavalry was composed, were appointed by the censors according to the rate of their revenue, and were enrolled before the infantry; and three hundred of them were assigned to every legion.

When the Roman people were assembled in the *Campus Martius* for the purpose of choosing magistrates, establishing laws, or deliberating on public affairs, they were divided into centuries, and voted by centuries to facilitate the taking of their suffrages. These assemblies were called *comitia centuriata*.

The Latin writers sometimes made use of the word *centuria*, to denote a company or the number of men commanded by a centurion, whether it consisted of a hundred, or of more, or of less. Thus the phrase, *pedites centuriati*, means infantry divided into companies or maniples.

In chronology, century signifies a period of one hundred years. Church-history is generally computed by centuries commencing from the incarnation of *Jesus Christ*. In this sense of the word, we say, the first century, the fathers of the second century, the councils of the third century, &c.

CENTUS, in *Ancient Geography*, a town of Arabia Felix. *Ptolemy*.

CENTUSSIS, a Roman coin, containing a hundred *asses*. See *As*.

CEODES, in *Botany*, *Juss. 422. Forst. tab. 71. Gen. Ch. Cal. none. Cor. monopetalous, top-shaped; border five-cleft. Stam. ten, alternately shorter; anthers roundish. Pist. style one; stigma dilated. Fruit unknown.*

CEORLE. See CHURLE.

CEOS, CEA, or CIA, in *Ancient Geography*, now *Zia*, one of the Cyclades, an island of the *Ægean sea*, lies opposite to the promontory of *Achaia*, called *Sunium*, and is 50 miles in compass. This island is commended by the ancients for its fertility and the richness of its pastures. If we may credit *Pliny* and *Solinus*, the first silk stuffs were wrought in this island; and they were hence called the *Cean manufacture*. *Ceos* was also famous for its excellent figs. It is said to have been first peopled by *Aristæus*, the son of *Apollo* and *Cyrene*, who, being grieved for the death of his son *Ætæon*, retired from *Thebes*, at the persuasion of his mother, and went over with some *Thebans* to *Ceos*, at that time uninhabited. *Diodorus Siculus* says, that he retired to the island of *Cos*; but the ancients, as *Servius* (in *Virg. Georg. lib. i.*) observes, called both these islands by the name of *Cos*. However this be, the island of *Ceos* became so populous, that a law prevailed there, commanding all persons upwards of 60 years of age to be poisoned, that others might be able to subsist; so that none above 60 years of age were to be seen in the island, being obliged, after they had attained that age, either to submit to the law or abandon the country, together with their effects. (See *Strabo, lib. x. Ælian Var. Hist. l. iii. c. 37.*) In former times *Ceos* had four famous cities, viz. *Julis*, *Carthæa*, *Coreffus*, and *Præessa*. The two latter were, according to *Pliny* (l. xvi. c. 27.) swallowed up by an earthquake. The other two flourished in the time of *Strabo*. *Carthæa* was seated on a rising ground, at the end of a valley, about 3 miles from the sea; and its situation agrees with that of the present town of *Zia*, whence the island derives its name. The ruins both of *Carthæa* and *Julis* are still remaining; those of the latter occupy a whole mountain, and are called by the modern inhabitants "Polis," that is, the city. Near this place are the ruins of a stately temple, with many pieces of broken pillars, and statues of most exquisite workmanship. The walls of the city were of marble, and some pieces are still remaining, about 12 feet in length. *Julis* was, according to *Strabo*, the birth-place of *Simonides*, *Bacchylides*, *Erasistratus*, and *Aristo*. We learn from the *Oxford marbles*, that *Simonides*, the son of *Leoprepis*, invented a sort of artificial memory, the principles of which he explained at *Athens*; and that he was descended from another *Simonides*, who was a poet no less renowned than himself. One of these two poets invented those melancholy verses which were sung at funerals, and are called by the Latins "*Næniæ*." (*Hor. l. ii. od. 1.*) *Strabo* says, that the Athenians having besieged the city of *Julis*, raised the siege upon advice that the inhabitants had resolved to murder all the children under a certain age, that useful persons might not be employed in taking charge of them. *Ceos* was, with the other Greek islands, subdued by the Romans, and bestowed upon the Athenians by *Marc Antony* the triumvir, together with *Ægina*, *Tinos*, and some other adjoining islands, which were all reduced to one Roman province by *Vespasian*.

CEPA, in *Botany*, *C. Bauh. Tourn.* See ALLIUM.

CEPA, *Rumph.* See PANCRATIUM amboinenfe.

CEPA, in *Gardening*. See ALLIUM.

CEPÆA, in *Botany*, *C. Bauh.* See SEDUM Cepæa.

CEPARUM PROMONTORIUM, in *Ancient Geography*, a promontory of the isle of *Cyprus*, extended into the sea directly towards the north, near the town of *Sole*, according to *Strabo* and *Ptolemy*.

CEPASIÆ, in *Geography*, a town of Italy, in *Venetia*, N. of *Plavis* and W. of *Opitergium*.

CEPEDE, DE LA, *Chant*, in *Biography*, a French writer on music, who published, in 1785, a treatise entitled "*La Poétique*"

Poétique de la Musique," which contains many excellent reflections and precepts for a young composer of lyric dramas, particularly French, from which the author draws all the illustrations of his principles. The work is extended to 2 vols. 12mo.; is well written and well printed, but contains few precepts to which the present musical critics at the Institute, or serious opera, will subscribe. The taste in music at Paris, from all we can gather in conversing with good judges of the lyric drama, is so much improved since the time of Rameau, and the orchestra so well disciplined by the performance of German symphonies, that, with a better language for the emission of sound, and better fingers, would be very high in the scale of the melodrama.

CEPHA CASTELLI, in *Geography*, an episcopal see of Asia, in Syria.

CEPHALÆDIS, CEFALA, a town on the northern part of Sicily.

CEPHALALGIA, in *Medicine*, from κεφαλη, *head*, and αλγος, *pain*, is the technical term for the disorder, which is, in common language, called head-ache. By some authors this term is applied only to a recent or slight head-ache, or to one which is partial or confined to a particular part of the head; and they employ the word CEFHALÆA, κεφαλῆα, to denote the complaint, when it is of longer standing, or more obdurate, or when the whole of the head is affected. These distinctions, however, are generally overlooked at present, and the two terms are used synonymously. Other denominations are also given to head-aches, which are accompanied by other peculiarities of symptoms: thus when they return at regular periods, with certain intervals of ease, they are termed *intermitting* head-aches, and by the vulgar, *agues in the head*; and as in these instances it usually happens that one half of the head only suffers, they are technically described under the term *Hemicrania* (from ἡμισυ, *half*, and κέφαλον, *the skull*): see HEMICRANIA. When the pain is confined to a particular point in the face, namely, to the situation of a small hole, through which a nerve passes to the integuments, it has been denominated by the French *Tic Douloureux*. A local and violent pain also occurs occasionally in some part of the head, in hysterical women, which is said to resemble the sensation of a nail driven into the head, and has hence been denominated *Clavus hystericus*. See HYSTERIA.

Head-ache is a symptom of almost every febrile complaint, as well as of many others of a chronic nature; inasmuch that Dr. Cullen has not included it among the *genera* of idiopathic disease, in his nosology. Although it be, however, in a great majority of instances, symptomatic of a disease in some other part of the body, or of a general febrile state, yet it is frequently the concomitant of some morbid state of the contents, or of the integuments, of the skull.—An acute pain of the head is one of the most obvious marks of inflammation of the brain or its membranes, which is termed *phrenitis*, or *phrenzy*; as well in its common acceptation, as in that form of the disease, which terminates by an effusion of *serum* into the ventricle of the brain, and is then denominated *hydrocephalus*. It also accompanies the various organic diseases, which take place in the different parts of the brain, as may be found among the accounts of dissections, detailed by Morgagni, Haller, Lieutaud, &c. Thus after death, which had been preceded by severe and obstinate head-ache, tumours and abscesses have been found seated in, or adhering to, certain portions of the *cerebrum* or *cerebellum*; the different membranes of the brain have been found thickened; the arteries or membranes partially converted into bone; bony projections from the cranium have been discovered piercing or pressing on the brain; and effusions

of blood or serum producing pressure on the external surface, or in the internal cavities, of that organ. Pain in the head is also the consequence of that fulness of the vessels of the head, which gives rise to lethargic, apoplectic, and paralytic affections, by pressure on the brain, or by the subsequent rupture of the vessels, and effusion of blood. In persons of full habit of body, therefore, with short neck, large head, and florid complexion, head-ache is usually one of the forerunners of an apoplectic attack.

Further, there are instances of idiopathic head-ache, in which the brain itself does not appear to be affected, but in which the morbid condition is confined to the skull, or its integuments. The integuments of the *cranium* appear to be not unfrequently the seat of rheumatic inflammation, which gives rise to a head-ache, tedious and distressing as rheumatism seated in the membranes surrounding the joints, or in other parts of the body. The poison of the venereal disease, when the system becomes thoroughly imbued with it, is liable to excite a peculiar inflammation in the *pericranium*, or membrane investing the skull, and even in the skull itself, which excites a severe head-ache, accompanied by a great soreness or tenderness of the integuments.

The most frequent instances of head-ache, however, are those in which it is symptomatic of disease in some other part of the body, or arises in consequence of the sympathy which exists between the brain and some other organ. These sympathies are numerous, and one of the strongest is that which takes place between the head and the stomach. Hence with almost every derangement of the stomach, the head is liable to suffer. Such is the origin of that common complaint, especially among the high-feeding ranks of society, which is usually termed a *sick* head-ache, and which has been well described and commented on by Dr. Fothergill. (See Medical Obs. and Inquir. vol. vi. p. 103.) This learned physician has remarked, that the patients, affected with this species of head-ache, awake early in the morning with a pain, which seldom affects the whole head, but one particular part of it only; most commonly the forehead, frequently over one, and sometimes over both eyes. Sometimes it is fixed about the upper part of the parietal bone of one side only; sometimes, and not unfrequently, the back part of the head, or *occiput*, is affected: sometimes it darts from one to another of these places. With this is joined more or less of sickness, which is just barely, in many people, not sufficient, without assistance, to excite vomiting. If this pain comes on, as is usually the case, early in the morning, and before any meal is taken, seldom any thing is thrown up but thin phlegm, unless the straining is severe, when some bitter or acid bile is brought up. In this case, the disease begins soon to abate, leaving a soreness about the head, a squeamishness at the stomach, and a general uneasiness, which induces the sick to wish to repose. Perhaps, after a short sleep, they recover perfectly well, being only a little debilitated by their sufferings.

The duration of this paroxysm is different in different persons; in some it goes off in two or three hours; in others it will last twenty-four, or longer, and with a violence scarcely to be endured, the least light or noise seeming to throw them on the rack. Its returns are very irregular, as must be the case, since the disease for the most part proceeds from accidental causes. It occurs in persons of almost every habit and complexion; chiefly in the early and middle stages of life, and among the middle and upper ranks in society. Those who use but little exercise, and are inattentive to their diet, both as to the kind and the quantity, are the greatest sufferers.

This,

C E P H A L A L G I A.

This, or a similar species of head-ache, is frequently an attendant on a constipated state of the bowels; so that those who are habitually constive, are frequently subject to habitual head-aches, which are readily removed by laxative medicines, or cease on the supervention of a laxity of the intestines from any other cause. Even in the febrile state, when the head-ache may be considered as originating from other circumstances, constipation of the bowels tends to aggravate it greatly. Hence the necessity for the practitioner to attend to the state of the bowels in all cases of head-ache.

A pain in the head frequently occurs, in consequence of its sympathy with the uterine organs, more especially as a symptom of retention or suppression of the catamenia. In the latter case, indeed, it may perhaps be considered as the effect of an increased quantity of blood distributed to the head, rather than a sympathetic pain, since a general plethora is induced by the suppression of an accustomed evacuation. In the same way head-ache is the consequence of the suppression of other habitual discharges, such as old ulcers, and issues, the bleeding piles, or the omission of periodical blood-letting.

Head-ache is a symptom of almost all acute febrile complaints, as well of intermittent as of continued and eruptive fevers. It likewise occurs in certain asthenic or debilitated conditions of the body, when it has been called a *nervous* head-ache. This species of head-ache takes place, as Dr. Willan has remarked, "unconnected with any particular febrile disease, from sorrow, fatigue, watching, and from sudden changes of temperature in summer as well as in winter. It is attended with a whiteness of the tongue, and a sensation of weakness or languor. A sharp and quick pulse, in this complaint, produces a throbbing at the temples, and an acute pain through the whole head. When the pulse is slow and feeble, the pain is described as dull and heavy, sometimes girding round the head, sometimes fixed at the nape of the neck. In persons who have constitutionally a very languid circulation of the blood, the latter species of head-ache recurs on every slight occasion, and often becomes periodical, returning every day, or every other day, without any manifest exciting cause." Reports on the Diseases in London, p. 239.

It is obvious, then, that the causes of head-ache may be considered under three heads; namely, whatever compresses or in any manner irritates the contents or the integuments of the cranium itself; whatever irritates or injures those parts with which the head is connected by sympathy, especially the organs of digestion; and, lastly, whatever tends to induce a state of fever or of morbid irritability in the constitution at large. It is frequently extremely difficult, particularly at the commencement of the disease, to ascertain the nature of the cause from which the pain originates. If it arise from inflammation in the brain or its membranes, indeed, it will be easily distinguished by the acute fever, with a quick and hard pulse, the intolerance of light, delirium, and other symptoms of phrensy; and if these occur in children, a termination in hydrocephalus, or dropsy in the head, may generally be anticipated. When the pain attacks those persons who exhibit the marks of plethora before described, and who are affected with great drowsiness, or slight loss of memory, there can be no doubt that the fullness of the vessels of the brain is the immediate cause of the head-ache. And when symptoms of *lues venerea*, or of rheumatism, in other parts of the body, have preceded or accompany the head-ache, it may be pronounced syphilitic or rheumatic accordingly. But it is not only extremely difficult, if not impossible, to determine what the internal organic cause of the head-ache is, or in what part of the brain it is situated,

but also to ascertain whether the cause be really organic, or whether it may arise from sympathy with some other organ, or from the state of the constitution in general. The duration and pertinacity of the pain are often the only source of conjecture as to its organic origin.

With respect to the sympathetic head-aches, the absence of the diagnostic symptoms just enumerated; the obvious condition of the functions of the stomach, bowels, &c.; the known circumstances as to irregularities of diet, &c. which may have preceded the attack; and the seat, the mode, and time of its occurrence, as has been already stated, will contribute to inform us of the nature and origin of the head-ache. And if there be any obvious general debility, languor, or low spirits, with occasional giddiness, tremors, and sensations of faintness about the precordia; and, more especially, if grief, watching, fatigue, or such debilitating causes have been acting, the asthenic head-ache, before described from Dr. Willan, may be presumed to exist.

After all these circumstances have been duly investigated and considered, the method of treatment to be adopted will readily suggest itself, if the conclusion as to the origin of the complaint be satisfactory. Where the symptoms of phrenitic inflammation are present, general and local blood-letting, blistering, purging, the application of cold, and the whole of the antiphlogistic regimen, must be resorted to. See PHRENITIS. Where there is apparently some internal organic cause, the nature and seat of which cannot be ascertained, the attempt to cure can only be pursued upon general principles; and therefore, upon the supposition that some morbid or preternatural enlargement of some part is taking place, the impetus and quantity of the blood carried to the brain, and the increased action of its vessels, must be diminished by the local detraction of blood, and the application of blisters; which view will also be farther accomplished by the administration of some sedative medicine, such as digitalis, or cicuta; or with the intention of exciting the activity of the absorbent vessels, by which any morbid growth may be diminished, the use of mercury may be also resorted to. The bowels, in such a case, must be kept regularly open; and every thing which can accelerate the circulation, whether stimulating food or drink, or corporeal exertion, should be carefully avoided. Where the head-ache is apparently syphilitic or rheumatic, it is scarcely necessary to mention that the remedies, which are useful in other forms of syphilis and rheumatism, may be administered with success.

The "sick head-ache," which depends on a disordered condition of the stomach and bowels, occasioned by irregularities of diet, may be readily removed or relieved by emptying the stomach of its ill-digested and noxious contents, by means of an emetic or mild cathartic: but the same paroxysm will be again repeated, unless the causes be avoided. Some persons possess so little self-command, and are so much habituated to indulge in the gratification of the palate, that they pass a great portion of their lives in the constant succession of such attacks. The stomach, however, may be strengthened, and its digestive powers aided, by the use of bitter stomachic medicines, joined with alkalis or preparations of steel; and the remora of the food may be in some degree avoided by the use of rhubarb and magnesia, or the aloetic pills, in moderate quantities. But, as Dr. Fothergill has very judiciously remarked, "whatever process the physician's judgment leads him to pursue, there is one object that will deserve his attention, and will require that of the patient. This disease is not the effect of any sudden accidental cause; it is the effect of reiterated errors in diet, or in conduct, which, by weakening the powers of digestion,

digestion, and otherwise disordering the animal functions, have affected the secretion of those juices, and perhaps the organs themselves, in such a manner, as to require a steady perseverance in the use of such medicines as experience has suggested are most likely to restore them to full health. This change cannot be effected speedily; it requires a patient observance of proper regimen, both in respect to medicine and diet. The former ought, therefore, to be so contrived, as to be taken without disgust for several weeks together, and to be repeated at proper distances, till the end is obtained, digestion rightly performed, and the bile secreted and discharged as health requires; by which means, all that train of evils, which are the consequences of its detention and distempered state, will be gradually removed. The benefits resulting, in many cases, from the use of the mineral waters, when drank in a proper quantity, and for a proper length of time, are undoubted proofs of the necessity of perseverance in the use of such medicines as may appear, at first sight, of no great efficacy, yet, if well directed and steadily pursued, will at length obtain the most substantial advantages.

"There is another part of our assistance," Dr. Fothergill adds, "which is not less necessary, in this case, than medicine to a perfect recovery, which, perhaps, is too often disregarded both by the patient and the physician; and if I have succeeded in removing many complaints of this nature, where very judicious prescriptions had been used in vain, it has been by entering more minutely into that part of the prescription which depended on the patient's own conduct, than by the use of medicines of greater efficacy than those which had been prescribed by others. We are perhaps too ready, in chronic cases, where digestion is concerned, to confide in the *Materia Medica*, and judge it sufficient to select and enjoin such articles in our prescriptions as are of known use in such cases: but unless the whole plan of diet, both in kind and quantity, is made to conspire with medical prescription, the benefits arising from this are hourly annihilated by neglect or indulgence." Med. Obs. and Inq. vol. vi.

It is not easy to point out the articles of diet, or the quantity of food, which should be taken or avoided by different individuals, since what is extremely detrimental to one constitution may be taken in abundance and with impunity by another. Individual experience, if it were carefully attended to, is generally a sufficient monitor. There are some things, however, which, even in small quantities, seldom fail to excite the sick head-ache in many constitutions: such are melted butter, fat meats, and spices; and hence meat-pies, which contain all these things united, are a fertile source of this complaint. But perhaps an overloading of the stomach with various things, in themselves even not unwholesome, is one of the most frequent causes of this disorder. By those, therefore, who are liable to this species of head ache, excess in eating and drinking ought to be studiously shunned.

The athletic head-ache, which is produced by grief, watching, fatigue, and other debilitating causes, may be soothed by anodyne medicines, and ultimately relieved by the bark, or some other stomachic bitter, which will contribute to restore the strength; and some more diffusible stimulant, such as ammonia (or volatile alkali), in its various preparations, will be used with considerable advantage, especially where the sensations of languor and weakness are very great, and accompanied with giddiness in the head, occasional dimness of sight, &c. The tonic plan, of course, will be also pursued in diet and regimen, and moderate exercise regularly resorted to.

Where the head-ache is a concomitant of general fever, the treatment peculiar to that modification of fever which may be present must be necessarily employed. See FEVER.

CEPHALANTHUS, in *Botany*, (from κεφαλος, *a head*, and αβος, *a flower*; so called because the flowers grow in a head), button-wood, button-tree, or pond dog-wood. Linn. Gen. 113. Schreb. 147. Willd. 170. Lam. Illust. 153. Juss. 209. Vent. ii. 591. Gært. 546. (Platanocephalus, Vail. A. G. 1722.) Class and order, *tetrandria monogynia*. Nat. Ord. *Aggregatz*, Linn. *Rubiaceæ*, Juss. Vent.

Gen. Ch. *Cal.* common perianth none; common receptacle globular, villous, collecting numerous florets into a head; proper perianth superior, small, one-leaved, funnel-shaped, angular; border quadrifid. *Cor.* proper monopetalous, funnel-shaped; tube slender, longer than the calyx; border quadrifid. *Stam.* filaments four, inserted into the corolla, shorter than the border; anthers globular. *Pist.* germ inferior; style longer than the corolla; stigma globular. [*Peric.* none. *Seeds* solitary, long, attenuated at the base, pyramidal, woolly, Linn.] *Peric.* capsule inferior, crowned with the permanent calyx, inversely pyramidal, four-celled; cells one-seeded, separating from each other as the seed ripens, but without valves, and not opening spontaneously; two of them generally abortive. *Seeds* oblong. Gært. Lam.

Gen. Ch. Flowers aggregate, fixed to a globular receptacle. Calyx proper superior, quadrifid. Corolla tubular. Capsule four or two-celled, dividing into four or two parts.

Sp. 1. *C. occidentalis*, Linn. Sp. Pl. Mart. 1. Lam. 1. Willd. Gært. tab. 86. fig. 7. Lam. Ill. tab. 59. (Scabiosa, Pluk. tab. 77. fig. 4.) "Leaves opposite or ternate; heads terminal, forming a kind of raceme." Lam. A shrub, from five to seven feet high. *Stem* a little branched, weak, cylindrical, greyish, leafy, almost its whole length. *Leaves* petioled, egg-shaped, acute, entire, soft, smooth above; the nerves of the lower surface, as well as the petioles, sometimes beset with short hairs. *Flowers* whitish, in small peduncled heads which terminate the stem, three, five or seven together, and form what La Marck calls a kind of raceme, but which, from the terms of his own description, as well as from his figure, is rather an umbel. A native of swamps, in Carolina. A decoction of the wood or root is used as a cure for the bite of venomous animals, and is said to be efficacious in venereal complaints. 2. *C. angustifolius*, Mart. 2. Lour. Cochin. "Leaves lanceolate, linear, opposite." A middle-sized tree, with ascending branches. *Leaves* quite entire. *Flowers* pale, in small terminal heads; common receptacle oblong, villous; segments of the proper calyx awl-shaped, hairy; beset with shining, coloured, peduncled glands. *Fruit* a small compound berry; the acini or component parts roundish, crowned, flaccid, two-celled, inferior; cells one-seeded. A native of Cochin-China. 3. *C. procumbens*, Mart. 3. Lour. "Stem procumbent; leaves ovate-lanceolate, alternate." A thick shrub, with many long funicular branches. *Leaves* large, quite entire, tomentous, petioled. *Flowers* violet-coloured, dioicous; in long, interrupted, terminal racemes; the females in a naked globular receptacle, without any perianth, either proper or common; corollas five-cleft, inferior, very many, on long peduncles, forming a ball or head; style capillary, equal to the corolla; stigma simple. *Seed* single, egg-shaped, compressed, naked. A native of Cochin-China. 4. *C. montanus*. "Leaves egg-shaped, crenate, alternate." A large tree, with a hempen bark and spreading branches. *Leaves* acuminate, petioled, rough above, tomentous underneath. *Flowers* dioicous, green, on solitary axillary peduncles, forming round-

ish heads, on a naked globular receptacle; the females without a corolla; proper perianth almost closed, four-cleft, superior. *Seed* single, compressed, with a subpappous ring, perhaps from the laciniated tube of the calyx. A native of China. 5. *C. stellatus*, Mart. 5. Lour. "Leaves stellated, laciniat-d-linear." A middle-sized tree, with ascending branches. *Leaves* by threes, quite entire, smooth. *Flowers* white, collected into a ball, with a small egg-shaped receptacle; no common perianth; proper perianth inferior, with four awl-shaped segments; corolla superior, with a four-cleft reflexed border, four nearly sessile anthers, a long style, and one naked seed. A native of Cochinchina.

We have followed professor Martyn in taking up the last four species from Loureiro, that they might not be entirely omitted; although Loureiro himself confesses that they differ very much from each other, as well as from Linnæus's generic character. The description given by Linnæus of the fruit of his sole cephalanthus is certainly founded on a misconception, and, according to Gärtner, appears to have been made when he was only half awake: fructus negligenter & quasi ex insomnio descripsit. It is, therefore, entitled to no authority in fixing the generic character. But Loureiro's descriptions of his new species are also in several respects so confused, that it is not easy to determine what he means. If, by the fruit of the second species, which he calls a compound berry, we are to understand, as is probably the case, the aggregate fruit of all the proper flowers, it may belong to this genus. What he calls the single naked seed of the fifth, may possibly be a pericarp with three abortive cells, and may not contradict any essential part of the generic character. But the third and fourth seem too refractory to obtain admission. La Marck, in the *Encyclopædie*, has added to the *C. occidentalis* of Linnæus, two other species, which he calls *chinensis* and *pilulifera*, both communicated by Sonnerat: the former he suspected might be found not to differ from *nauclea orientalis* of Linnæus, but he had then no doubt of its being a real cephalanthus. As, however, he has not inserted them in his subsequent illustrations, he appears to have changed his opinion. See NAUCLEA.

Propagation and Culture. The first species only has been cultivated in England. It has been raised by cuttings and layers, but is chiefly propagated by seeds. These should be sown before Christmas, and will then come up in the next spring: but if they are sown in spring, they generally remain a year in the ground; in which case, the pots should be placed in the shade during the summer, and sheltered under a common frame to protect them from frost in the ensuing winter. The first year, after they come up, they should be shaded from the sun in hot weather; and as they naturally grow in moist ground, should be regularly watered. In the autumn they may be transplanted into sheltered nursery-beds, where they may remain a year or two, according to the progress which they have made; and should be finally transplanted in October.

CEPHALAS, in *Ancient Geography*, a promontory of Africa, mentioned by Strabo, situate at the commencement of the great Syrtis. He adds, that it was elevated, and covered with wood. Ptolemy also mentions it. It is thought to be the present cape *Mesurata*.

CEPHALE, a burgh of Greece in Attica, between Prospette and Aphydne, at some distance from the coast of the Saronic gulf. The Dioscuri, viz. Castor and Pollux, were so highly respected in this place, that they were ranked in the number of the great gods, according to Pausanias. This burgh belonged to the Acamantide tribe.

CEPHALENIA, or CEPHALLENIA, an island of the

Ionian sea, now called CEPHALONIA, which see. It was known in the time of Homer (*Odyss.*) by the names of Samus and Black Epirus, or Epirus Melæna; and had anciently four cities, one of which bore the name of the island, although Ptolemy mentions only two. Strabo tells us, that in his time there were only two cities remaining; but Pliny (*l. iv. c. 12.*) speaks of three; adding, that the ruins of Same, which had been destroyed by the Romans, were still in being. Same was the metropolis of the island, and is supposed to have stood in the place which the Italians call "Porto Guiscarda." The names of the four cities were, according to Thucydides (*lib. ii.*) Same, Prone, Cranii, and Palæ.

This island was subdued by the Thebans, under the conduct of Amphitryon, who is said to have killed Pterelas, who then reigned there. While Amphitryon was carrying on the war in Cephalonia, then called Samos, one Cephalus, a man of great distinction at Athens, having accidentally killed his wife Procris in shooting at a deer, fled to Amphitryon, who, pitying his case, not only received him kindly, but made him governor of the island, which from that time was called Cephalonia. After it had been long in subjection to the Thebans, it fell under the power of the Macedonians, and was taken from them by the Ætolians, who held it till it was reduced by M. Fulvius Nobilior, who having gained the metropolis after a four months' siege in the year 189 B. C. sold all the citizens for slaves, adding the whole island to the dominions of his republic. *Liv. l. xxxviii. c. 28, 29.*

CEPHALICS, in *Medicine*, from κεφαλη, *the head*, a term given by the older writers on the materia medica, to those articles which relieve the disorders of the head. Under this term were chiefly included certain fragrant, aromatic, and stimulant substances, which, whether applied as odours to the organs of smell, or used as sternutatories, or taken into the stomach, afforded a speedy relief to nervous or asthenic headaches, giddiness, and faintness. In such a condition of the body all cordials would operate as cephalics. The symptoms arise from a languor of the circulation in the vessels of the head, which is accelerated by the general stimulus of cordials taken into the stomach, or the local stimulus of odours or sternutatories applied to the organ of smell, and the headache or giddiness necessarily ceases. The term is now seldom used.

CEPHALIC vein, in *Anatomy*, one of the large superficial veins of the upper extremity. See VEINS.

CEPHALOIDES, a denomination given by some writers, who discover virtues in plants from their signatures, to those which bear any resemblance to a human head; such are the poppy, piony, and the like.

CEPHALOMANTIA, from κεφαλη, and μαντιναι, *divination*, an ancient species of divination, or method of foretelling futurity by a dead man's skull.

CEPHALON, in *Ancient Geography*, one of the ancient names of the city of Rome.

CEPHALONIA, or CEFALONIA, in *Geography*, a considerable island of the Levant, in the Mediterranean, near the coast of Livadia to the north-east, and near the coast of Morea to the south-east, opposite to the gulf of Lepanto; about 150 miles in length, and from 80 to 90 at its greatest breadth; anciently called *Cephalonia*, which see. Venice acquired the sovereignty of this island, as a gift from Gaio its lord, in 1224; though it was taken by the Turks in 1479, and held by them for about 20 years. On the fall of Venice, it was seized by the French; and by the 6th article of the treaty of Campo Formio in 1797, renewed and confirmed by the third article of the treaty of Luneville in 1801, his majesty the emperor, king of Hungary and Bohemia, consents that the French republic shall possess, in full sovereignty, the ci-

devant

devant *Venetian islands* of the Levant, viz. Corfu, Zante, Cephalonia, St. Maure, Cerigo, and other islands dependent thereon; together with Butrinto, Larta, Vouizza, and in general all the ci-devant establishments in Albania, which are situate lower down than the gulf of Lodrino.

The chief articles of commerce in Cephalonia are oil, muscadine wine, and a species of grapes called currants. The air of this island is very warm; the trees are covered with flowers through the winter, and bear ripe fruit twice a year, in April and November; but those which grow in the latter month are smaller than the others. Corn is sown in the winter, and reaped in June. N. lat. $38^{\circ} 10'$ to $38^{\circ} 54'$. E. long. $20^{\circ} 15'$ to $21^{\circ} 30'$.

CEPHALONIA, the capital of the island of the same name; the see of a bishop united to Zante. N. lat. $38^{\circ} 30'$. E. long. $28^{\circ} 49'$.

CEPHALONNESOS, in *Ancient Geography*, an island of the Euxine sea, in the Carcinite gulf, according to Pliny. It belonged to European Sarmatia, according to Ptolemy.

CEPHALONOMANTIA, compounded of *κεφαλη*, head, *νομος*, *afs*, and *μαντευ*, divination, a method of divination, or revealing secrets, by means of an afs's head broiled on the coals. After muttering a few prayers, the names of several persons suspected of a theft, or the like, were repeated over: he at whose name the afs's jaws made any motion, or the teeth began to chatter, was held for convicted.

CEPHALO-PHARYNGEUS, in *Anatomy*, a term applied by some writers to the middle constrictor of the pharynx. See *CONSTRICTORES pharyngis*.

CEPHALOPHORA, in *Botany*, (from *κεφαλος*, and *φωρεω*, bearing its flowers in heads,) Willd. 1463. Cavan. Ic. 6. tab. 599. Class and order, *syngenesia polygamia equalis*. Nat. ord. *Compositæ discoides*, Linn. *Corymbifera*, Juss.

Gen. Ch. *Cal.* common, composed of two rows of linear, acute leaflets; receptacle globular, honey-combed, naked. *Cor.* florets tubular, hermaphrodite. *Seeds* solitary, top-shaped, striated, truncated; down composed of six or seven awl-shaped, transparent, chaff-like leaflets.

Eff. Ch. Receptacle naked, hemispherical; down chaff-like, many-leaved; calyx many-leaved, reflexed.

Sp. C. *glauca*. Root perennial. Stem herbaceous, hard, cylindrical, striated, branched. Root-leaves oblong-egg-shaped, lessening into a petiole; stem-leaves linear, alternate, sessile, glaucous, rather rough. Flowers terminal, solitary, yellow; peduncles thickened. A native of Chili.

CEPHALOPONIA, from *κεφαλη* and *πονος*, pain, a denomination given by some to the *cephalalgia*, or head-ache.

CEPHALOTOMI, in *Ancient Geography*, a people of Asia, placed by Pliny towards mount Caucasus, and on the borders of the Euxine sea.

CEPHALUS, a town of the island of Cyprus, watered by the river Aous.

CEPHALUS, in *Ichthyology*, the name given by Aristotle, Elijan, Applan, and others to the mullet, *mugil cephalus*, which see.

CEPHENE, in *Ancient Geography*, a country of Armenia, more generally called *Sophene*.

CEPHENES, a name anciently given by the Greeks to the Persians.

CEPHENIA, a name which, according to Agathemerus, was given to Ethiopia; and which seems to have been derived from the fabulous Cepheus.

CEPHESIAS, a lake, so called by Scylax, situated on the coast of Africa.

CEPHEUS, in *Astronomy*, a constellation of the northern hemisphere, being one of the 48 old asterisms; whose stars,

in Ptolemy's Catalogue, are 13; in Tycho's, 11; in Hevelius's, 51; in the Britannic Catalogue, 35.

Dr. Herschel has given an account of the lustre of the 35 stars in this constellation, in his third catalogue of the comparative brightness of the stars; (Phil. Trans. for 1797. pt. ii. p. 314;) and he observes that the 15th, in the neck of Cepheus, marked γ by Bayer, consists of two stars. Mr. Goodricke infers from a series of observations on the star δ Cephei, that it has a periodical variation of $5^d 8^h 37^m$, during which time it undergoes the following changes; viz. it is at its greatest brightness about one day and thirteen hours; its diminution is performed in about one day and eighteen hours; it is at its greatest obscuration about one day and twelve hours; and it increases about thirteen hours. In the first point, it appears as a star of between the 3d and 4th magnitude, though its relative brightness does not seem always to be quite the same. In the third point it appears as a star of between the 4th and 5th magnitude, if not nearer the 5th; and its relative brightness is as follows: nearly equal to ϵ and ξ Cephei, and considerably less than γ Lacertæ. The relative brightness and magnitude of these stars with which the variable one was compared are as follow: ζ Cephei, the brightest, is between the 3d and 4th magnitude; ν Cephei, the next brightest, is between the 4th and 3d; γ Lacertæ, is less than ν Cephei, and of about the 4th magnitude; ϵ Cephei is between the 4th and 5th magnitude; and ξ Cephei, which is a little less than ϵ , is between the 5th and 4th. The variation of the star δ was corroborated by the observations of Mr. Pigott. Phil. Trans. vol lxxvi. p. 48, &c.

CEPHEUS, in *Fabulous History*, a king of Ethiopia, father of Andromeda by Cassiope. See ANDROMEDA. Cepheus was one of the Argonauts, and after his death, became a constellation. There was another Cepheus, prince of Arcadia, and favoured by Minerva, who transferred to his head a lock from the head of Medusa, by which he was rendered invincible. He is mentioned by Apollodorus as the son of Lycurgus, and hunter of the Caledonian boar. A third Cepheus is said, by the same author, to have been the son of Aleus, an Argonaut, king of Tegea, father of Sterope, and an associate of Hercules, in opposition to Hippocoon.

CEPHISIA, in *Ancient Geography*, a village of Greece, in Attica, near Athens.

CEPHISIA, a fountain of Attica, according to Pliny.

CEPHISSIS, or *COPAIS lacus*, a lake of Bœotia, which took its name from the river Cephissus, which discharged itself into this lake. Its name, Copais, was formed from the town of Copes, seated upon its banks. Pausanias says (l. ix. Bœotic. c. 24.) that there were two towns on this lake, viz. Athens and Eleusis, which had been swallowed up by its inundations.

CEPHISSUS, or *CEPHISUS*, a river of Greece, which had its source in the mountains that separated Phocis from Thessaly, which range of mountains was called Oeta. Its course was from north-west to south-east. In its progress it received several rivers, such as the Lilæa, the Pindus, and the Chacalis; and before it entered Bœotia, it ran at the foot of a mountain, where was the district called Paropotamus. In Bœotia it received the Hercyna and the Melas; and to the south of Orchomene it discharged itself into the lake Copais, or Cephissis. This river was celebrated in fabulous history; as the graces delighted to bathe in it, and were thence styled the goddesses of the Cephissus. This river, or rather river-god, is said to have been enamoured of several nymphs, all of whom slighted his passion.

In Attica there were two rivers of this name, one, which

was the most easterly and the most considerable, commenced north of Decelia, ran towards the south as far as Cephiſſia, and to the ſouth-weſt on the north of Athens, near the northern wall of the Piræus, and diſcharged itſelf in the port of Phalerum. See ATHENS. The other river commenced N. of Phyla, and flowed into the Saronic gulf, near Scirus. Near its mouth were found ſeveral ſtatues, and one in particular of a young man, who cut his hair in order to conſecrate them to the river, according to the cuſtom of the ancient Greeks. Pauſanias, in Attic. c. 37.—*Cephiſſus* was alſo the name of a river of the Peloponneſus in the Argolide, according to Pauſanias.—Ortelius mentions a river of this name in the iſle of Salamine; a river of Greece, in Sicily; and another of the ſame name in the iſle of Scyros.

CEPHRO, or KEPHRO, a village and deſert of Egypt, at the entrance of the deſerts of Libya; to which were baniſhed Dionyſius of Alexandria, St. Maximus, &c.

CEPHUS, or CEPHUS, in *Ornithology*, the name by which the black-headed gull has been deſcribed by ſome writers. See *LARUS rudibundus*.

CEPHUS, in *Zoology*. See CEPUS.

CEPHYRA, in *Mythology*, daughter of Oceanus, who is fabuloſly reported to have educated Neptune.

CEPI, in *Ancient Geography*, a maritime place of Aſia Minor, placed by Cedrenus at the mouth of the Meander.—Alſo, a town in the iſland of Coccocondoma, upon the Euxine ſea, at the entrance of the Cimmerian Boſphorus, according to Pliny; who ſays, it was a colony of the inhabitants of Miletus. Strabo calls it Cepus; and it is denominated Cepæ by Mela and Diodorus Siculus.

CEPI corpus, in *Law*, a return made by the ſheriff, upon a capias, or other proceſs to the like purpoſe; ſignifying, that he hath taken the body of the party.

CEPIANA, in *Ancient Geography*, a town of Spain belonging to the Celtes of Luſitania.

CEPIC, in *Geography*, a town of Iſtria; 4 miles S. of Pedenæ.

CEPION, in *Antiquity*, the name of a particular air, invented by a diſciple of Terpander, and deſigned to be played on the CITHARA.

CEPIONIS Turris, in *Ancient Geography*, a place of Spain, in Bætica.

CEPIONITES, in *Natural Hiſtory*, a name given by Pliny, and other ancient writers, to a ſpecies of ſtone, ſeeming to approach to the nature of the JASPER. Pliny tells us that there were many kinds of it, ſome more pellucid than others, and ſome colourleſs; others variegated with green and the other colours of the jaspers and agates: they were all uſed in the ornamenting of houſes; and the leaſt beautiful ſerved, when well poliſhed, to make ſpeculums of.

CEPITES, in *Natural Hiſtory*, a name uſed by the ancients to expreſs a gem which gave the representation of the ſeveral cluſters of plants and flowers in the beds of a garden, with naked veins, expreſſing the walks between. The common text of Pliny is unintelligible, where he gives the deſcription of this ſtone; but Salmaſius has reſtored it from ſome old copies, ſo as to make it ſenſe, and expreſſive of this meaning. The ſtone was probably no other than a peculiar kind of that agate which the ancients called *dendrites*, and we the *mocoa ſtones*.

CEPOLA, in *Ichthyology*, a genus of *thoracic* fiſhes, which have the head roundiſh, and compreſſed; teeth curved, and placed in a ſingle row; gill membrane fix-rayed; body enſiform, naked; belly rather ſhorter than the head.

CEPOLA *tenia*, with caudal-fin tapering, wedged; and head very obtuſe. It is a native of the Mediterranean ſea,

and is ſometimes found of the length of three, four, or five feet, but more commonly does not exceed two feet in length. The head is ſhort and rounded; mouth large, and the lower jaw rather exceeding the upper one in length. Both jaws are armed with ſharp curved teeth, placed in a ſingle row in the upper, and in a double row in the lower jaw. The tongue is broad and rough; the eyes very large, with ſilvery irides, and black pupil, and placed vertically in the head. The abdomen ſcarcely longer than the head; body remarkably long, gradually tapering to the tail, and of extreme thinneſs in proportion to the length, whence it obtained the name of *tenia* or ribband-fiſh among ancient Ichthyologiſts. The general colour is ſilvery, hoary on the back, and the ſides are ſpeckled, and marked with rather large reddiſh ſpots; the lateral line is ſtraight, and the fins reddiſh. This fiſh is obſerved to frequent the neighbourhood of the ſhores, in order more readily to obtain its food, which conſiſts principally of crabs, and other cruſtaceous animals. The fleſh is ſcarcely eatable.

CEPOLA *rubescens*. Caudal-fin tapering; jaws ſharp, pointed, Linn. Ophidium macrophthalmum, Syſt. Nat. x. *Tænia ſerpens rubescens* diſta, Artedi.

Suppoſed by Gmelin and others to be, perhaps, a variety of the preceding; it is ſmaller, and of a pale red colour throughout. Inhabits the Mediterranean, and has been lately diſcovered on the coaſt of Devonſhire. Vide Linn. Trans. and Donovan. Brit. Fiſhes.

CEPOLA *trachiptera*. Head ſloping; both jaws arched; fins prickly, ferrated, and rough.

Found in the Adriatic. The lateral line in this ſpecies is ſtraight, with a ſingle row of ſcales.

The hermannian band-fiſh, *cepola hermanniana* of Dr. Shaw's zoology, appears to diſfer in ſo many particulars from the true cepolæ, that we are of opinion with Cæpede, that it ought to form a genus altogether diſtinct from them.

CEPOLAPITES, in *Natural Hiſtory*, a name given by ſome to the ſtone properly called CEPITES, a kind of *mocoa agate*.

CEPPHUS. See CEPHUS.

CEPULA, in *Ichthyology*, a name by which Gefner and ſome other authors have called the common ribband-fiſh. It is derived from the Italian word *cepole*, the familiar name of the ſame fiſh in the markets of Rome. This is the *cepola tenia* of modern naturaliſts.

CEPUS, or CEPHUS, in *Zoology*, a name aſſigned indifferently by old writers to ſeveral monkeys of the ſmaller kind that have more or leſs green among their other colours. The only monkey ſo named by modern naturaliſts is the *monſlac, ſimia cephus* of Schreber.

CERA *prima et extrema*, in *Roman Antiquity*, were terms applied to wills and teſtaments, from the circumſtance of their being uſually written on tables covered with wax, becauſe in them a perſon could eaſily eraze what he wiſhed to alter. Hence *cera* is put for *tabulæ ceratæ* or *tabulæ teſtamenti*, (Juvenal, i. 63.); and *prima cera* is uſed for *prima pars tabulæ*, the firſt part of the will, (Hor. Sat. ii. p. 53.); and *cera extrema* or *ima* for the laſt part, (Cic. Verr. i. 36. Suet. Juvenal, 83.)

CERACE, in *Ancient Geography*, a town of Macedonia, ſo called by Polybius, ſeated near the lake Lichorydes.

CERACHATES, in the *Natural Hiſtory of the Ancients*, the name of a ſpecies of agate of a plain yellow colour, and very much reſembling yellow wax. We have it from the Eaſt Indies, as alſo from New Spain, and ſome other parts of America; and our jewellers ſometimes work it into toys of ſmall value.

CERAM, in *Geography*, one of the spice islands in the East Indian Sea, about 190 miles in length, and 40 in breadth; low towards the shore, and in the interior parts, which are little known, very mountainous. Several chains of mountains run parallel to one another, in the direction of east and west, and are separated by fertile vallies that support a luxuriant vegetation. Its high mountains, some of which are at least 1,200 toises in perpendicular elevation, and yet frequented by the natives, afford effectual protection to their inhabitants; so that the Dutch have only been able to attach to its government of Amboyna a comparatively small number, settled on the lower parts of the island, near the sea. This island is said to contain 30,000 fighting men. It produces clove-trees, which the policy of the Dutch has induced them to destroy along the coasts, to which their influence extends; and it has also large forests of the sago-tree, which furnishes a considerable article of exportation: S. lat. about 3°. E. long. about 128° to 131°.

CERAM-LAOUT, an island of the East Indian Sea, near the island of Ceram, above five miles long, and scarcely three broad; mountainous, and uninhabited. It has a bay on the north coast.

CERAMBYX, in *Entomology*, a genus of insects in the order COLEOPTERA.

The generic character of the Cerambyces is variously defined by different writers. Linnæus describes it as having the antennæ composed of articulations, which gradually diminish in size as they approach towards the extremity: thorax either gibbous laterally, or armed with spines: wing-cases linear, or of equal breadth throughout; and the feet consisting of four joints.

This Linnæan definition of the genus applies to such a vast number of insects, which, in other particulars, possess an evident generical dissimilarity, that later authors have found it absolutely requisite to divide the Linnæan Cerambyces into several distinct genera. Linnæus was himself aware of the inconvenience of retaining many of his Cerambyces in this genus; but in order to comprise them, divided the genus into five distinct sections. Those families, or sections, so far as they relate to the few species known to the Swedish naturalist, may, perhaps, be found sufficiently comprehensive by the Linnæan entomologist; but when we reflect on the vast number of new species, described by the indefatigable Fabricius, by Olivier, and other still later writers, not to mention the many species that are to be yet found in our cabinets, that have not been described by any author, those subdivisions will at once appear incompetent for their arrangement. We must constitute new genera for their reception, or if we are to follow in servile imitation, we cannot dispense with the institution, at least, of several new subdivisions, to comprise them. The Linnæan subdivisions of the Cerambyx genus stand in the following order:

* Those which have the thorax armed on each side with moveable spines—This is exemplified in *Cerambyx Longimanus*. Linn.

** Those in which the thorax is margined, and armed at the sides with spines—As in *Cerambyx cinnamomeus*. Linn.

*** Those having the thorax round, and armed with fixed spines—As in *Cerambyx futor*. Linn.

**** Those with the thorax unarmed and somewhat cylindrical—As in *Cerambyx punctatus*. Linn.

***** Those with the thorax unarmed, roundish, somewhat globose, and flattened on the upper side—As in *Cerambyx violaceus*. Linn.

Two writers of respectability, Geoffroy and Schaeffer, form several new genera of the different kinds of Linnæan

Cerambyces. Their genus *Prionus* consists of those which have serrated antennæ placed in the eyes, or surrounded and embraced at their base by the eyes. The true *Cerambyces*, according to these authors, are such as have the antennæ gradually tapering from the base towards their extremity, and are placed in the eye, and have the thorax armed with spines. Those Linnæan Cerambyces, which have setaceous antennæ placed in the eyes, and the thorax cylindrical and unarmed with spines, are referred to their genus *Leptura*; and their genus *Stenocorus* comprehends those which have the antennæ tapering towards the extremity, but have their base originating before the eyes; and the wing-cases diminishing in breadth towards their point. This last genus *Stenocorus* is divided into two families, the first of which only belongs to the Linnæan Cerambyces, being such as have the thorax armed with spines; the other to the Linnæan *Lepturæ*, having the thorax destitute of spines. Scopoli likewise has made some alterations in the Cerambyx and *Leptura* genera; his character of the first is, however, vague and indefinite; he assigns it the power of emitting a sound or noise by the friction of the thorax, where it lies close to the body, as a character of the genus, and has, by this means, placed several of the true Cerambyces, which have not this property, among his *Lepturæ*. The remainder of the Linnæan Cerambyces he separates into two divisions, the first containing those which have the thorax armed with spines, and the other those which have the thorax destitute of spines.

Olivier found it requisite to divide the Linnæan Cerambyces into several genera; La Marck and Latreille have done the same; but the most important innovations that have been made on the Linnæan genera are to be found in the different entomological publications of Fabricius. Contrary to the Linnæan method, his characters of genera are taken from parts of the mouth, which cannot readily be so examined as those which Linnæus has taken, or it would be impossible to deny the manifest superiority of the Fabrician genera over those of Linnæus. Notwithstanding that Fabricius constitutes so many genera of the Linnæan Cerambyces, and that his characters are so dissimilar, those genera appear so natural and well selected, that other characters, even after the Linnæan method, may be applied with propriety to nearly the whole of them. This is in particular obvious in the genus *Prionus*, as well as *Lamia* and *Saperda*, each of which possess Linnæan characters, if they may be so expressed, distinct from those which characterise the true Cerambyces, although in the system left us by Linnæus, they could not be referred to any other genus. In a work recently published, on the entomology of New Holland, and the contiguous islands, we have endeavoured, under this persuasion, to reconcile the Fabrician genera, *Prionus*, *Lamia*, *Stenocorus*, and *Saperda* to the Linnæan arrangement, by assigning to each a new generical definition after the manner of Linnæus, and conceive there can be neither difficulty, nor impropriety, in reconciling many other of the Fabrician genera to the Linnæan method in a similar manner. As subdivisions of the Linnæan genera, the Fabrician genera might be eminently useful, should increasing the number of new genera be thought objectionable. It must be regarded as no inconsiderable improvement, in the last edition of the *Système Naturel*, that Gmelin has availed himself, in a great measure, of the Fabrician genera as subdivisions of his genus *Cerambyx*.

The genus *Cerambyx* comprehends an amazing number of the larger and most beautiful of all the coleopterous insects. In the larva state they resemble soft, oblong, slender worms, with a shelly head, furnished with strong jaws,

and six feet on the anterior part. They live principally in trees, the inner part of which they bore through, reducing the wood to powder, and undergo their changes from the larva to the pupa, and thence to the perfect state, in the cavities which they bore. In the larva state, they are sometimes eaten; in the West Indies these larvæ are collected by the negroes as an article of luxury for the tables of their owners, and are in great esteem. Many of these insects possess a powerful odorous smell similar to that of the European species *Moschatus*. The antennæ, in many of the species, are longer than the body.

In describing the species of this extensive genus, we shall mention those first which stand as true Cerambyces in the Fabrician, as well as Linnæan, systems; the other genera *Prionus*, *Lamia*, &c. will be also introduced under the present article for the sake of perspicuity.

Genus CERAMBYX.

Antennæ setaceous: feelers four: thorax spinous or gibbous: wing-cases linear: jaw obtuse and armed with a single tooth. Feelers four, filiform: jaw obtuse, with one tooth: lip bifid: antennæ setaceous. Fabr.

CAPRICORNE. Antennæ setaceous, long, situated in the eyes: feelers four, equal: eyes crescent-shaped: jaws bifid. La Marck.

CERAMBYX GIRAFFA, black: thorax unarmed, elongated, with transverse rugose striæ: wing-cases scabrous at the base, and smooth towards the apex. Donov. Inf. N. Holland. C. Giraffa, Transf. Linn. Soc.

FICHTELII. Brassily olivaceous: head broad: eyes prominent and divided: wing-cases attenuated, lengthened at the tip, and somewhat bearded. Donov. Inf. N. Holland. C. Fichtelii, Transf. Linn. Soc.

CERAMBYX MOSCHATUS. Thorax spinous: shining green and purple: antennæ moderate and blue. Linn. Olivier, &c.

This insect is found on the willow in European countries, and is generally known in England by the name of Goat-chaffer, or musk-beetle, which last it merits particularly, the insect emitting a powerful smell of musk when alive. Length, including the antennæ, about three inches.

VIRENS. Thorax rounded, and spinous: body green: thighs rufous. Olivier, &c.

This is a native of Jamaica; the larva is found in the trunk of the amyris balsamifera. Dr. Schwartz. It is observed of this species, by Fabricius, that it varies in having the antennæ longer or shorter than the body, and the thighs toothed or unarmed. These supposed varieties are most probably distinct species.

NITENS. Thorax rounded and somewhat spinous: shining green: thighs clavated, the club of the four anterior ones rufous. *Cerambyx nitens* of Olivier. Inhabits Africa. Mus. Donov. Described by Fabricius from the Bankian cabinet. The antennæ are twice the length of the body, and of a black colour: the body entirely green and shining: legs black: posterior shanks compressed.

AFER. Thorax rounded and spinous: body green: antennæ and legs rufous. Fabr. This is *Cerambyx afer* of the Linnæan mantissa 532. The front is retuse: antennæ scarcely longer than the body, and rufous: thorax rugose: wing-cases attenuated: four anterior thighs clavated.

VITTATUS. Thorax spinous, shining green: thorax and wing-cases lined with black. Fabr. The antennæ are of a moderate size and black: wing-cases obtuse: thorax with two dorsal black lines: thighs unarmed and rufous, shanks black.

FESTIVUS. Thorax spinous and green: wing-cases violaceous, greenish at the base: thighs ferruginous, and

armed with a single tooth. Fabr. Discovered by Mr. Smeathman on the banks of the river Gaboon in Africa. The antennæ are of moderate length, black, with the first joint rufous: two obtuse spines on each side the thorax: thighs ferruginous: shanks brown.

VELUTINUS. Thorax spinous and blackish, with a deep black stripe. Fabr. The antennæ of this insect are of a moderate length: the body black; wing-cases obtuse; with the dorsal stripe velvety; posterior shanks compressed, and spinous at the apex. This kind inhabits America. Dr. Schulz.

SERICEUS. Thorax spinous, body black and silky: suture and stripe on the wing-cases greenish: thighs rufous. Fabr. This insect inhabits South America. The antennæ are black; head and thorax deep black, velvety, and spotted with shining green.

SUTURALIS. Thorax spinous; body black; suture of the wing-cases, and stripe in the middle golden. Fabr. Olivier, &c.

Described by Fabricius from the Hunterian cabinet. It inhabits South America. The abdomen is black, beneath bluish and glossy; legs black; thighs clavated; posterior thighs and shanks compressed.

ELEGANS. Thorax spinous, and, with the head, brassy green and glossy; wing-cases dusky; antennæ long and rufous; legs rufous. Fabr. Inhabits America. The antennæ in this species are twice the length of the body.

LATIPES. Thorax spinous, depressed; body greenish; wing-cases cupreous; shanks dilated and compressed. Fabr. Inhabits the Cape of Good Hope.

LONGIPES. Thorax somewhat spinous, azure; body green; antennæ twice the length of the body; thighs clavated. *Saperda longipes*. Fabr. Mant. *Cerambyx longipes*. Fabr. Ent. Syst. *Cerambyx fusiformis*. Degeer. A native of the Cape of Good Hope. The antennæ are of a blue colour, dusky at the tip; legs long, and of an azure colour.

INTERRUPTUS. Thorax spinous, deep black; wing-cases with three linear white spots; antennæ short. Fabr.

Described by Fabricius from the museum of Olivier. The antennæ are shorter than the body, which last is black; posterior legs longer than the rest, and with the shanks compressed. Native place unknown.

CERDO. Thorax spinous, rugose, black; wing-cases rounded; antennæ long. *Cerambyx Cerdus*. Linn. Inhabits Europe.

HEROS. Thorax spinous, rugose, black; wing-cases somewhat spinous, and pitchy; antennæ long. Geoffr. &c. Found on the oak in Europe.

SPINICORNIS. Thorax somewhat spinous, and black; wing-cases greenish with spinous tips. Fabr.

This insect is described by Olivier, under the name of *Cerambyx torridus*. It inhabits Africa. The antennæ are long and black, with the third, fourth, fifth, and sixth joint spinous at the tip; thorax black, with three tubercles on each side, the lateral ones obtuse; legs black; thighs clavated.

ATER. Thorax somewhat spinous, black; antennæ moderate, and annulated with rufous and black. Fabr. Olivier, &c. Inhabits the Cape of Good Hope. This is much less than the last mentioned species. The body is black; breast cinereous and glossy; legs black; thighs at the base reddish; posterior legs long.

BATUS. Thorax rugose and somewhat spinous; wing-cases spinous at the apex; antennæ long, with hooked spines. *Cerambyx Batus*. Linn. Inhabits South America.

FERRUGINEUS. Thorax armed with sharp spines, rugose

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gose and black; wing-cases ferruginous; antennæ long. *Cerambyx ferrugineus*. Linn. Inhabits the East Indies, *Cerambyx gigas* of the Fabrician Mantissa.

ALPINUS. Thorax spinous; band, and four spots on the wing-cases, black; antennæ long. Linn. Found in some parts of Europe, not hitherto discovered in England. Its size is rather less than that of *Cerambyx Mofchatus*, or Musk Beetle.

SCALARIS. Thorax spinous and fuscous, with a white longitudinal line; antennæ long. Fabr. A native of South America, described by Fabricius from the Banksian cabinet. The antennæ are three times the length of the body; head fuscous; orbits of the eyes, and dorsal line white; thorax armed with acute spines, fuscous with a dorsal line of white; wing-cases fuscous with a white dot in the middle and indented suture.

EBULINUS. Thorax spinous, green and brassy; wing-cases testaceous; antennæ short. Fabr. This kind inhabits Africa, and was first described by Fabricius, from a specimen in the collection of Dr. Hunter. The antennæ are ferrated; thorax uneven, and without spots.

MORIO. Thorax furnished with two spines, rugose and black; antennæ long and ferruginous. Fabr. From the same cabinet, as the preceding. This species inhabits Cayenne. The antennæ are twice the length of the body, cylindrical, and ferruginous, with the first and second joint entirely black, and the three next black at the base; thorax rugose, with two spines on each side, the posterior one of which is largest; wing-cases smooth, impressed at the base, and at the tip truncated.

KAHLERI. Thorax spinous, black; wing-cases sanguineous, with a black spot. Linn. Found in the south of Europe, and varies in being sometimes without the black spot on the wing-cases, and sometimes marked with a rufous lateral spot. Wing-cases notched at the extremity.

LUNDII. Thorax spinous, sanguineous; antennæ, tips of the wing-cases, abdomen, and legs black. Fabr.

Described by Fabricius from the cabinet of Lund, who received it from Tranquebar. Size of C. Kahléri. Antennæ short and black; thorax gibbous, spinous, sanguineous, and without spots; scutell black; breast sanguineous; abdomen black, with acute rufous tubercle between the second pair of legs; thighs slightly clavated.

SUCCINCTUS. Thorax rugose, with two spines; wing-cases banded with yellow; antennæ very long and compressed. Linn. Inhabits America and Brasil, and is mentioned by Degeer under the title of *Cerambyx fusco-cafianeus*. Inf. 5. 113, &c.

DESFONTAINII. Thorax spinous, sanguineous, spotted with black; wing-cases sanguineous and black at the tip and base; antennæ very long. Fabr.

In the collection of Desfontaines. This kind inhabits Barbary. The head is black; wing-cases smooth, with a small black spot at the base, and a larger one at the apex; body black and without spots.

STRIATUS. Thorax somewhat spinous, rugose, ferruginous; wing-cases striated with yellow; antennæ long. Olivier. Fabr. &c. Inhabits Cayenne. Described from the Hunterian collection. The antennæ are cylindrical, twice the length of the body, ferruginous, and black at the tips. Head ferruginous with three vertical black dots; thorax rugose, with two spines on each side, and dotted with black; scutell black at the tip; wing-cases ferruginous with four yellow streaks; thighs black at the tips.

RUFIPES. Thorax rufous, and armed with two spines; wing-cases smooth and black; antennæ long. Fabr. A native of South America. The antennæ are longer than

the body, and yellowish, with the tips of the joints ferruginous; posterior thoracic spine largest; wing-cases glabrous, with a large impressed dot at the base; legs yellowish with the tips of the thighs black; abdomen black.

DIMIDIATUS. Thorax armed with two spines, and ruged, yellow with black dots; wing-cases black, yellow at the base; antennæ moderate. Fabr.

The head of this insect is yellow, with three vertical black dots; posterior spine on the thorax largest, and yellow with black dots; wing-cases glabrous, black, with the suture and base yellow; body yellow with half the abdomen black; legs yellow.

BICOLOR. Thorax armed with two spines, tuberculated and ferruginous; lower half of the wing-cases, and the body black. Olivier, &c. Inhabits Cayenne; first described from the cabinet of Von Rohr. The antennæ are moderate, ferruginous at the base, in the middle yellow, and at the extremity fuscous; head ferruginous; throat prominent and acute; a large impressed dot at the base of the wing-cases; legs ferruginous.

DEPRESSUS. Thorax armed with many spines, depressed, black, variegated with cinereous; wing-cases pointed; antennæ long. Olivier, Voet, &c.

The head is black with cinereous villous impressed spots; thorax beset on each side, with about four or five short spines; wing-cases striated; legs black.

FASCIATUS. Thorax spinous, azure; wing-cases banded with yellow; antennæ moderate; yellow, blue at the base and tip. Found in Tranquebar by Dr. Koenig. The antennæ are compressed, and blue; the last four joints but one yellow; the last blue; legs blue, the posterior ones compressed. Olivier, Pallas, &c.

BARBICORNIS. Thorax spinous; four first joints of the antennæ bearded with black; body testaceous, variegated with black. Fabr. This species inhabits the East Indies.

NEBULOSUS. Thorax spinous; wing-cases dotted and striped with black; antennæ long. Linn. Inhabits the trunks of pine trees in Europe, and is found in England. Donov. Brit. Inf. Length half an inch.

OBSCURUS. Thorax spinous, villous and fulvous; wing-cases black, with a villous fulvous spot behind; antennæ moderate. Fabr.

Size of the preceding; antennæ length of the body; wing-cases somewhat scabrous; legs black with yellowish shanks. Inhabits the Cape of Good Hope. Lund.

GRISEUS. Thorax spinous and fuscous; wing-cases smooth with grey bands dotted with black; antennæ very long. Fabr.

This species inhabits Germany (Loewenskiold.) It bears a great resemblance to *Cerambyx Nebulosus* but is larger, and has the antennæ three times the length of the body. The head and thorax are fuscous, very slightly spotted; wing-cases with a dusky band at the base, and another in the middle, and also the tip cinereous dotted with black; body cinereous; thighs dotted with black; shanks black at the tip.

COSTATUS. Thorax spinous, grey; wing-cases with elevated lines dotted with black and at the tips fuscous; antennæ very long. Fabr.

Size of the last. The antennæ twice the length of the body, black, with the joints whitish at the base, head and thorax grey, the latter armed with a single spine; wing-cases grey at the base with four elevated lines; legs grey.

HISPIDUS. Thorax spinous; wing-cases whitish at the base, and bidentated at the tip; antennæ of moderate size and hairy. Linn. *Le capricorne à étuis dentelés*. Geoffr. *Cerambyx fasciculatus*. Degeer. Inhabits Europe, and is found

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found in England. Donov. Brit. Inf. This insect is small, the general colour cinereous, sprinkled with black dots, and banded across the middle of the wing-cases with white.

FASCICULATUS. Thorax spinous; wing-cases entire, with three hairy dots; antennæ moderate and hairy. Panzer, Hybner &c. Inhabits Germany. The head and thorax of this species are fuscous; wing-cases pale at the base; legs grey.

PILOSUS. Thorax armed with two spines; wing-cases grey with a single tooth at the tip; antennæ moderate and hairy. Olivier.

This kind is found in Saxony. Hybner. It is smaller than *Cerambyx hispidus*; wing-cases grey, palest at the base.

BALTEATUS. Thorax slightly spined, and brown; wing-cases banded with fuscous. Linn. Inhabits Portugal.

RUGICOLLIS. Thorax unarmed, very rough and black; antennæ moderate, and with the legs pitchy. Fabr. Inhabits Tranquebar, (Hybner.) The antennæ are compressed: wing-cases black, obtuse at the tip, and nearly truncated; legs pitchy.

BIMACULATUS. Thorax unarmed and rufous; wing-cases testaceous with a black spot; antennæ short. Fabr. Found in the East Indies. This is of the middle size; the antennæ are villous, rufous, and shorter than the body; head and thorax villous, rufous and immaculate; thorax tuberculated, and very slightly spinous; wing-cases dotted; legs testaceous. Muf. Lund.

SPLENDIDUS. Thorax somewhat spinous and rufous; wing-cases testaceous, black-blue at the base; antennæ short. Fabr.

Described from the cabinet of Lund. The species inhabits Tranquebar. It resembles *C. bimaculatus*; the antennæ are rufous at the base, testaceous in the middle, and brown at the tip; head punctured, rufous, and without spots; thorax rounded, dotted and armed with a small short, obtuse spine on each side; wing-cases with three smooth elevated striæ; body villous; abdomen rufous, with a prominent tooth beneath, and correspondent lateral groove in the thorax; legs rufous.

LONGICORNIS. Thorax unarmed; back flat; body varied with grey and fuscous; antennæ very long. Fabr.

Inhabits the coast of Coromandel. Antennæ thrice the length of the body; black, the joints cinereous at the base; head cinereous, base and lateral line black; thorax flat above, and much impressed, brown and cinereous varied; wing-cases with punctured striæ; body cinereous. From the Bankian cabinet.

MARGINALIS. Thorax unarmed; wing-cases somewhat testaceous, and surrounded with a black margin. Fabr. A native of the Cape of Good Hope. Antennæ moderate, and pitchy; head brown; thorax ovate, fuscous, bordered behind and in front with black; wing-cases smooth; legs blackish.

BREVICORNIS. Thorax unarmed, green; wing-cases dusky; antennæ short and black. Olivier &c. From the Bankian cabinet.

Obs. The head is green; antennæ compressed; thorax dotted, green and shining; wing-cases smooth, and greenish; legs black, thighs clavated; the four anterior ones rufous, posterior greenish.

JUVENCUS. Thorax unarmed, and rugose; wing-cases pointed, black, with hoary down; antennæ very long. Linn. Inhabits America.

HOLOSERICUS. Thorax unarmed, rugose, griseous; wing-cases armed with a single tooth, silky, with a brown and cinereous hue; antennæ moderate. Fabr.

Inhabits the East Indies. Head grey; body beneath shining. Olivier &c.

CINEREUS. Thorax unarmed, and somewhat rugose, cinereous and without spots. Fabr. From the cabinet of Lund. This is a native of Tranquebar.

Genus PRIONUS.

Antennæ setaceous; eyes reniform, embracing the base of the antennæ; thorax flat, and marginate, the margin oftentimes dentated; body oblong, and depressed. Donov. Inf. N. Holland.

Genus PRIONUS. Feelers four; filiform; jaw cylindrical and entire; lip short and membranaceous; antennæ setaceous. Fabr.

P. LONGIMANUS. Thorax armed with moveable spines; wing-cases with a single tooth at the base, and bidentated at the tip; antennæ and fore legs very long. Fabr. *Cerambyx Longimanus* Linn. This is an insect of large size, the body exceeding three inches in length, and having the antennæ, and first pair of legs remarkably long in proportion; the colour is pale whitish grey varied with yellow and orange, and a number of black interrupted lines. It is a beautiful species, and inhabits South America.

LEPIDOPTERUS. Pitchy, rufous; wing-cases with grey villous spots and three elevated longitudinal lines; base gibbous, tip truncated. Donov. Inf. N. Holland. *Prionus lepidopterus*. Transf. Linn. Soc.

This insect is of a large size; the species is named *Lepidopterus* from the villous spots on the wing-cases, which, when attentively examined, appear clothed with a sort of scaly down, or feathering, most exactly resembling that which we observe on the wings of lepidopterous insects.

FASCIATUS. Thorax somewhat marginated, and unarmed; black, downy; wing-cases chestnut clouded with yellow, and rounded at the tip, with four elevated lines. Donov. Inf. N. Holland. A new species lately discovered in New South Wales.

FULIGINOSUS. Thorax with crenated margin, armed with one tooth, and marked with an impressed dorsal line; wing-cases with crenated teeth at the tip. Fabr.

Described from a specimen in the British Museum, received from America.

ROSTRATUS. Thorax marginated, armed with one tooth and rufous; jaws inflected and acute; sternum spinous. Fabr.

This species, which is very large, inhabits Siam. The head is black, and grooved; antennæ shorter than the body, the last joint much serrated; thorax glabrous; wing-cases black and obtuse; breast and legs rufous.

BIDENTATUS. Thorax somewhat marginated, unarmed, black and downy; wing-cases chestnut, clouded with yellow, and bidentated at the apex, with four elevated lines. Donov. Inf. N. Holland.

LINEATUS. Thorax with crenated margin, and a single lateral tooth on each side; black, striped with white; wing-cases crenated with teeth at the apex. Fabr. *Cerambyx lineatus*. Linn. This species inhabits America.

NITIDUS. Thorax with crenated margin and single lateral tooth each side; brassy azure; wing-cases coppery. Fabr. Described from the Hunterian Museum. Inhabits Brasil. The antennæ are long and blue; head grooved, and brassy green; wing-cases punctured, and obtuse; abdomen brassy-green.

FABER. Thorax marginated with a single spine on each side; wing-cases pitchy; antennæ moderate. Fabr. *Cerambyx Faber*. Linn. Schæffer &c. This is a rare species and inhabits Europe; the thorax of the male has the crenated edges, but is destitute of the tooth.

MUCRONATUS. Thorax marginated, and bidentated; wing-

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wing-cafes mucronated and rufous. Fabr. Inhabits America. The front is retufe; antennæ short and compreffed; thorax with two tubercles on the back; wing-cafes velvety and pointed.

DEPSARIUS. Thorax fomewhat margined, armed with a fingle tooth, and downy; body blackifh; antennæ short and red. Fabr.

Defcribed from a Swedifh infect in the cabinet of Zfchuck. It is the *Cerambyx depfarius* of Linn.

SCABRICORNIS. Thorax fomewhat margined, and armed with a fingle tooth; fomewhat villous, blackifh with fufcous wing-cafes, and two elevated lines; antennæ moderate. Fabr. *Cerambyx fcaabricornis*, Olivier, and Fœfl. *Prionus fcaabricornis* of Scopoli. *Leptura* Geoffroy. A native of the fouthern parts of Europe; the body is very narrow; thorax very flightly margined, and in one fex nearly unarmed.

ARCUATUS. Thorax bidentated; teeth arched and black; wing-cafes obtufe and teftaceous. Fabr. Inhabits Van Diemen's land. Defcribed from the Bankfian Mufæum.

MACULATUS. Thorax margined and three-toothed; black; wing-cafes with cinereous fpoth. Fabr.

A native of Senegal, defcribed from a fpecimen in the mufæum of the late king of France. This is a large fpecies; the jaws are exferted and dentated; antennæ length of the body and black; thorax armed with three fharp fpires; wing-cafes much variegated with grey. Muf. Donovan.

CERVICORNIS. Thorax margined, with three teeth each fide; jaws advanced and armed outwardly with a fingle spine; antennæ fhort. Fabr. *Cerambyx cervicornis*. Linn.

This infect is an inhabitant of America; the larva is eaten by the Indians, and is efteemed a delicacy.

SPINICORNIS. Thorax armed on each fide with three teeth; black, glossy; antennæ fhort; exterior joint fpinous at the tip. Fabr. Native country unknown. Muf. Brit. Obf. This does not appear diftinct from *Prionus buphtalmus* of the fame author, and *Huffarus Ceylonenfis* of Voet. Fabricius defcribes both fpecifically in the fame words "Thorace utrinque tridentato ater nitidus, antennis brevibus; articulis ultimis apice fpinofis."

CORIARIUS. Thorax margined, with three teeth; body pitchy; antennæ fhort. *Cerambyx coriarius*. Linn. *Le Prionus*. Geoffr. *Cerambyx Prionus*. Degeer.

This is an European infect, and is rarely found in England. Donovan. Brit. Inf. Lives in the trunks of decayed trees. Fabricius fuppofes the *Cerambyx imbricornis* of Linnæus (Syst. Nat. 2. 624. 5.) to be only a variety of this infect, and entertains a fimilar opinion with regard to the *Lucanus tridentatus* of Linnæus. Syst. Nat. 2. 560. 3.

GIGANTEUS. Thorax armed with two teeth on each fide; body black; wing-cafes ferruginous; antennæ fhort. Fabr.

The Fabrician *Prionus giganteus* is *Cerambyx giganteus* of the Linnæan mantiffa; this kind is of a large fize, as its name implies, and inhabits Cayenne.

CYLINDRICUS. Thorax margined, three-toothed, and dusky; breaft and abdomen ferruginous; antennæ fhort. Fabr.

This is the *Cerambyx unicolor* of Drury; inhabits North America. Blackburn. The antennæ are compreffed; head and thorax black; wing-cafes pitchy.

ARMILLATUS. Thorax margined, with four fpires on each fide; wing-cafes ferruginous with black margin. Fabr.

This is of a very large fize, and inhabits India. It is the *Cerambyx armillatus* of Linnæus. The front is retufe; jaws

emarginate; thorax rufous at the fides; wing-cafes pointed at the tip.

LUZONUM. Thorax margined with many fpires; jaws advanced, armed with a fingle tooth, and bifid apex; anterior legs elongated. Fabr. A native of South America, defcribed by Petiver. The antennæ are of moderate length, and black, with the fecond, third, fourth, and fifth joints muricated beneath; thorax black, ciliated at the edge with twelve fpires; wing-cafes mucronate, pale ferruginous, and flightly punctured at the bafe; anterior legs rough and prickly beneath.

SERRIPES. Thorax margined, with many fpires; jaws advanced, and tridentated at the tip; legs fpinous and ferated. Fabr. A native of Africa.

DAMICORNIS. Thorax margined, and denticulated; jaws advanced, bidentated; antennæ fhort. Fabr.

This is *Cerambyx damicornis* of Linnæus (Mant. 532.). It inhabits America; and the larva is eaten.

BIFASCIATUS. Thorax margined and denticulated; body black; wing-cafes red, with two black bands; antennæ fhort. Linn. Inhabits America, and is the *Cerambyx bifafciatus* of Linnæus.

THOMÆ. Thorax with crenulated margin; body black; wing-cafes glabrous and ferruginous; margin pale yellow. Fabr. *Cerambyx Thomæ*. Aëta. Soc. Berol. This is a native of the ifle of St. Thomas in America; wing-cafes rounded at the tip.

BILINEATUS. Thorax with crenated margin and two white lines; wing-cafes ferruginous with yellow margin and fpeckled with white. Fabr. Inhabits America. Muf. von Rohr.

SPINIBARBIS. Thorax with crenated margin; head fpinous below the jaws, which laft are armed with three teeth. *Cerambyx spinibarbis*. Linn.

This is a native of South America; the jaws are large, thick, three-toothed within, with the tip emarginate.

PALMATUS. Sides of the thorax fcaabrous, with many teeth; pofterior tooth palmated; antennæ fhort. Fabr. Inhabits Guinea. The head is grooved and black; antennæ compreffed and dusky at the tip; thorax flat and glossy; wing-cafes fmooth, piceous, and mucronated on the future at the tip; legs ferrat d within.

MAXILLOSUS. Thorax with crenated margin; jaws advanced, hairy within, and armed with four teeth. Fabr.

This is the *Cerambyx maxillofus* of Drury, and *Prionus maxillefus* of Olivier. It inhabits South America. The colour is glossy black.

CANALICULATUS. Thorax with crenated margin and a villous white groove down the back; antennæ fhort. Fabr. Muf. Hunter, and Donovan. A native of the American iflands. The antennæ are fhort, compreffed, and black; head without fpoth; fcutel white and villous; wing-cafes rather rough; legs black.

CINNAMOMEUS. Thorax with denticulated margin; jaws advanced and armed with three teeth. Fabr. *Cerambyx cinnamomeus*. Linn. Inhabits South America.

MELANOPUS. Thorax with denticulated margin; jaws advanced and armed with many teeth; wing-cafes mucronated. Fabr. *Cerambyx melanopus*. Linn. *Cerambyx crenulatus*. Drury. From the fame country as the laft.

SPINOSUS. Thorax armed with many teeth, and black; wing-cafes teftaceous and one-toothed. Fabr. Inhabits Tranquebar. Mus. Hybner.

The head of this infect is grooved; the antennæ fhort, compreffed, and black; thorax very flightly margined, cinereous-downy beneath; back grooved.

BARBATUS.

CERAMBYX.

BARBATUS. Thorax with entire margin; jaws ferruginous, very hirsute; antennæ moderate. Fabr.

Described from the Banksian cabinet as a native of South America. The antennæ are rough, the last joint compressed and smooth; wing-cases piceous, abdomen villous and white; legs black.

PECTINICORNIS. Thorax unarmed, testaceous; antennæ short and pectinated. Olivier.

This inhabits Senegal. The antennæ are shorter than the body, and greatly pectinated; jaws exerted, with a single tooth in the middle.

Genus LAMIA.

Antennæ fetaceous and elongated; head large, obtuse, declining; eyes reniform, and embracing the base of the antennæ; thorax cylindrical and uneven; wing-cases as long as the abdomen; body cylindrical. Donovan. Inf. N. Holland.

Genus LAMIA. Feelers four, filiform; jaw horny, and bifid; lip cleft and horny; antennæ fetaceous. Fabr.

VERMICULARIA. Thorax somewhat tuberculated, black; wing-cases speckled with numerous minute white vermicular characters. Donovan. Inf. N. Holland.

Lamia vermicularia is a new species lately discovered in New South Wales, and described among the insects of New Holland. It is of the middle size, and entirely black, except the vermicular marks.

OBLIQUA. Thorax dentated, cinereous; wing-cases spinous, emarginate at the tip, and marked obliquely behind with a whitish band. Donovan. Inf. N. Holland.

This is a small but elegant species, general colour pale testaceous and whitish varied with brown, and beset with numerous small denticulations.

GIGAS. Thorax armed with sharp spines, and rugged; wing-cases cinereous, with a black marginal spot, rough with two tubercles at the base; antennæ long. Fabr. Oliv. &c. Mus. Bankf.

This insect, which is of a large size, inhabits the coast of Guinea. The antennæ are twice the length of the body, and pale testaceous; body brown; second pair of shanks armed with a single tooth.

TRIBULUS. Thorax four-spined; scutellum and wing-cases spinous; antennæ longer than the body. Fabr.

Found on the banks of the river Gaboon in Africa. Mus. Donovan. &c. The antennæ are longer than the body, brown, with the base of the joints cinereous; head and thorax brown and cinereous varied; spines on the scutellum two, and short; wing-cases same as the thorax, and pointed at the tip with a short denticle; a small tubercle at the end of the middle shanks of the legs.

PEDICORNIS. Thorax and wing-cases spinous; anterior thighs cornuted. Fabr.

Described from the Banksian cabinet. This is a native of New Holland. The colour of the head grey; antennæ villous and moderate; thorax grey, rounded, with six dorsal erect spines; wing-cases grey, with lunate, marginal, cinereous spot and band in the middle, and at the base many erect black spines; horn on the anterior thighs long, sharp and curved.

FRONTICORNIS. Thorax spinous; a projecting recurved notched horn in front; antennæ long. Fabr. *Cerambyx 2-punctatus*. Drury. Inf. Inhabits the Cape. The antennæ are long, and brown, and have the joints black at the tips; head brown, with black mandibles; thorax spinous, rather rugged, brown with a broad white line on each side beneath; wing-cases brown, with a few elevated dots at the base, two ocellated black spots in the middle, and a larger whitish one behind; abdomen and legs fuscous.

HYSTRIX. Thorax armed with five spines; wing-cases with tufts of hairs; antennæ moderate and ferrated. Olivier, Fabr. &c.

This insect is a native of the Cape of Good Hope. The antennæ are hairy, deeply ferrated towards the extremity, testaceous with the joints rufous at the tips; two raised tubercles before the middle spine on the thorax; wing-cases varied with flesh colour and brown; body small and cinereous.

CRISTA. Thorax armed with sharp spines, grey; wing-cases with a compressed tridentate tubercle at the base. Fabr.

Discovered in New Zealand by Sir Joseph Banks. The antennæ are very little longer than the body, cinereous, the joints tipped with black; on each side below the lateral spine a fulvous dot; a small oblique black line on the posterior part of the wing-cases; thighs clavated and black, the club grey; shanks grey with black tips.

AMBULATOR. Anterior part of the thorax furnished with two spines on each side; body clouded. Fabr.

Described by Petiver as a native of America. The antennæ are of a moderate length; thorax and wing-cases clouded with chestnut and cinereous.

TEXTOR. Thorax spinous; wing-cases convex and black; antennæ moderate. Fabr. *Cerambyx textor*. Linn. Found in the trunks of trees, and inhabits Europe.

CRUCIFERA. Thorax spinous, black; wing-cases with a cinereous semicircular fillet, and marginal dot; antennæ long. Fabr.

Native country unknown. The body is long, and of a dusky black colour; antennæ twice the length of the body; on each side of the thorax an oblique faint ferruginous line; in the middle of the exterior margin of the wing-cases a small dot; legs blackish.

VAGINATOR. Thorax spinous, rugged, and black; wing-cases ferruginous and emarginate; antennæ moderate. Fabr. Inhabits the East Indies. Lund. The antennæ are compressed and ferruginous, scutellum cinereous, and villous; wing-cases smooth, ferruginous, gibbous at the base, with emarginate tips; beneath cinereous and villous.

PULCHRA. Thorax spinous, black with green dots on the anterior part and dots behind; wing-cases mucronated at the base. Fabr. *Cerambyx pulcher*. Drury.

The antennæ are rather longer than the body, and black; head black with three green stripes, those on the side encircling the eyes; wing-cases punctured with two elevated truncated denticles; body varied with black and green; length two inches; inhabits Africa.

REGALIS. Thorax spinous, fasciated with green; wing-cases speckled with green, and three fulvous spots on each. Fabr. &c.

This is a species of considerable beauty, and in size and general appearance bears a strong resemblance to the last; and it also inhabits the same country. The antennæ are longer than the body and black; head black, lineated with green, and marked beneath each eye with a fulvous spot; thorax black, with three impressed green bands; wing-cases somewhat striated, and black; body green beneath; on each side of the abdomen a row of fulvous dots.

UNDATA. Thorax unarmed, cinereous; a black waved band on the thorax and two on the wing-cases. Fabr. *Cerambyx undatus*. Gmel.

Native country unknown. Size of the *L. regalis*. Antennæ longer than the thorax, and black.

IRRORATA. Thorax spinous, fuscous and ferruginous varied; wing-cases black, speckled with ferruginous; antennæ moderate. Fabr. Voet. &c. *Cerambyx irroratus*. Gmel. Inhabits the East Indies. Antennæ moderate, greyish;

ish; head fuscous, and ferruginous; mandibles black and glossy; scutell ferruginous; wing-cases pointed at the tip.

ÆDILIS. Thorax spinous; with four yellow spots; wing-cases obtuse, grey and brown varied; antennæ very long. *Lamia ædilis.* Fabr. Paykull, &c. *Cerambyx ædilis.* Linn. Gmel. &c.

Found in the trunks of trees in the northern parts of Europe, and is found, though rarely, in England. *Donov. Brit. Inf. p. 72.* The antennæ are rather more than three times the length of the body, measuring about three inches, the body better than three fourths of an inch. This species is most frequent in Germany.

ATOMARIA. Thorax spinous, tuberculated, and cinereous; wing-cases fuscous varied and rough, with black elevated dots; antennæ long. Fabr. *Cerambyx atomarius.* Gmel.

According to Smidt this insect inhabits Germany. It resembles *ædilis*, but it is rather smaller. The antennæ as long as the body, cinereous and black varied; thorax spinous, with four tubercles on the back; wing-cases with four raised lines meeting behind, and sprinkled with black dots; body cinereous, speckled with black.

VARIA. Thorax spinous, and tuberculated; body varied with black and cinereous; thighs clavated; antennæ moderate. Fabr. Inhabits the south of Europe. *Zschuck. Cerambyx varius.* Gmel.

The antennæ are cinereous annulated with black; head brown; wing-cases rounded; body dark brown beneath; shanks black annulated with cinereous.

ARANEIFORMIS. Thorax spinous and tuberculated; wing-cases porous; antennæ long, with a single tooth on the fifth joint. Linn. Sloane, &c. Inhabits South America.

PUNCTATA. Thorax spinous, fuscous, with white dots. Olivier. *Cerambyx punctatus.* Gmel. A native of Cayenne. Antennæ of moderate length, and black; head black, with two white dots above the lip, and two others placed vertically; thorax tuberculate, with two larger marginal white dots, and two smaller dorsal ones; wing-cases black speckled with white. Resembles *lamia ædilis*.

CANCRIFORMIS. Thorax beset with many denticulations; back flat; wing-cases and anterior shanks with a single tooth. Fabr. *Cerambyx pustulatus.* Drury. Inhabits Jamaica. The antennæ are long; the first joint one-toothed at the tip; thorax cinereous, with five or six small teeth on the margin disposed in two series; wing-cases cinereous, sprinkled with brown elevated dots; thighs clavated.

NODOSA. Thorax spinous; wing-cases cinereous, with black spots; antennæ very long, with the third joint gibbous at the tip. Fabr. *Cerambyx nodosus.* Gmel.

Described from a specimen in the British Museum, received from Maryland. The antennæ are four times the length of the thorax; wing-cases flat, rounded, and dotted at the base.

TUBERCULATA. Thorax spinous and tuberculated; wing-cases dotted and spined; antennæ long. Fabr. Olivier, &c. *Cerambyx tuberculatus.* Gmel.

Fabricius refers for this species to the Hunterian Museum. It inhabits Jamaica. The body is grey, with an angulated white band on the wing-cases; antennæ fuscous, the joints cinereous at the tips; jaws black; thorax rough, with numerous elevated obtuse dots; wing-cases beset with many spines, which are sharp and black; legs black, the shanks with a white annulation.

HEBRÆA. Thorax armed with a sharp tooth, and bicarinated on the back; wing-cases cinereous, striated, and spotted with fuscous. Fabr. *Cerambyx hebraeus.* Gmel.

Found in South America. Antennæ short and black. Thorax cinereous, with a thick and sharp spine on each side; two elevated lines on the back, black and glabrous; wing-cases rounded, cinereous, with the future and three striae brown, and between them numerous spots; legs cinereous. Cabinet of Dr. Hunter.

HORRIDA. Thorax acutely spined, cinereous; wing-cases spinous; antennæ long. Fabr. *Cerambyx horridus.* Olivier. Inhabits Cayenne, and is rare. *Mus. Donov.* The antennæ are long, greyish, with the joints black at the tip; thorax greyish, with a thick, somewhat bent, and sharp-pointed spine; wing-cases spinous and grey.

SCORPIO. Thorax armed with four spines; wing-cases with granulated tubercles; anterior shanks dilated at the tip. Fabr. *Cerambyx scorpio.* Fabr. Mant. &c. Inhabits South America. Antennæ short, cinereous, with the joints black at the tip; thorax cinereous, the four spines on the thorax black at the tip; wing-cases cinereous, veined, with black granulated tubercles; legs short.

GLAUCA. Thorax armed with five spines, and glaucous; wing-cases muricated, the sides and band black; antennæ long. Fabr. *Cerambyx glaucus.* Linn. Degeer, &c. This species inhabits America.

Obf. The extremities of the wing-cases are furnished each with a single tooth.

BIDENTATUS. Thorax somewhat spinous; wing-cases bidentated, rough, cinereous, varied with fuscous. Fabr. *Cerambyx bidentatus.* Mant. Gmel. &c. Inhabits America. The antennæ are long; thorax unequal, and armed on each side with an obtuse spine; wing-cases rough, with acute elevated dots; thighs clubbed.

SCABRA. Thorax spinous, and armed with three tubercles; wing-cases scabrous, with bidentated tip; antennæ very long. Fabr. Olivier, &c. *Cerambyx scaber.* Gmel. &c.

Described by Fabricius from a specimen in the British Museum. The antennæ testaceous, at the base of the tip cinereous; wing-cases testaceous at the base, with elevated glabrous dots; body cinereous; thighs clavated.

PRÆMORSA. Thorax tuberculated; wing-cases dotted, cinereous, tip fuscous and bidentated; antennæ long. Fabr. *Cerambyx præmorsus.* Gmel. &c. Inhabits Guadeloupe. Cabinet of de Badier. One of the smallest insects in the lamia family. Antennæ twice the length of the body; thorax cinereous, with three dorsal tubercles, and two black spots on each side at the base; a few elevated dots on the wing-cases; thighs clavated.

SPINIFERA. Thorax spinous, cinereous, and villous; wing-cases bidentated, and testaceous; antennæ long. Fabr. *Cerambyx spinifer.* Gmel.

This is about the middle size. Antennæ longer than the body, and dusky grey; scutell yellowish; wing-cases smooth; body villous and grey. Inhabits South America. *Mus. D. Pflug.*

GRISATOR. Thorax unarmed, and greyish; two tubercles at the base of the wing-cases; apex spinous; antennæ short and villous. Fabr. Inhabits Tranquebar. *Schlanbusch.*

ÆDIFICATOR. Thorax spinous and tuberculated; cinereous; wing-cases with two tubercles at the base; antennæ moderate. Fabr. Inhabits the East Indies. *Mus. Lund.*

AMPUTATOR. Thorax spinous; wing-cases cinereous, sprinkled with black, and numerous testaceous spots. Fabr. Inhabits the American islands, and is reported to gnaw round and cut off the larger branches of trees.

STERNUTATOR. Thorax spinous; wing-cases porous at the

the base; antennæ moderate. Fabr. A native of Barbadoes. Drury.

Obs. The antennæ are blackish, the extreme joint acute; thorax unequal; wing-cafes obtuse and black; beneath covered with yellow hair.

SPINATOR. Thorax spinous, and, with the base of the wing-cafes, finely wrought; apex grey; antennæ moderate. Fabr. Inhabits the Cape of Good Hope. Mus. Lund.

GUTTATOR. Thorax spinous; wing-cafes testaceous, sprinkled with white; base with elevated glabrous spots. Fabr. Olivier, &c. *Cerambyx guttator*. Gmel.

An African insect, described from the British Museum. The head is testaceous, marked with a black longitudinal line; thorax testaceous, with a transverse ridge in the middle; wing-cafes obtuse, speckled with yellow, and a few elevated red dots at the base.

REPANDATOR. Thorax spinous, dusky; wing-cafes with a whitish serpentine band behind, and elevated black dots at the base. Fabr. *Cerambyx repandator*. Gmel. A native of Cayenne.

NEBULOSA. Thorax unarmed, ferruginous, lineated with black; wing-cafes varied with fuscous and ferruginous, and a marginal cinereous spot; antennæ moderate. Fabr. &c. Inhabits Europe, and is found in England. *Cerambyx nebulator*.

VARIOLATOR. Thorax spinous and lineated; wing-cafes fuscous, with a semicircular white line. Fabr. Inhabits the Indies. Antennæ longer than the body; thorax fuscous, with white dorsal and lateral line.

SUTOR. Thorax spinous; wing-cafes black, with ferruginous spots; scutell pale yellow; antennæ very long. Fabr. *Cerambyx sutor*. Linn. *Cerambyx atomarius*. De Geer. Inhabits the woods of Europe. The species has been found in England, according to Harris; (Vide Donov. Brit. Inf. &c.) but is very rare.

SARTOR. Thorax spinous, black, with yellow scutell; wing-cafes immaculate; antennæ very long. Fabr.

This resembles the last, but is larger, and has the front between the antennæ, deeply grooved. Found by Zischuck on the horse-chestnut, &c. in the vicinity of Dresden.

DENTATOR. Thorax spinous, varied with fuscous, and cinereous. Fabr.

This resembles *lania sutor*, and inhabits Carolina. The antennæ are thrice the length of the body, and of a ferruginous colour, but black at the base.

RETICULATOR. Thorax spinous, black; thorax fulvous, and lineated with black; wing-cafes fulvous and reticulated with black. Olivier. Donov. Inf. China, &c. This very rare species inhabits China, and the bordering parts of India. The body is black, and without spots; antennæ of moderate length, and ferruginous, the first joint at the base black, the second gibbous at the base and tip, villous and black. Length of the body about an inch and an half.

SCALATOR. Thorax armed with acute spines, and black; wing-cafes with numerous interrupted white lines; antennæ moderate. Fabr. A native of Louisiana. Size of the last. The head is black; band above the shield and orbits white; sides of the thorax and two broad lines white; shells black and glossy, the edge and future ramifying into numerous interrupted streaks; body cinereous and downy.

MOLATOR. Thorax somewhat spinous, dusky, cinereous, with fuscous spots; wing-cafes rufous at the tip. Fabr. Inhabits Cayenne. The antennæ are of moderate size and fuscous; head cinereous, rufous in front; thorax rufous on the anterior and posterior margins; wing-cafes obtuse; abdomen pale, rufous.

TITILLATOR. Thorax spinous; wing-cafes cinereous,

clouded with glaucous, and brown; antennæ very long and rufous. Fabr. This is a native of Carolina. The antennæ are red, with the first joint fuscous; on the anterior part of the thorax two very small tubercles; wing-cafes punctured, cinereous, with irregular brown and glaucous spots; shanks of the legs rufous, the second pair with a slight gibbosity.

VITTATOR. Thorax spinous; wing-cafes cinereous, and finely speckled or powdered, with two yellow stripes, and black margin. Fabr.

This is the *Cerambyx incanus* of Forster, Nov. Sp. It is described by Olivier and Pétiver, and has been found on the shores of Campeachy. The antennæ are of moderate size, varied with cinereous and fuscous; head cinereous, powdery, with two glossy black lines; thorax cinereous, with three glossy, black, longitudinal lines; wing-cafes with a few black spots at the base.

OCULATOR. Thorax spinous, black; wing-cafes with four subocellated spots; antennæ long. Fabr. *Cerambyx oculatus*. Degeer. Inhabits the Cape of Good Hope. Thorax marked before and behind with two very thin, yellow, impressed lines; wing-cafes somewhat striated, with four yellow spots encircled by a white ring, that nearest the base large and rounded, the second placed near the exterior margin, the third in the middle, and the fourth near the tip. This is an insect of large size, and very beautiful.

CAPENSIS. Thorax armed with two spines, black; wing-cafes with four rufous bands; antennæ moderate. Fabr. *Cerambyx capensis*. Linn. This, as its name implies, is a native of the Cape of Good Hope.

HOTTENTOTTA. Thorax spinous and rufous; wing-cafes black, with a band and two marginal spots, sanguineous. Fabr. *Cerambyx hottentottus*. Gmel. *Cerambyx hottentotta*. Brown's Illust. The antennæ are moderate; thorax scabrous, dusky, rufous; wing-cafes with a brassy tinge; legs black.

FERRUGATOR. Thorax spinous, dusky, ferruginous; wing-cafes dusky, greenish, with an interrupted sanguineous stripe; antennæ long. Fabr.

Described from the cabinet of Spengler as an inhabitant of the Cape of Good Hope. The antennæ are black; thorax somewhat rugged, with a small denticulation on each side; wing-cafes punctured, dusky, greenish, and glossy; exterior margin sanguineous; head, body, and legs ferruginous, the latter with black tarsi, and the shanks of the middle legs slightly toothed outwardly.

HUMERALIS. Thorax spinous; wing-cafes yellow, fasciated with black, and mucronated anteriorly. Fabr.

This elegant species is described by Fabricius from a specimen in the cabinet of the late Mr. Drury, now in Mus. Donov. The native country is unknown, but supposed to be South America. The antennæ are longer than the body, and black; head yellow, with four black lines; thorax yellow, with three black bands; the base emarginate at each side; wing-cafes yellow, with confluent bands; sternum advanced, and bidentated at the tip.

BIFASCIATA. Thorax spinous, and sinuate behind; wing-cafes yellow, with two bands and rhombic spot of blue. Fabr. Inhabits Jamaica. Mus. Brit. The antennæ are rather longer than the body, and black; head yellow, with the orbits of the eye blue; thorax yellow, with blue posterior band; scutell at the base and tip blue; legs pale yellow, with blue thighs.

TRIFASCIATA. Thorax somewhat spinous, black; three yellow bands on the wing-cafes; antennæ moderate. Fabr. *Cerambyx trifasciatus*. Gmel. The thorax slightly tuberculated on each side; yellow bands on the wing-cafes broad; legs black, the shanks of the middle ones tuberculated at the tip.

tip. This is a native of Sierra Leona. Herbst. Olivier, &c.

5-FASCIATA. Thorax armed with two spines, and black; wing-cafes with five red bands; antennæ moderate. Fabr. Inhabits the coast of Guinea. Mus. Dr. Isert. The antennæ of this species are black; thorax scabrous, black, with short spines on each side; wing-cafes scabrous at the base; body black.

NOBILIS. Thorax spinous and black; margin yellow; wing-cafes black, with three yellow bands, and two white dots. Fabr. A native of Cayenne. The antennæ are of moderate length, and black; head black, with yellow frontal spots, and two dots between the eyes; thorax velvety, black with yellow margin, and white at the base; spine near the base black; wing-cafes velvety, black, with an interrupted yellow band at the base, the middle band sinuate, that at the tip abbreviated; the two white dots situated between the second and third band.

CURCULIONOIDES. Thorax unarmed, fuscous, with four black ocellated spots on the thorax and body. Fabr. *Cerambyx curculionoides*. Linn. Inhabits the south of Europe. Geoffr. Schæffer, &c.

AETHIOPS. Thorax spinous, black; wing-cafes with two yellow bands and a dot at the tip; antennæ moderate. Fabr.

The antennæ are black; head grooved; thorax rather rough; wing-cafes velvety, black, with two yellow bands; the dot at the tip very small, and sometimes wanting; legs compressed and black. Mus. Brit. Inhabits the Cape of Good Hope.

VARIEGATOR. Thorax spinous and cinereous; thorax and wing-cafes varied with brown; antennæ long. Fabr.

From the Banksian cabinet. Found in Africa. The antennæ are fuscous; head, thorax, and wing-cafes with an intermixture of brown and cinereous; mouth black.

LUSCA. Thorax spinous, rough, black sprinkled with ferruginous; at the base of the wing-cafes a large black ocellar spot; antennæ very long. Fabr. *Cerambyx luscus*. Gmel.

This inhabits Siam. The antennæ are black; head blackish, with a few ferruginous dots; thorax somewhat rough, black, with a series of ferruginous dots on each side; wing-cafes obtuse, and nearly truncated; legs black; shanks of the middle pair armed with a single tooth on the back.

NOTATA. Thorax spinous, dusky, two approximate black dots on the wing-cafes. Fabr. *Cerambyx notatus*. Gmel. &c. Inhabits Cayenne. The antennæ are moderate; body above fuscous, beneath black; a series of impressed dots on the thorax; wing-cafes dotted, and fuscous. Mus. von. Rohr.

LUGUBRIS. Thorax acutely spined and black; wing-cafes rough, with obsolete ferruginous; antennæ very long. Fabr. *Cerambyx italicus*. Gmel. Inhabits Italy. Schlanbusch. The antennæ are twice the length of the body, and black; body black; legs black, with a small elevated obtuse tooth at the extremity of each of the four anterior shanks.

TRISTIS. Thorax spinous, fuscous, with rough wing-cafes; with two black spots; antennæ moderate. Fabr.

Is found on the cypresses in the south of France, Olivier. The antennæ in one sex is twice the length of the body, in the other the same length as the body.

FENESTA. Thorax spinous, fuscous; wing-cafes smooth with two black spots; antennæ short. Fabr.

Lives in the south of France, chiefly on the Elder. Dr. Broufnet. This is only half the size of the preceding species.

PUNCTATOR. Thorax spinous black; wing-cafes dotted with white; antennæ long. Fabr. Donovan. Inf. China, &c.

This kind inhabits China, and has been described under several names by different writers; it is the *Cerambyx farinofus* of Drury. *Cerambyx punctator*. Olivier. *Cerambyx chinensis*. Forster. nov. Sp.—Obf. The antennæ are black, with the joint at the base pale; wing-cafes rough at the base; legs black.

FASCICULATA. Thorax spinous and hairy; wing-cafes tufted with hair. Fabr. *Lamia fasciculata*. Oliv. *Cerambyx fascicularis*. Gmel. A native of Cayenne. This species is of the middle size. The antennæ are of moderate length, black, with the first articulation yellow and villous; thorax armed with sharp spines, and thickly covered with palish hairs; wing-cafes fuscous, with one or more whitish dots, black elevated sutural line, three tufts of hair near the base, and two contiguous pair near the apex; legs variegated.

ROTATOR. Thorax spinous and cinereous; wing-cafes somewhat fasciated; antennæ moderate. Fabr.

The joints of the antennæ are cinereous with fuscous tips; head furrowed, cinereous, with black feelers; wing-cafes cinereous, and somewhat banded with brown. This species inhabits India.

GLYCYRRHIZÆ. Thorax spinous, black; wing-cafes bicarinated and lineated with white; legs ferruginous; antennæ short. Fabr. &c.

Discovered by Pallas in Siberia. Described by Subzer under the name of *Cerambyx ovatus*. Head black, with a whitish daub at the base; antennæ short, black, the first joint ferruginous and black at the tip; three white lines on the thorax; future white; legs ferruginous and white at the tip.

CRUCIATA. Thorax spinous, black, a white cross in the middle of the wing-cafes. Fabr.

The antennæ of this insect are short and black; head black; thorax black, with a dorsal white line; legs black. Inhabits the southern part of Russia. Boeber. *Cerambyx cruciata*. Pallas, Icon. &c.

FULIGINATOR. Thorax somewhat spined, and black; wing-cafes greyish; antennæ short. Fabr. *Cerambyx fuliginator*. Linn. Geoffr. &c. Inhabits the south of Europe. This insect is said to become gradually darker as it advances in age.

CINERARIA. Thorax spinous, cinereous; antennæ short. Fabr. *Cerambyx cinerarius*. Pallas, Icones.

This is a native of Russia, and is about half the size of the preceding species.

CARINATA. Thorax spinous, black; wing-cafes piceous; elevated lateral ridge whitish; antennæ short. Fabr. *Cerambyx carinatus*. Gmel.

This is a Siberian species, described from a specimen in the Banksian cabinet. The antennæ are short, thick, and black; head and thorax punctured with impressed middle line; wing-cafes obtuse; body beneath whitish.

COQUUS. Thorax slightly spinous, and hirsute; wing-cafes obtuse, furrowed, black, with the anterior part ferruginous; antennæ moderate. Linn. A native of North America. The thoracic spines are very minute.

RUSPATOR. Thorax spinous, brown, with two ferruginous dots; wing-cafes brown, variegated with cinereous. Fabr. Inhabits Africa. The antennæ are moderate, and fuscous; head fuscous; scutellum ferruginous; wing-cafes obtuse and dotted; body brown.

TORNATOR. Thorax spinous with four dots; wing-cafes rufous, with four black spots; antennæ short. Fabr. *Cerambyx tetraphthalmus*. Forster. A native of North America.

America. The antennæ are black; head rufous with an elevated black dot at the base of the antennæ; thorax obtusely spined at the sides, rufous with four black dorsal dots; body beneath black changeable to cinereous.

BANKII. Thorax spinous grey; wing-cases sprinkled with ferruginous, with two cinereous bands. Fabr. This kind inhabits the Cape of Good Hope. It is of a small size. Antennæ moderate, varied with fuscous and cinereous; thorax with two short spines at the anterior part on each side, and sprinkled with ferruginous.

SALTATOR. Thorax unarmed, greyish; with two abbreviated white bands, composed of three or four white spots, and a white punctured streak behind; antennæ short. Fabr.

Native country of this species unknown. This is of a small size; thorax with a white dorsal line; wing-cases dotted, obtuse, fasciated, and spotted with snowy white.

HISTRIO. Thorax unarmed and yellowish, sprinkled with numerous snowy-white dots; antennæ short. Fabr. Inhabits Tranquebar. Muf. Lund. The antennæ are short and greyish; head punctured, yellowish with obsolete whitish spots; thorax rounded, unarmed, dusky, yellowish, with many distinct snowy dots; wing-cases punctured, yellowish, with numerous snowy dots; body yellowish.

TESTATOR. Thorax spinous, with a short recumbent horn; body testaceous; antennæ short with black tip. Fabr.

The body of this insect is short, villous and testaceous; head large, and flat in front; thorax with a short broad recumbent horn in the middle having the tip refuse; wing-cases villous, striated, and without spots.

PEDESTIS. Thorax spinous and black, with an entire white stripe; antennæ moderate. Fabr. *Cerambyx pedestris*. Linn. Inhabits the south of Europe.

RUFIPES. Thorax spinous, black, future of the wing-cases white; base of the antennæ and legs rufous. Fabr. Inhabits Hungary. Resembles *L. pedestris* in size and appearance. The antennæ are compressed and black, except the first joint at the base which is rufous; head and thorax rufous and without spots; wing-cases smooth and black, with white future; legs rufous.

MORIO. Thorax spinous, black; wing-cases of one colour; antennæ short. Fabr. Inhabits the south of Germany, Zschuck. Rather larger than *Lamia pedestris*; the elytra of one colour, sometimes black, sometimes testaceous; antennæ black, with the first joint usually testaceous.

LINEATA. Thorax spinous black; margins of the wing-cases, and two longitudinal lines, that unite at each end, white. Fabr. *Cerambyx Scopoli*. Herbst. Inhabits Germany. Head and thorax black with a white line on the back; legs black.

MOLITOR. Thorax spinous, and fuscous, with three entire white stripes; antennæ moderate. Fabr. Inhabits India. Described from a specimen in the British Museum. The body is brown above, with three white lines, extending from the head to the extremity of the wing-cases, a small line between the broader one at the base of the latter; thorax with a lateral tubercle.

TUBERCULATOR. Thorax unarmed, grey; wing-cases with two tubercles at the base, and two common white spots; antennæ short. Fabr.

The antennæ are cinereous; tubercles on the wing-cases compressed near the future; anterior spot large.

MUTATOR. Thorax unarmed, cinereous, with a pale line on each side; body villous; antennæ and legs testaceous. Fabr.

Inhabits Otaheite. From the Bankian cabinet. The antennæ are of a moderate length; wing-cases punctured and obtuse.

RUBUS. Thorax armed with two spines, and bimaculated; wing-cases rough at the base, and mucronated at the base and apex. Fabr. *Cerambyx rubus*. Linn. A native of China, and some parts of India. Donov. Inf. China.

8-MACULATUS. Thorax spinous and bimaculated; wing-cases spotted with white; at the base rough and mucronated; tip bidentated. Fabr.

Nearly allied to *L. Rubus*, of which it is supposed by some to be a variety. The antennæ are longer than the body, rough and black; thorax unequal, acutely spined, with two lunate impressed yellowish dorsal lines; scutell whitish; wing-cases cinereous, and rough, with black raised dots at the base; in the middle four whitish spots, the second of which is largest, the fourth small and rounded; side white.

SPINICORNIS. Thorax spinous and rough; wing-cases truncated and grey; antennæ compressed, joint at the tip spinous. Fabr.

A native of Africa. The antennæ are moderate, and compressed, joint at the tip acutely spined outwardly; head black; thorax rough and grey; wing-cases smooth, truncated, and somewhat spinous.

SCABRATOR. Thorax spinous, somewhat testaceous; wing-cases with rough black dots at the base. Olivier, &c.

Antennæ moderate, with the joint at the tip black; wing-cases somewhat emarginate at the tip, and pointed at the future. Inhabits the East Indies. Bankian cabinet.

SPENGLERI. Thorax spinous, and tuberculated; cinereous; wing-cases rough, with two lateral black spots. Fabr.

From the cabinet of Spengleri. A native of South America. The antennæ are long, cinereous, with the joints fuscous at the tip; thorax obtusely spined on each side, with three dorsal tubercles.

FUSCATOR. Thorax armed with two spines, and tuberculated; wing-cases three-toothed at the tip, and griseous, with a cinereous band. Fabr.

Inhabits Tranquebar. This is of the middle size. The antennæ are rather shorter than the body, and greyish; thorax unequal, with two spines, the anterior one largest, recurved, and above them a large obtuse tubercle; wing-cases cinereous, or griseous, sprinkled with numerous ferruginous dots; legs grey.

BIDENS. Thorax acutely spinous, grey; wing-cases bidentated at the tip. Fabr. This species inhabits New Holland. The antennæ are long and fuscous, and the legs unarmed.

CRANTOR. Thorax unarmed, cinereous with black dots; wing-cases pale testaceous; tips bidentated, cinereous, with black spots. Fabr.

Inhabits China. Cabinet of Schlanbusch. The antennæ moderate and black; head cinereous with two dots, and small black line at the base; scutell black, with cinereous margin; wing-cases pale testaceous, dotted at the base, and bidentated at the tip, cinereous, with a black spot; body and legs black, with cinereous down.

LEPROSSA. Thorax spinous; wing-cases variolous at the base, with a large lateral spot of black; antennæ long. Fabr. *Cerambyx leprosus*. Gmel.

A native of America. The antennæ are dusky and rufous; thorax uneven on the back; wing-cases with large impressed dots at the base; behind smooth and cinereous, with a small spot in the middle; on each side, at the base of the abdomen, a snowy spot; legs cinereous.

CERAMBYX.

SOLANDRI. Thorax somewhat spinous and black; wing-cafes bidentated, sprinkled with fuscous and cinereous. Fabr.

Inhabits New Holland. The antennæ are moderate and black; thorax somewhat rough, and black with a small acute anterior spine each side; scutell black; wing-cafes dotted, black sprinkled with cinereous; gibbous at the shoulder, and bidentated at the tip; legs black, with the soles of the feet fuscous.

CORNUTOR. Thorax obtusely spined; jaws cornuted at the base; antennæ very long. Fabr.

Inhabits America. It is figured by Olivier from a specimen in the British Museum. The antennæ are black; head grooved and black; jaws advanced, sharp pointed, with a thick horn-shaped elevated tubercle at the base; thorax black and without spots; wing-cafes dotted, black, with yellow spots, a small inflected spine at the base; tip rounded and unarmed.

UNGARICA. Black; head and thorax spinous; longitudinal line, suture, and three lines on the wing-cafes white. Herbst. *Cerambyx Ungaricus*. Gmel.

TRIFASCIATA. Thorax spinous; wing-cafes convex, black, with three interrupted scarlet lines; narrow towards the apex; antennæ long. Gmel.

DAVIESII. Black, thorax spinous, with numerous fulvous dots and spots; wing-cafes somewhat triangular. Swederus, Nov. Act. Stockh. This inhabits the bay of Honduras.

Genus STENOCORUS.

Antennæ long and filiform; eyes reniform, embracing the base of the antennæ; thorax round; wing-cafes length of the abdomen, frequently with two teeth at the apex; body somewhat cylindrical. Donovan. Inf. N. Holland.

Genus **STENOCORUS.** Antennæ four, anterior ones filiform, posterior clavated; antennæ setaceous. Fabr.

PUNCTATUS. Thorax somewhat spinous and fuscous; wing-cafes dotted, anterior part subrugose, apex bidentated, with three yellow spots. Donovan. Inf. N. Holland. A new species recently discovered in New South Wales.

SEMIPUNCTATUS. Thorax spinous, and fuscous; anterior part of the wing-cafes rough, with dots, and banded with yellow; posterior part smooth; apex bidentated with two yellow spots. Donovan. Inf. N. Holland. From the same country as the preceding.

LAMED. Thorax pubescent; wing-cafes fastigate, livid, with a dusky sinuate stripe down the middle. Fabr. *Cerambyx lamed*. Linn. This inhabits Europe.

CYANEUS. Thorax somewhat spinous, azure, with the wing-cafes yellow at the base. Fabr.

This is an Indian species, first described by Forster under the title of *Cerambyx palliatus*. The antennæ are short and blue, with clavated joints; thorax narrow in front, behind somewhat spinous.

BIGUTTATUS. Thorax without spines, and ferruginous; anterior part of the wing-cafes rugose with dots, and spotted with testaceous; posterior part smooth, bidentated, and marked with a yellow spot. Donovan. Inf. N. Holland.

GARGANICUS. Thorax spinous; wing-cafes bidentated, and greyish, with a yellow spot; antennæ very long. Fabr. Described by Fabricius from a specimen in the British Museum. It is a native of Maryland.

FESTIVUS. Thorax armed with two teeth each side; wing-cafes bidentated and greenish, with a yellow lateral line. Fabr. *Cerambyx festivus*. Linn. Common in America.

OBSCURUS. Thorax rugose, spinous, fuscous; anterior part of the wing-cafes, rough, with dots; posterior part smooth, glossy, and bidentated at the tip. Donovan. Inf. New Holland. A new species.

MARYLANDICUS. Thorax depressed, tuberculated, unarmed; wing-cafes bidentated, clouded with fulvous and cinereous; antennæ moderate. Fabr.

This insect inhabits Maryland. The antennæ are somewhat spinous; body entirely varied with cinereous and fuscous.

SPINICORNIS. Thorax unarmed, tuberculated; wing-cafes bidentated; joints of the antennæ with two spines; body variegated. Fabr.

Inhabits America. The body is cinereous with raised fuscous dots.

BIDENS. Thorax unarmed, and somewhat tuberculated; joints of the antennæ armed with two spines; body testaceous. Fabr. *Cerambyx bidens*. Olivier. Inhabits South America. Paykull.

IRRORATUS. Thorax unarmed and unequal; wing-cafes bidentated and sprinkled with white; antennæ long and aculeated. Fabr. *Cerambyx irroratus*. Linn. A native of America.

GLABRATUS. Thorax unarmed and cinereous, with a glabrous brown line; wing-cafes bidentated. Fabr.

The antennæ of this species are moderate, brown with three joints spinous; wing-cafes varied with grey, and brown. Inhabits the islands of South America. Rohr.

FARINOSUS. Thorax spinous, pitchy; wing-cafes sprinkled with powdery dots; antennæ long. Fabr. *Cerambyx farinosus*. Linn.

6-MACULATUS. Thorax spinous, and ferruginous; wing-cafes pointed, with three yellow spots. Fabr. &c. *Cerambyx sex-maculatus*. Olivier. This insect inhabits Cayenne. The antennæ are moderate, villous, and ferruginous; thorax ferruginous, with a small black spine on each side; wing-cafes with three large, oblong, yellow spots, and black spine at the apex.

5-MACULATUS. Thorax somewhat spinous, and rufous; with four yellow spots; wing-cafes bidentated and rufous; two spots and line at the apex white; antennæ very long. Fabr.

This insect inhabits the island of Guadaloupe. Dr. Hertz. The antennæ are ferruginous; head ferruginous with the orbits of the eyes cinereous; thorax rough with lateral line and four dorsal spots pale; scutell whitish; wing-cafes ferruginous with whitish spot, and double yellow pupil; body beneath whitish.

4-MACULATUS. Thorax spinous, and rough; wing-cafes bidentated, with two pair of glabrous spots. Fabr. *Cerambyx quadrimaculatus*. Linn.

A native of South America. Obs. The four posterior thighs are spinous.

MACULOSUS. Thorax spinous, and fuscous; wing-cafes bidentated with two pair of glossy spots; antennæ moderate and black. Fabr. *Cerambyx maculosus*. Olivier.

The head is fuscous with ferruginous lip; thorax spinous, fuscous, and without spots; wing-cafes pale; legs black with rufous thighs.

GEMINATUS. Thorax unarmed, black, with rufous spot on each side; wing-cafes black; with two pair of glabrous spots; antennæ very long. Fabr.

A native of Sierra Leona. Pflug. The antennæ are black; head rufous with a black dot in front; wing-cafes truncated at the tip, and glossed with cinereous; legs black; thighs rufous; the four posterior ones spinous at the tip.

PALLENS. Thorax unarmed and pale; wing-cafes with a single spine and three black dots; antennæ long. Fabr.

This kind inhabits South America. It is of the middle size. The antennæ are long, and pale, testaceous; eyes palish.

C E R A M B Y X.

STREPENS. Thorax unarmed, tapering in front, and ferruginous; wing-cafes pale. Fabr. *Cerambyx strepens*. Olivier.

The antennæ are compressed, moderate, and ferruginous; head grooved; wing-cafes smooth, pale yellowish, and immaculate; body ferruginous. Olivier describes this insect as a native of Provence, and observes that it flies by night with a buzzing noise.

FASCIATUS. Thorax unarmed and black; wing-cafes bidentated, testaceous at the base, and at the tip black; with a palish band. Fabr. Bankian cabinet. *Cerambyx Africanus*. Gmel.

This kind inhabits Africa. The antennæ are moderate, and black; head yellow, with three black lines; thorax black above, beneath yellowish; wing-cafes dotted at the base; abdomen testaceous with a yellow spot on each side of the base, and black tip.

CIRCUMFLEXUS. Thorax unarmed, ferruginous; wing-cafes single toothed and testaceous, with two dots and undulated fuscous streak. Fabr. Inhabits Cayenne. Von Rohr. The antennæ are moderate, and ferruginous, wing-cafes testaceous, with sharp, elongated, fuscous tooth at the apex; legs ferruginous.

NANUS. Thorax rounded, unarmed, griseus, with testaceous legs. Fabr.

The country of this species is unknown. The size is small; antennæ moderate, villous, and cinereous; head and thorax grey, without spots; wing-cafes grey, with two longitudinal abbreviated black lines; legs testaceous with very thick thighs.

IO-MACULATUS. Thorax somewhat spinous, with four spots; wing-cafes bidentated, ferruginous, with yellow and cinereous spots. Fabr. A native of America, described from the Bankian cabinet. The antennæ are long and ferruginous; thorax with two tubercles on each side.

ANNULATUS. Thorax lineated; wing-cafes armed with a single tooth; antennæ long, with three white rings. Fabr. *Cerambyx annulatus*. Olivier. *Cerambyx hirtipes*. Degeer. The antennæ are ferruginous, with the third, fourth, and last joint annulated with white; head fuscous with two white lines; thorax grey with four white lines; wing-cafes grey, with fuscous tip and white margin, truncated and single toothed; legs fuscous, with cinereous rings.

LINEOLA. Thorax spinous, ferruginous; wing-cafes pointed and testaceous, with three small glossy yellow lines. Fabr. *Cerambyx brasiliensis*. Gmel. A native of Brasil. The head is ferruginous; antennæ longer than the body, black, with the first joint ferruginous; wing-cafes armed with a single spine at the tip; legs black; thighs yellow, the four posterior ones armed with a thick black spine at the tip.

VARIUS. Thorax somewhat spinous; wing-cafes bidentated, cinereous, fuscous, and yellow varied; the base at the angle compressed. Fabr. *Cerambyx cayennensis*. Gmel.

This is an insect of small size. The general colour is cinereous; antennæ longer than the body, cinereous, with the joints fuscous at the tip; thorax black, with yellowish lines and dots; wing-cafes emarginated, and bidentated at the tip.

PUBESCENS. Thorax spinous, and black; wing-cafes with a single spine at the tip, base testaceous; antennæ long. Fabr. *Cerambyx pubescens*. Olivier. A native of Cayenne. This species is small; the antennæ are longer than the body, black and spinous at the joints; thorax spinous and tuberculated.

VILLOSUS. Thorax unarmed, dusky, with cinereous down; wing-cafes bidentated. Fabr. Inhabits Carolina.

DRURI. Thorax somewhat spinous; wing-cafes truncated, bidentated, ferruginous, with cinereous bands; antennæ short. Fabr.

Described from a specimen in the cabinet of Drury. The

antennæ are shorter than the body, and piceous; thorax armed with a small spine on each side, and marked with a few raised tranverse lines; wing-cafes truncated at the tip, bidentated, the outer spine largest, ferruginous, with three cinereous bands, which unite at the future; breast ferruginous, with two large white spots on each side; abdomen with three white dots on each side. Mus. Donov.

UNDATUS. Thorax spinous, cinereous; wing-cafes bidentated, with two waved black lines. Fabr. Inhabits America. The head is cinereous; eyes black; antennæ moderate, villous, black, with the joints cinereous at the tips; thorax cinereous, with a few dorsal black glabrous spots; wing-cafes dotted, cinereous, with two large waved black bands, the posterior one of which is largest.

RUSTICUS. Thorax spinous, ferruginous brown; wing-cafes bidentated and palish; antennæ long. Fabr.

An insect of middle size, that inhabits India. The antennæ are longer than the body and fuscous; head and thorax dusky, ferruginous and downy; wing-cafes smooth, paler and bidentated at the apex. *Cerambyx ruricola*. Gmel.

QUADRIGUTTATUS. Pale testaceous; thorax somewhat spinous; wing-cafes two-spined, with two yellow spots on each; thighs clavated and unarmed. Swederus Nov. Act. Stockh. Inhabits Honduras.

VITTATUS. Thorax spinous and pubescent; wing-cafes fastigate, testaceous, future and stripe fuscous. Mus. Lesc. A native of Europe.

FERRUGINOSUS. Blackish; wing-cafes ferruginous; antennæ spinous inwardly. Rozier Journ de Phys. A native of America.

HIEROGLYPHICUS. Beneath hoary; head and thorax woolly, with a bare space of black; wing-cafes black, glabrous, with five bluish white dots, and ramose future on each side. Pallas. This species inhabits woods in the northern parts of Siberia.

PERFORATUS. Above covered with a whitish powder, beneath with yellowish down; five black dots in the middle of each wing-cafe. Pallas. Inhabits the same country as the preceding, which it nearly resembles.

Genus CALLIDIUM.

Antennæ setaceous; head ovate-obtuse, and inserted; eyes lateral, reniform, and embracing the base of the antennæ; thorax flat, with rounded and rather prominent margin; wing-cafes rigid; length of the abdomen; body flattish, somewhat depressed, and often pubescent; legs elongated and formed for running; thighs often clavated.

Genus CALLIDIUM. Feelers four, clavated; jaw membranaceous and bifid; lip two-cleft; antennæ setaceous. Fabr.

OBSCURUM. Thorax somewhat villous, fuscous; wing-cafes testaceous, varied with cinereous; antennæ moderate. Fabr.

The antennæ are pubescent and fuscous; wing-cafes dusky at the base; legs testaceous.

BAJULUS. Thorax villous, with two tubercles; body fuscous. Fabr. *Cerambyx bajulus*. Linn. Inhabits Europe.

FENNICUM. Thorax tuberculated and rufous; wing-cafes violaceous; antennæ moderate. Fabr. *Cerambyx fennicus*. Linn. *Leptura atra*. Geoffr. A native of Europe.

RUFICOLLE. Thorax somewhat cylindrical, spinous, and rufous, black; wing-cafes violaceous; antennæ moderate, and pitchy. Fabr. *Saperda ruficollis*. Fabr. Mant. *Cerambyx ruficollis*. Gmel. Inhabits Italy. The head is black, antennæ moderate and pitchy; thorax hairy, and rufous; legs black; thighs somewhat clavated. Fabr.

EBULINUM. Thorax tuberculated and black; wing-cafes violaceous. Fabr. *Cerambyx ebulinus*. Linn.

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Found on plants in Africa. Vahl. The antennæ are moderate, ferruginous, with the first joint thick, and black; body black; wing-cafes smooth, violaceous and glossy; thighs clavated.

AENEUM. Fuscous, thorax and wing-cafes brassy green; thighs ferruginous. Fabr. From the Hunterian museum.

The antennæ are black; thorax without tubercles, pubescent and brassy; wing-cafes pubescent, and glossy; body black; legs black, thighs somewhat compressed and rufous, with the knees black. Inhabits India.

FULCRATUM. Thorax naked and glossy; body black; thighs rufous; antennæ moderate. Fabr. Inhabits Saxony. Hybner. Obs. All the thighs are compressed.

VIOLACEUM. Thorax somewhat pubescent; body violaceous; antennæ short. Fabr.

Linnaeus describes this insect under the name of *Cerambyx violaceus*. It inhabits woods in Europe, and is rarely found in England. Donov. Brit. Inf. This kind is highly detrimental to timber, especially fir, that has been felled some time, and has not been divested of the bark, beneath which it bores serpentine cavities in the wood in various directions. Transf. Linn. Soc.

FEMORATUM. Thorax naked; body black and opaque; thighs red; antennæ moderate. Fabr. This is *Cerambyx femoratus*. Linn. Inhabits Germany.

SPINOSUM. Thorax spinous, naked, black, antennæ short. Fabr. Inhabits Hungary. Hybner. The antennæ are black; head grooved; thorax flat, naked, smooth, black and without spots, with a sharp spine each side; wing-cafes smooth, glossy and black; legs black, thighs thick.

CLAVIPES. Black, opaque, all the thighs clavated; antennæ long. Fabr. A native of Germany. Mus. Hattorff.

AMETHYSTINUM. Pubescent, azure, with rufous legs; thighs clubbed and black. Fabr.

This insect is small, pubescent, azure, and glossy; antennæ short, black, and rufous at the base; legs ferruginous, with all the thighs clavated; club large and black.

BIFASCIATUM. Thorax pubescent, black; wing-cafes with two rufous bands.

Described from a South American insect in the Bankian cabinet. Fabr. The antennæ are moderate, with the joints two-spined at the tip; thorax with two tubercles; legs black; thighs somewhat clavated.

ACUMINATUM. Thorax warted and blackish; wing-cafes pointed and greenish. Fabr. A native of the Cape of Good Hope. The antennæ are moderate, fuscous, with the tips of the joints spinous; thorax rounded, black, with many elevated tubercles; wing-cafes greenish, with blue future, tip sharp-pointed; legs black; thighs clavated, the club red.

RUSSICUM. Thorax warted, black, wing-cafes testaceous, with a black spot in the middle, and black tip. Fabr. Inhabits Russia. Head black, antennæ moderate; legs unarmed and black.

VARIABLE. Thorax glabrous; body fuscous, and brassy; antennæ and legs rufous. Fabr. *Cerambyx variabilis*. Linn. *Callidium ungaricum*. Herbst. Inhabits Europe.

RUSTICUM. Thorax naked; body lurid; antennæ short. Linn. Syst. Nat. Inhabits woods in Europe, and is found in England.

SERICUM. Thorax velvety, cinereous; wing-cafes testaceous, with red elevated dots, and snowy scutel. Fabr. *Callidium holosericeum*. Rofs. Fn. Etr. Inhabits Barbary. Vahl. Antennæ moderate, silky; body entirely cinereous velvety; wing-cafes testaceous, with many elevated red dots.

TENEBRUM. Thorax tuberculated, dusky, rufous, with black dorsal lines; wing-cafes cinereous, depressed, with two elevated black lines. Fabr. Inhabits Cayenne. Olivier.

VITTATUM. Thorax rounded, naked; wing-cafes ferruginous, with a black stripe in the middle; antennæ long as the body. Fabr.

The antennæ are ferruginous, second joint long, incurved, and somewhat spinous at the tip; body dusky; thighs clavated.

AGRESTE. Thorax naked, black; wing-cafes striated, fuscous; antennæ short. Fabr. Inhabits Saxony. Hybner.

STIGMA. Thorax dotted; body black; wing-cafes smooth, with a white stigmat spot. *Cerambyx stigma*. Linn. A native of America.

FUGAX. Thorax hairy, fuscous; joints of the antennæ rufous at the base. Fabr.

Found in Provence. Olivier. The head is small, entirely black and fuscous; thighs clavated, shanks testaceous.

PYGMÆUM. Thorax naked; body fuscous; antennæ long and yellowish. Fabr. *Saperda minuta*. Fabr. Mant. Inf.

This kind inhabits Italy, and has been found in England; antennæ longer than the body, and yellow; thighs clavated.

EQUESTRE. Thorax unarmed, naked, black, and glossy; wing-cafes with a red interrupted band. Fabr. A native of Cayenne. Mus. von Rohr.

FULVICOLLE. Thorax unarmed, fulvous, black, with very long antennæ. Fabr. Inhabits Surinam.

HIRTUM. Thorax rounded and hairy, wing-cafes pointed, and pale testaceous. Fabr.

Described from the Bankian cabinet. The antennæ are compressed, and black; legs black.

PUBESCENS. Thorax rounded, pubescent, and testaceous; wing-cafes greenish, and at the base testaceous. Olivier, &c. A native of the Cape of Good Hope.

BARBATUM. Thorax rounded, beneath on each side a downy ferruginous spot, antennæ very long and bearded. Olivier. This insect inhabits Tranquebar. Dr. Koenig.

GRISEUM. Thorax rounded and pubescent; body dusky, cinereous; antennæ very short. Fabr. Found in Barbary. Desfontaines.

COMPRESSUM. Thorax smooth, dusky, black; antennæ long and with the legs testaceous. Olivier. *Cerambyx compressus*. Gmel. &c.

Inhabits Siam. Described from the Bankian Cabinet. The head, thorax, wing-cafes, and body are smooth; abdomen testaceous; thighs much compressed.

VARIEGATUM. Back of the thorax glabrous, black, with four white lines, and the wing-cafes sprinkled with yellow. Fabr. Olivier, &c.

The antennæ are of moderate size, black, with the two extreme joints ferruginous; head black, with two whitish lines, and transverse streak; sides of the thorax sprinkled with yellow; three lines on the wing-cafes rather elevated, black, and thickly sprinkled with yellow dots; abdomen black, and speckled with yellow on both sides; legs blackish, with elongated thighs, the posterior ones ringed with white. Bankian Cabinet. Inhabits New Holland.

LINEATUM. Thorax with two white lines, and four on the wing-cafes, the middle ones uniting, and abbreviated. Fabr. Olivier, &c.

Antennæ short, with the first joint ferruginous; lip whitish, with three black lines; scutel whitish; wing-cafes obtuse; abdomen whitish, in the middle black; legs ferruginous, with black joints. A native of New South Wales. *Cerambyx australis*. Gmel. &c.

SULCATUM. Thorax downy cinereous; wing-cafes white, striated with black. Olivier.

This is a native of New Zealand. The antennæ are short and

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and fuscous; head cinereous, with a black, frontal, elevated line; lines on the wing-cases elevated and glossy; legs grey.

TESTACEUM. Thorax somewhat tuberculated; body testaceous; antennæ moderate and fuscous. Fabr. *Cerambyx testaceus*. Linn. Found in woods in Europe.

SANGUINEUM. Thorax somewhat tuberculated, and, with the wing-cases, sanguineous; antennæ moderate. Fabr. *La lepture veloutée couleur de feu*. Geoffr.

A Linnæan species, *Cerambyx sanguineus* of that author. Inhabits European woods; once met with in Wales. Mus. Donov.

PILICORNE. Thorax somewhat tuberculated and ferruginous; wing-cases testaceous; antennæ moderate and villous; thighs clavated. Fabr.

Inhabits South American islands. This is of the middle size; head ferruginous; wing-cases smooth; legs testaceous, with the thighs much compressed.

PRÆSTUM. Thorax slightly tuberculated and testaceous; wing-cases violaceous at the tip. Fabr. Mus. Allioni.

Perhaps a variety of the Linnæan *Cerambyx testaceus*. The antennæ are moderate, fuscous at the tip; thighs clavated.

LIGNEUM. Thorax tuberculated, villous, and black; wing-cases red, with spot and tip violaceous. Fabr.

The body is black; thorax flat, villous, black, with glossy elevated tubercles; legs black, with compressed thighs. Schulz.

LURIDUM. Thorax somewhat tuberculated, naked, black; wing-cases smooth and testaceous. Fabr. *Cerambyx luridus*. Linn. Inhabits European woods.

FLAVIPES. Thorax rounded, pubescent, ferruginous; legs testaceous. Fabr.

A native of the Cape of Good Hope. This is small; antennæ rather longer than the body, and ferruginous; head ferruginous, with the eyes black; thorax rounded, downy, somewhat tuberculated, and ferruginous; wing-cases rather paler.

FUSCUM. Thorax somewhat tuberculated, grooved, and naked; wing-cases striated, dusky, testaceous; antennæ moderate. Fabr. Inhabits Saxony. Hybner.

The antennæ are fuscous; legs black, with short, thick, and compressed thighs.

4-MACULATUM. Thorax villous, fuscous; wing-cases with two ferruginous spots on each; antennæ long. Fabr.

A native of the island Guadeloupe, and described by Fabricius from the cabinet of Badier. This is of a small size, and dusky; antennæ longer than the body, somewhat ferruginous, and dusky at the base; head and thorax villous and fuscous; legs dusky, ferruginous, with clavated thighs.

HAFNIENSE. Thorax somewhat villous and black, with four white lines, the inner ones abbreviated. Olivier, Fabr. &c. *Cerambyx liciatus*. Linn. Inhabits Europe.

RUFIPES. Thorax smooth and glossy; wing-cases violaceous; shanks rufous; antennæ short. Fabr. *Cerambyx erythropus*. Gmel. &c.

Inhabits Germany. Mus. Hattorff. Antennæ fuscous, and, at the base, ferruginous; head and thorax smooth, violaceous, and glossy; body brassy; legs violaceous, with rufous shanks; posterior thighs clavated, and rufous at the base.

STRIATUM. Thorax glabrous; body black; wing-cases striated; antennæ short. Fabr.

This is the Linnæan *Cerambyx striatus*. A native of Europe; is said to have been found in England.

BICOLOR. Thorax glabrous and yellowish; head and wing-cases greenish; antennæ moderate and black. Fabr.

Inhabits South America. Smaller than the last; thorax flat, smooth, and yellow; wing-cases smooth, green; legs black.

LYNCEUM. Thorax rounded, somewhat spinous, villous, and black; wing-cases with a somewhat double fulvous spot. Fabr. *Cerambyx lynceus*. Olivier.

A native of the Cape of Good Hope. Thorax armed on each side with a small spine.

SALICIS. Thorax tuberculated, spinous, and rufous; breast and wing-cases black. Fabr. *Rhagium etruscum*. Rossi. *Stenocorus ruficollis*. Herblt.

Inhabits Europe, and is found on willows. Antennæ short and rufous; wing-cases slightly striated; abdomen and legs rufous.

CYANEUM. Thorax flat, tuberculated, villous, and violaceous, last segment but one ferruginous; antennæ moderate. Fabr. Inhabits Italy. *Cerambyx cyanellus*. Gmel.

PUSILLUM. Thorax rounded, black, with antennæ and shanks testaceous. Fabr. A native of Germany. *Cerambyx pusillus*. Gmel. &c.

BIMACULATUM. Thorax rounded, villous, fuscous, with two ferruginous spots on the wing-cases. Fabr. A native of the Cape of Good Hope. Bankian Cabinet.

FLAVUM. Thorax somewhat rounded; body yellow; thighs clavated; antennæ moderate. Fabr. Inhabits America. Obs. The antennæ are yellow; eyes black; all the thighs thickly clavated.

UNDATUM. Thorax tuberculated; wing-cases black, with two waved white bands, and short antennæ. Fabr. *Cerambyx undatus*. Linn. Inhabits Europe.

COLONUM. Thorax rounded; wing-cases livid, with three fuscous bands; antennæ short. Fabr. Olivier, &c. A native of Carolina.

VARIUM. Thorax rounded and rufous; wing-cases rufous at the base, with two white bands. Fabr. Inhabits North America.

FLEXUOSUM. Thorax rounded, with yellow bands; wing-cases with seven yellow bands, the anterior ones curved upwards, the posterior downwards. Fabr. *Leptura robinia* of Forster. *Leptura pilla*. Drury. A native of America. Olivier, &c.

MINUTUM. Testaceous, with an abbreviated white band on the wing cases. Fabr. Discovered by sir J. Banks in New Zealand.

FLORALE. Thorax globose, and banded with white; five white bands on the wing-cases, the second and third of which are lunated.

FULMINANS. Thorax globose and spotted; wing-cases black, with angulated, waved, white bands. Fabr. Olivier, &c. Inhabits North America.

ATOMARIUM. Thorax globose, with cinereous spots; wing-cases black, with whitish dots, and posterior, flexuous, whitish line. Fabr. Inhabits Saxony.

GAZELLA. Thorax rounded, black; wing-cases black, with yellow bands, the second bent; legs ferruginous; thighs black. Fabr. A native of Europe.

MUCRONATUM. Thorax rounded and spotted; wing-cases mucronate and black, with three bent yellow lines and ferruginous base. Fabr. Found in America.

ANGULATUM. Thorax rounded, and muricated; wing-cases mucronated, with three dorsal spots, and two yellow dots in the middle. Fabr. Country unknown.

ERYTHROCEPHALUM. Thorax rounded, somewhat spinous; wing-cases bidentated and fuscous, with four yellow bands; thighs compressed and clavated. Olivier. A native of America.

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GLAUCUM. Thorax rounded, black; wing-cases glaucous, spotted at the base with black. Olivier. Inhabits India.

SEX-FASCIATUM. Black; thorax with two, wing-cases with four yellow bands. Fabr. Described from a specimen in the British Museum.

TRIFASCIATUM. Thorax globose, ferruginous; wing-cases black, with three white bands, the first annular. Fabr. A native of Europe.

ORNATUM. Thorax rounded, fasciated with black; wing-cases greenish, with three entire black bands, the first annular. Fabr. *Callidium ornatum*. Herbšt. *Stenocorus duplex*. Scopoli. Inhabits Germany.

4-PUNCTATUM. Thorax rounded, greenish, with four dots on the wing-cases. Fabr. &c. Inhabits France. Geoff.

ANNULARE. Thorax rounded, and spotted with black; wing-cases bidentated, and somewhat greenish, with three black bands, the first of which is annular. Fabr. *Callidium annulare*. Olivier. A Siamese species.

ÆGYPTIACUM. Thorax rounded and ferruginous; wing-cases greyish, with three fuscous bands, the first annular. Found in the East Indies. Forskahl.

VIRENS. Thorax rounded, greenish, with black antennæ, and testaceous legs. Fabr. Inhabits Barbary.

GIBBOSUM. Thorax rounded, black; wing-cases fasciated with cinereous; at the base tuberculated, and pointed at the tip. Fabr. Inhabits Italy. Daidorff.

UNIFASCIATUM. Thorax rounded, brown; wing-cases black, with a snowy band in the middle; base chestnut. Olivier, &c. Inhabits Provence.

PICIPES. Thorax globose, black, with an oblique streak on the wing-cases.

Genus CALOPUS.

Antennæ filiform; feelers four, anterior ones clavated, posterior filiform; jaw bifid; thorax gibbous; wing-cases linear. Gmel. &c.

Genus **CALOPUS.** Feelers four, anterior clavated, posterior filiform; jaw bifid; lip membranaceous and bifid; antennæ filiform. Fabr.

SERRATICORNIS. Fuscous, with compressed antennæ. Fabr. Gmel. *Cerambyx serraticornis*. Linn. Inhabits northern Europe.

HISPICORNIS. Somewhat fuscous; joints of the antennæ with a small spine behind. Gmel. Doubtful if of this genus.

PYGMÆUS. Very small and fuscous; antennæ serrated with hairs. Gmel. *Cerambyx pygmaeus*. Degeer.

Genus RHAGIUM.

Antennæ setaceous, elongated, approximate, and inserted between the eyes; feelers four, capitate; jaw armed with a single tooth; eyes rounded; thorax narrow, cylindrical, and spinous each side; wing-cases rigid; legs formed for running; feet formed of four joints.

Genus **RHAGIUM.** Feelers four, capitate; jaw single toothed; lip membranaceous, and bifid; antennæ setaceous. Fabr.

MORDAX. Thorax spinous, grey; wing-cases clouded, and somewhat banded with testaceous. Fabr. Inhabits Germany.

INQUISITOR. Thorax spinous, and black; wing-cases clouded, and subfasciated with testaceous. Fabr. *Cerambyx inquisitor*. Linn. Resembles the last but is rather smaller. Inhabits Europe; not uncommon.

INDAGATOR. Thorax spinous, cinereous; three elevated lines on the wing-cases; specklings and two bands black. Fabr. Degeer, &c. An European species.

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CURSOR. Thorax spinous; wing-cases rufous; future and line black. Fabr. *Cerambyx Cursor*. Linn. Inhabits northern Europe.

CINCTUM. Thorax spinous, and black; wing-cases somewhat ferruginous, with a yellow band; posterior thighs with a single tooth. Fabr. Inhabits Germany. Saldouer.

NOCTIS. Thorax spinous, and black; base of the antennæ ferruginous. Fabr. Linn. &c. Bears some affinity to *Rhagium Cursor*, but differs in being entirely black. Inhabits northern Europe.

BIFASCIATUM. Thorax spinous; wing-cases with two oblique yellow spots. Fabr. &c. An European species.

CLATHRATUM. Thorax somewhat spinous; black; wing-cases somewhat reticulated with yellow; legs rufous. Fabr. A native of Austria. Schneider.

ORNATUM. Thorax spinous, and black, wing-cases with a broad yellow band. Fabr. Inhabits Pennsylvania.

MINUTUM. Thorax spinous; wing-cases with elevated striz, cinereous, waved with black. Olivier, &c. A native of Europe.

MUTICUM. Thorax unarmed, rufous, with two black spots; wing-cases fuscous, with rufous striz, and bidentated at the tip. Fabr. Found in Sweden. Obs. This is small. The head is cinereous; antennæ brown annulated with white at the base; wing-cases somewhat dotted; body cinereous; legs ferruginous.

Genus SAPERDA.

Antennæ setaceous; eyes lunate, and embracing the base of the antennæ; thorax short, somewhat cylindric, and unarmed; head retracted; wing-cases rigid and as long as the abdomen; body elongated, cylindrical, and emarginate. Donovan. Inf. N. Holland. &c.

Genus **SAPERDA.** Feelers four, filiform; jaw membranaceous and bifid; lip heart-shaped and truncated; antennæ setaceous.

NIGROVIRENS. Blackish-green; thorax with rufous characters; wing-cases rough, with a testaceous spot at the base; sides yellow; tip truncated and bearded. Donovan. Inf. N. Holland. A species lately discovered in New South Wales.

COLLARIS. Black, thorax encircled with four white rings; side of the wing-cases, spot at the tip, and body beneath covered with white down. Donovan. Inf. N. Holland. This also is a new species from the same country as the preceding.

CARCHARIAS. Body grey with black dots; antennæ moderate. Fabr. *Cerambyx carcharias*. Linn. Inhabits European woods.

SCALARIS. Wing-cases with indented sutural yellow line, and dotted with yellow; antennæ moderate. Linn. Inhabits Europe, rarely England. Donovan. Brit. Inf.

CANDIDA. white; thorax and wing-cases fuscous, with two white stripes. Fabr. From the Hunterian Museum. Country unknown.

DETRITA. Black with cinereous hairs, and white dorsal line, and a white stripe on the wing-cases; antennæ short. Fabr. Inhabits Barbary.

IRROKATA. Black; wing-cases dotted; antennæ long. Fabr. Found on plants in Africa. Vahl.

MODESTA. Black; head, thorax, and vent ferruginous. Fabr. Inhabits Africa.

ATRICORNIS. Ferruginous; antennæ and tip of the abdomen above black. Fabr. Inhabits China. Schestedt. Obs. The head and thorax are smooth, glabrous, rufous, and immaculate;

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immaculate; wing-cafes striated with dots, dusky and emarginate at the tip; wings ferruginous with black tip.

OCULATA. Thorax pale yellow, with two black dots: wing-cafes black. Fabr. *Cerambyx oculatus*. Linn. Lives in woods in Europe.

TRICOLOR. Ferruginous; wing-cafes bidentated, striated with dots, and greenish; antennæ moderate and black. Fabr. A native of the East Indies. Mus. Schelldt. Obs. The head is rufous with black eyes; thorax rufous with 3 small dots at the base; body rufous; the legs black at the apex.

HIRTA. Ferruginous with greyish hairs; scutel and orbit of the eyes fulvous. Fabr. Inhabits New Zealand. Head greyish with four yellowish spots at the base; wing-cafes covered with grey hairs; and obtuse at the tip.

UNICOLOR. Testaceous; antennæ and legs same colour; antennæ long. Fabr. Described by Fabricius from a specimen found in Amsterdam island.

LINEARIS. Cylindrical, black, with pale yellow legs; antennæ moderate. Fabr. *Cerambyx linearis*. Linn. Found on the nut tree.

NIGRIPES. Cylindrical, black, with two lines on the thorax and scutel cinereous; legs black. Fabr. Inhabits Hungary.

CYLINDRICA. Cylindrical, black, with the anterior legs pale yellow. Fabr. *Cerambyx cylindricus*. Linn.

TRIPUNCTATA. Cylindrical, black; thorax ferruginous above, with three black dots. Fabr. Inhabits Virginia. Obs. The antennæ are moderate, villous, and black; wing-cafes striated with dots.

MELANOCEPHALA. Thorax rufous, body black; legs rufous. Fabr. Inhabits Africa. Vahl. The antennæ are moderate and black; head and body black.

PILICORNIS. Violaceous, with the first and second joint of the antennæ clubbed, and hairy. Fabr. Inhabits South America. Hybner.

BARBICORNIS. Head and thorax rufous; wing-cafes azure; antennæ moderate, and bearded before the tip. Fabr. Native country unknown. This is of the middle size.

ERYTROCEPHALA. Thorax villous, rufous; antennæ, breast, and wing-cafes black. Fabr. A native of Germany. *Cerambyx erythrocephalus* of Schrank.

RUFICOLLIS. Thorax villous, rufous; antennæ and wing-cafes fuscous. Fabr. A native of Virginia. Obs. The head is rufous, antennæ moderate and black; thorax villous, rufous, and immaculate; wing-cafes villous and fuscous.

FASCIATA. Thorax somewhat spinous, azure; with two yellow bands on the wing-cafes. Fabr. Inhabits Siberia. Obs. The antennæ are moderate and black; body entirely violaceous, slightly glossed with cinereous.

CLAVICORNIS. Green, with three yellow spots on the wing-cafes. Fabr. Inhabits the Cape of Good Hope. From the Banksian cabinet.

LATIPES. Black; thighs clavated and violaceous at the tip; posterior shanks compressed; antennæ long. Fabr. From the same country as the preceding.

Obs. The antennæ are longer than the body, the first and second joint thick and black, the rest rufous with black tips, except the last joint which is entirely black; four anterior legs rufous with clavated thighs.

VITTATA. Greyish, with three dentated white stripes; antennæ long. Fabr. *Cerambyx trilineatus*. Linn. Inhabits America. Drury. Obs. First and second joint of the antennæ very finely bearded beneath.

SEX-PUNCTATA. Black, with three yellow dots. Fabr. Inhabits the Cape of Good Hope. Paykull.

The body of this insect is small, black, glossed with blue; wing-cafes rough; legs blue with all the thighs clavated.

LATERALIS. Black; side of the thorax and lateral stripe on the wing-cafes ferruginous. Fabr. Inhabits North America.

LYNCEA. Thorax black, with a ferruginous dot on each side; wing-cafes greyish and pointed. Fabr. A native of New Zealand. Obs. The head is black; scutel ferruginous; wing-cafes grey, striated at the base; body black, abdomen with four ferruginous dots on each side; legs fuscous; thighs clavated.

GRISEA. Greyish; margin of the scutel, and small lines on the wing-cafes yellowish. Fabr. Inhabits New Zealand. Obs. The antennæ are fuscous; wing-cafes somewhat villous; legs fuscous with clavated thighs.

ANALIS. Testaceous; tip of the wing-cafes and vent black. Fabr. A native of Africa.

BIDENTATA. Thorax rounded; with four dots of black; wing-cafes bidentated at the tip. Fabr. Inhabits Guinea. Dr. Isert. This is small; antennæ length of the body, with the third and fourth joint yellow; body and legs yellow.

NIGRICORNIS. Fuscous, thorax lineated; scutel yellow; antennæ long. Fabr. *Cerambyx Cardui*. Linn. Found on thistles in southern Europe. The body is fuscous sprinkled with yellow; lines on the thorax three in number.

SUTURALIS. Cinereous, with lineated thorax; wing-cafes fuscous; antennæ moderate. Fabr. Mus. Leske. Inhabits Europe.

ANNULATA. Thorax rounded, lineated, greenish; wing-cafes pointed, with white suture. Fabr.

Found on plants in Africa. Vahl. The antennæ are moderate; joints white at the base and black at the tip, the first entirely black; head dusky.

LINEATA. Thorax rounded and somewhat spinous; joints of the antennæ white at the base. Fabr. Inhabits South America.

TRISTIS. Thorax rounded, black, with white lines; wing-cafes bidentated, testaceous with whitish lines. Fabr. This kind inhabits Tranquebar. The antennæ are short and fuscous; wing-cafes smooth.

POPULNEA. Thorax lineated with yellow; wing-cafes with four yellow dots; antennæ moderate. Fabr. *Cerambyx populneus*. Linn.

TREMULA. Green, with two black dots on the thorax, and four on the wing-cafes. Fabr. A native of Germany.

PUNCTATA. Green, with numerous black spots; antennæ moderate. Fabr. *Cerambyx punctatus*. Linn. Inhabits the south of Europe.

VIRESCENS. Thorax villous and cinereous; wing-cafes somewhat attenuated and green. Fabr. Inhabits Italy, Dr. Allioni, and France, Broussonet.

LONGICORNIS. Fuscous; legs testaceous; antennæ very long and black with a white ring. Fabr. Inhabits Africa. Banksian cabinet.

FEMORATA. Anterior part of the thorax fuscous, posterior testaceous; three alternate bands of black, and testaceous on the wing-cafes; antennæ very long. Fabr.

VOLVULUS. Above black; thorax and wing-cafes margined with cinereous. Fabr. Inhabits Cayenne.

FERRUGINEA. Thorax somewhat spinous, ferruginous, with antennæ and legs black. *Cerambyx cantharinus*. Linn. Inhabits Germany.

BRUNNEA. Thorax rather spinous, ferruginous; antennæ

tennæ and legs same colour. Inhabits Germany. Helwig, &c.

TESTACEA. Black with testaceous wing-cafes. Fabr. A native of Germany.

VIOLACEA. Body violaceous and immaculate. Fabr. Obs. The antennæ are moderate and black; thorax somewhat pubescent; wing-cafes rough; legs black.

EPHIPIUM. Black; dorsal line on the thorax and scutellum cinereous; thighs ferruginous. Fabr. This Inhabits Hungary, Hybner.

PICEA. Pitchy; antennæ and legs ferruginous. Fabr. A South American species of small size.

HIRTA. Black, hairy with long antennæ. Fabr. Saperda Filum Rossi. Inhabits Italy. Dr. Allioni.

SCUTELLATA. Thorax somewhat spinous, black; antennæ, wing-cafes and legs greyish; scutellum white. Fabr. A native of Germany. The antennæ are shorter than the body, greyish, with the joints ferruginous at the base; and black at the tip, the first entirely black; head black; wing-cafes smooth, and cinereous; shanks dusky ferruginous.

LINEOLA. Black; dorsal line on the thorax, and thighs rufous at the tip. Herbst. &c. Inhabits Italy.

Genus CLYTUS.

Antennæ setaceous; eyes reniform, and embracing the base of the antennæ; thorax globose, and broad as the wing-cafes; elytra rigid; length of the abdomen; legs long and formed for walking; thighs compressed; four joints in the feet. Donovan. Inf. N. Holland.

THORACICUS. Thorax black, with a rufous spot; wing-cafes fulvous; suture at the base, and two oblique bands black. Donovan. Inf. N. Holland. A lately discovered species. Muf. Francillon.

SEXMACULATUS. Black; thorax covered with silvery down; wing cafes with three yellow spots, and somewhat emarginate at the tip. Donovan. Inf. N. Holland.

PUNCTULATUS. Brownish-testaceous; wing-cafes sprinkled with impressed black dots. Donovan. Inf. N. Holland. Discovered by Mr. Bailey the astronomer in Captain Cook's expedition. Muf. Donovan.

CERAMIC gulf, *Sinus Ceramicus*, in *Ancient Geography*, a deep gulf of Asia Minor, forming the separation of Caria and Doris, and deriving its name from Ceramus, a maritime town of Caria; which Pliny places in the island of Arconesus, but all other geographers on the continent, between Cnidus and Halicarnassus. This bay is called by some writers the *Ceraunian* bay, and the city from which it borrowed its name, *Ceraunus*. In our time this gulf is called the gulf of STANCHO, from the name of the island situate at its entrance: Its site and name are now to be found in a place of little importance, called *Keramo*.

CERAMICUS, so called from Ceramus, the son of Bacchus and Ariadne, the name of a place at Athens, which was surrounded with walls, and in which were to be seen the tombs and statues of all the illustrious men who had died in the service of their country, with inscriptions recounting their praises and exploits. And in order to render these known and familiar to all, to animate every citizen to a love of virtue and of glory, and to excite in youthful minds an ardent desire of imitating those celebrated worthies, it was made a public walk or promenade. There were two places at Athens bearing this name; one in the city, and the other in the suburbs, in which were the academy and other edifices, at the distance of six stadia from its walls; the former was a place of resort for prostitutes, and much frequented on account of its walks; the other was appointed for the burying-place of illustrious men above-mentioned. See ATHENS.

CERAMIS, the name of a burgh in Greece, in Attica, belonging to the Acamantide tribe; which was the place called by others the *Outer Ceramicus*.

CERAMIUM, in *Botany*, a genus formed by Roth for some species of sea-weed arranged by Linnæus and other authors under either *fucus* or *conferva*, with the following generic character: filaments *membranaceo-cartilaginous*, somewhat geniculated; capsules with generally one seed scattered on the *outside* of the branches. His generic character of *fucus*, in contradistinction from the preceding, is, vesicles, aggregate, imbedded in the substance of the frond, furnished with mucifluous pores; and of *conferva*, small tubes, or *herbaceous* filaments, with granules of fructification scattered on the *inside* coats of the tube. The name was given by Stackhouse in the first Fasciculus of his "*Nereis Britannica*," to another selection of plants from the genus *Fucus*, which he afterwards called *palmaria*. See *Nereis Brit. Introd.* p. 15. 24. 31, 32. See PALMARIA.

CERAMIUM, an ancient measure, answering to what was otherwise called AMPHORA and CADUS.

CERAMORUM FORUM, in *Ancient Geography*, a town of Asia Minor, which, according to Xenophon, was situated on the confines of Mysia.

CERAMUS. See CERAMIC gulf.

CERAMUSSA, or CERAMUNA, an episcopal see of Africa, in Numidia, and near Mileva.

CERANÆ, a town of Phrygia, according to Pliny.

CERANGA, a town of India, placed by Ptolemy on this side of the Ganges.

CERANTHUS, in *Botany*, Schreb. Gen. 27. See CHIONANTHUS *incrassatus*.

CERASO *affinis*, *fructu coccineo*, Sloan. Jam. See CORDIA *collococca*.

CERASO *affinis*, *fructu flavo*, Sloan. Jam. See EHRETIA *tinifolia*.

CERASO *affinis*, Bauh. Pin. See PRUNUS *mahaleb*.

CERASONTÉ, in *Ancient Geography*, a Greek town, situate in the territory of Colchis, on the sea-coast. It was a colony of Sinope, according to Xenophon.

CERASSON, or GERASON, an episcopal see of Asia, under the metropolis of Bostra.

CERASTES, one of the names of the isle of Cyprus, according to Pliny. Some say that it bore this appellation on account of the ferocious manners of its inhabitants. Others say that it was called *Cerastes* (from *κερας*, horn), or horned, because it was surrounded with promontories, which projected into the sea, and exhibited the points of rocks at a distance, appearing like horns.

CERASTES was also the name of a people who inhabited this island, and who had an altar dedicated to Jupiter, the Hospitable, and which was always stained with the blood of strangers. Venus, offended at this inhumanity, changed them into bulls.

CERASTES, in *Zoology*, the horned snake. See COLUBER *cerastes*.

CERASTES was also the name given by the ancient Greeks to a stag when at his full growth, or at the end of his fourth year.

CERASTIUM, in *Botany*, (so called from *κερατιον*, a little horn, in allusion to the shape of the capsule), Linn. Gen. 585. Schreb. 797. Willd. 921. Gært. 761. Juss. p. 301. Vent. vol. iii. p. 242. (Myosotis, Tourn. Cl. 6. Gen. 10.) Mouse-ear, or mouse-ear chick-weed. Class and order, *decandria pentagynia*. Nat. ord. *Caryophyllei*, Linn. Juss. Vent.

Gen. Ch. Cal. perianth five-leaved; leaflets ovate-lanceolate, acute, spreading, permanent. Cor. petals five, bifid, obtuse, erect-spreading. Stam. filaments generally ten, filiform, shorter than the corolla; alternate ones shorter;

CERASTIUM.

anthers roundish. *Pist.* germ ovate; styles generally five, capillary, erect, the length of the stamens; stigmas obtuse. *Peric.* capsule ovate-cylindrical, or globular, obtuse, one-celled, opening at the tip; orifice toothed. *Seeds* numerous, roundish, (attached to a free columnar receptacle, Gært.)

Eff. Ch. Calyx five-leaved. Petals bifid. Capsule one-celled, opening at the tip; orifice toothed.

* *With oblong capsules.*

Sp. 1. *C. perfoliatum*, Linn. Sp. Pl. 1. Mart. 1. Lam. 1. Willd. 1. (*Myosotis orientalis perfoliata*, *lychnidis folio*, Tourn. Cor. 18. Dill. Elth. tab. 217. fig. 284.) "Leaves connate, quite smooth, glaucous; petals smaller than the calyx." Lam. *Root* annual. Whole plant smooth, glaucous, with the habit of a *lychnis*. *Stem* about a foot high, cylindrical, leafy, upright, weak, sometimes simple, more frequently a little branched. *Leaves* opposite, connate, resembling those of *saponaria vaccaria* or Lobel's catch-fly; lower ones oblong; upper ones short and oval. *Flowers* terminal and axillary, white, on short peduncles; calyx bell-shaped. *Capsule* as long again as the calyx. Discovered by Tournefort in the Levant. Cultivated by Miller in 1731. 2. *C. vulgatum*, Linn. Syst. Nat. Ed. 10. Lightfoot. Flor. Scot. Smith Flor. Brit. Eng. Bot. tab. 789. *C. viscosum*, Hudf. With. Relh. Sibth. Curt. Flor. Lond. tab. 35. *Alfina hirsuta major*, foliis subrotundis dilute virentibus. Morif. vol. ii tab. 23. fig. 10. *A. hirsuta myosotis latifolia præcocior*. Rai. Syn. 348. *Myosotis arvensis hirsuta parvo flore*, Vaill. Par. tab. 30. fig. 3.) Broad-leaved mouse-ear chickweed. "Hairy, viscid, forming tufts; leaves ovate; petals equal to the calyx; flowers longer than the peduncle." *Root* annual, fibrous. *Herb* pale green, hairy, viscid. *Stems* several, a span high, round, leafy, paniculate-dichotomous, many-flowered; outer ones diffuse at the base, afterwards erect. *Leaves* broad, ovate, or elliptical, obtuse. *Flowers*, from the divisions of the stem, peduncled, erect; upper ones crowded; peduncles shorter than the calyx, less viscid; leaflets of the calyx lanceolate, acute; inner ones with a scarious white margin; petals oblong, white, scarcely longer than the calyx; stamens all fertile, glandular at the base. *Capsule* cylindrical, twice as long as the calyx, a little incurved. *Seeds* streaked, tubercled, tawny. Dr. Smith. A native of England and other parts of Europe, flowering in April and May. 3. *C. viscosum*, Linn. Sp. Pl. 2. Lightfoot Fl. Scot. p. 240. Smith Flor. Brit. 2. Eng. Bot. Pl. 789. (*C. vulgatum*, Hudf. With. Relh. Sibth. Curt. Lond. Pl. 34. *Alfina hirsuta altera viscosa*, foliis longis saturatis virentibus, Morif. tab. 23. fig. 11. *A. hirsuta myosotis*, Rai Syn. 349. Vaill. Par. tab. 30. fig. 1.) Narrow-leaved mouse-ear chick-weed. "Hairy, viscid, spreading; leaves lanceolate-oblong." *Root* perennial, fibrous, small. *Herb* deep green, hairy, more or less viscid. *Stems* several, various in their length, diffuse, erect in meadows, round, leafy, paniculate-dichotomous. *Leaves* lanceolate-oblong, rather obtuse. *Flowers* from the divisions of the stem; peduncles viscid, nearly twice as long as the calyx; leaflets of the calyx generally scarious at their edges; petals commonly longer than the calyx, inversely egg-shaped; stamens all fertile. *Capsule* cylindrical, nearly double the length of the calyx, a little incurved. *Seeds* rugged. A native of meadows, pastures, walls, and waste places in England and other parts of Europe. In naming the last two species, we have followed Dr. Smith, who is supported by the authority of the Linnean Herbarium, in opposition to all the English authors, except Lightfoot. The error is laid by Dr. Smith, (Eng. Bot.) to have arisen from Linneus himself, who, in the Species Plantarum, misquoted Vaillant's admirable figures. It must be confessed, however,

that Linneus has by no means been happy in his specific names; since the latter, as far as our observations have extended, is generally the least viscid of the two. 4. *C. semi-decandrum*, Linn. Sp. Pl. 4. Mart. 4. Willd. 5. Curt. Lond. Pl. 33. (*C. hirsutum minus*, parvo flore, Dill. in Rai Syn. 348. tab. 15. fig. 1. Vaill. Par. tab. 30. fig. 2.) "Hairy, viscid, flowers pentandrous, petals emarginate." Smith. 5. *C. pumilum*; Curt. Lond. Pl. 30. *Root* annual, fibrous. *Herb* with the habit of the preceding, but smaller and often reddish. *Stems* erect, decumbent only at the base, hairy, viscid near the top. *Leaves* ovate-oblong, lower ones frequently smooth. *Flowers* white; peduncles longer than the calyx, bent down immediately after flowering, finally erect; calyx viscid, dilated at the edge, white; petals generally shorter than the calyx, emarginate; stamens five, rarely more. *Capsule* nearly twice the length of the calyx, incurved. *Seeds* tawny, granulated, compressed. Dr. Smith. A native of England and other parts of Europe, flowering in March and April. The variety, figured by Curtis as a distinct species, was gathered by Mr. Dickson on dry banks near Croydon, Surrey; but is thought by Dr. Smith to have no permanent character which can justify its separation from *C. semi-decandrum*. The last three are considered by La Marck, but surely without reason, as only varieties of one and the same species. 5. *C. pentandrum*, Linn. Sp. Pl. 5. Mart. 5. Lam. 4. Willd. 6. Læfl. it. 142. "Flowers pentandrous; petals entire." Very small, resembling the preceding, but differing from it in its green colour, and in its petals, which are not acutely emarginate. Linn. A native of Spain. 6. *C. anomalum*, Willd. 3. Waldftein and Kitabel, pl. rar. Hung. "Erect, with viscous hairs; leaves linear; petals longer than the calyx; flowers trigynous." Willd. *Root* annual. *Herb* beset with hairs, glandular and viscid at their tips. *Stem* erect, half a foot high and more. *Root-leaves* linear-spatulate, petioled; stem-leaves linear, sessile. *Peduncles* one-flowered, in the divisions of the stem. *Petals* a little longer than the calyx, bifid, styles constantly three. *Capsule* oblong, six-toothed. A native of Hungary. 7. *C. refractum*, Mart. 17. Allion. ped. n. 1728. (*C. trigynum*; Villars Dauph. 3. 645. *Myosotis*; Hal. helv. n. 890.) "Leaves lanceolate, smooth; petioles broken." *Root* perennial. *Stems* several, a finger's length, smooth, or somewhat hairy, two-flowered. *Peduncles* long; one broken or jointed, with two stipules at the joint. *Corolla* larger than the calyx; petals cleft one third of their length; segments linear; styles sometimes four. *Capsule* conic-polygon, opening by six or seven valves, and parting as far as the middle. A native of mount St. Bernard. 8. *C. tetrandrum*, Curt. Lond. Pl. 31. Smith Flor. Britt. 4. (*Sagina cerastoides*; Smith in Linn. Transf. vol. ii. p. 343. and Eng. bot. Pl. 166.) "Hairy, somewhat viscid; flowers with four stamens and four petals; petals bifid, shorter than the calyx." Tetrandrous mouse ear chickweed. *Root* annual, fibrous, branched. *Herb* of a bright green colour. *Stems* numerous, diffuse, leafy, dichotomous, scarcely panicled. *Leaves* elliptic-oblong; upper ones egg-shaped. *Flowers* white, peduncles three times the length of the calyx, at first erect, afterwards bent down; leaflets of the calyx four, hairy, acuminate, scarious at the edges; two inner ones narrower; petals inversely heart-shaped. *Capsule* cylindrical, a little longer than the calyx, with eight teeth. *Seeds* roughish on the outer side. In cultivated plants there are sometimes five stamens and five petals. A native of Scotland, flowering in May and June. First observed by Dr. Smith, in 1782, on walls about Edinburgh, and on Calton hill and Arthur's seat; afterwards by Mr. Dickson on Inch Keith and Inch Combe in the Frith of Forth, and on the beach below

below Preston Pans. 9. *C. arvense*, Linn. Sp. Pl. 6. Mart. 6. Lam. 8. Willd. 7. Curt. Lond. Pl. 29. Eng. Bot. Pl. 93. Flor. Dan. tab. 626. (Caryophyllus arvensis hirsutus flore majore; Rai Syn. 348. Myosotis arvensis hirsuta flore majore; Vaill. par. tab. 30. fig. 4. and according to Haller and Dr. Smith also fig. 5.) Field chickweed. "Leaves linear-lanceolate, obtuse, ciliated at the base; petals twice the length of the calyx." Dr. Smith. Root perennial, creeping. Stems four or five inches high, decumbent, forming thick tufts, pubescent. Leaves linear-lanceolate, often densely pubescent, sometimes only ciliated at the base. Flowers large, white; leaflets of the calyx egg-shaped, obtuse, scarious at the edges; petals heart-shaped, veined. Capsule cylindrical, straight, the length of the calyx; orifice with ten teeth. A native of England and other parts of Europe, on a gravelly or chalky soil. 10. *C. lineare*, Willd. 8. Allion. ped. 2. App. tab. 88. fig. 4. "Leaves linear-lanceolate, acute, pubescent; petals larger than the calyx, acute, bifid." Willd. Root perennial. Leaves flaccid, awned. Peduncles generally one-flowered, tomentous. Capsules oblong. A native of mount Cenis and the Piedmontese Alps. 11. *C. dichotomum*, Linn. Sp. Pl. 7. Mart. 7. Lam. 2. Willd. 9. (Myosotis hispanica segetum; Tourn. 245. Lychnis segetum minor; Bauh. pin. 204. Aline corniculata; Clus. hist. 2. p. 184.) "Leaves lanceolate; stem dichotomous, much branched; capsules erect. Linn. longer than the calyx. Willd. Root annual. Stem six or seven inches high, jointed. Leaves more than an inch long, narrow-lanceolate, greenish, slightly hairy. Flowers white, at the end of the branches and in the divisions of the stem; calyx hairy; petals very small. Capsules twice the length of the calyx, slightly curved. A native of Spain. 12. *C. longifolium*, Willd. 10. (Myosotis orientalis longissimo folio; Tourn. Cor. p. 18.) "Leaves linear-lanceolate; stem dichotomous, peduncles, when the fruit ripens, horizontal; capsules the length of the calyx." Willd. Root annual. Stem erect, round, beset with viscous hairs. Leaves the length of the internodes, acute, sessile, hairy on both sides. Calyx hairy; leaflets membranous at the edges; petals shorter than the calyx. Capsule oblong, the length of the calyx, with ten teeth. Willd. from a dried specimen. 13. *C. alpinum*, Linn. Sp. Pl. 11. Mart. 8. Willd. 11. Eng. bot. Pl. 472. Flor. Dan. tab. 6. (C. latifolium; Lightfoot Flora Scot. Pl. 10. Aline myosotis facie, lychnis alpina, flore amplo nivo, repens; Rai Syn. p. 349. tab. 15. fig. 2.) "Leaves elliptical, naked or clothed with long hairs; panicle dichotomous, few-flowered, bracteate; capsule oblong, recurved." Root perennial, creeping. Stems from three to five inches high, erect, simple, dichotomous at the top, sometimes only one-flowered. Leaves elliptical, rather obtuse, various in their breadth; on moist ground generally smooth; in dry situations clothed with long, soft, jointed ascending hairs. Flowers large, white; peduncles about three, one-flowered; bractes opposite, lanceolate; calyx leaflets scarious at the edges; petals inversely heart-shaped, half as long again as the calyx. Capsule cylindrical, longer than the calyx, recurved. A native of high mountains in Wales, Scotland, and other parts of Europe. 14. *C. dioicum*, Mart. 18. Ait. Hort. Kew. 2. 121. "Hairy, viscid; leaves lanceolate; flowers dioicous; petals three times larger than the calyx." A native of Spain; cultivated in 1766, in the botanic garden at Oxford.

** Capsules roundish.

15. *C. repens*, Linn. 9. Mart. 9. Willd. 12. "Leaves lanceolate; peduncles branched; capsules roundish." Linn. Stems several, trailing, putting out roots at the joints. Leaves about two inches long, and little more than half an

inch broad, very hoary; those next the root smaller than the upper ones. Flowers white, on slender peduncles. Miller. It is doubted by La Marck and others, whether it be specifically different from *C. arvense*. Cultivated by Mr. Miller in 1759, and for some time employed as an edging for borders under the name of sea-pink. 16. *C. striatum*, Linn. Sp. Pl. Mart. 10. Lam. 9. Willd. 13. Allion. ped. n. 1729? (Caryophyllus holosteus alpinus gramineus; Bauh. pin. 210. Myosotis; Hall. helv. n. 892.) "Leaves linear, acuminate, smooth; peduncles one-flowered, somewhat downy; capsules globular." Linn. Root perennial. Stems from three to five inches long, partly recumbent, pubescent on their upper part. Leaves green, near together. Flowers white, few, peduncled, terminal; calyx nearly smooth. Lam. A native of mountains in Switzerland. 17. *C. suffruticosum*, Linn. Sp. Pl. 11. Mart. 11. Lam. 10. Willd. 14. (Myosotis tenuissimo folio rigido; Tourn. Inst. 245.) "Stems in tufts, knotty, perennial; leaves linear awl-shaped, rigid, somewhat pungent; calyx striated." Lam. β. Aline orientalis fruticosa, camphoratæ folio; Tourn. Cor. 18. The habit of arenaria juniperina. Root perennial. Stems numerous, from six to eight inches long, a little decumbent towards the base, very slender towards the summit, slightly pubescent. Leaves five or six lines long, opposite, often fasciculated in consequence of the smaller branches not being developed. Flowers white, in a terminal cyme; calyx smooth; peduncles forked. Capsules oblong, a little curved, longer than the calyx. A native of the south of Europe. β. Leaves about an inch long. A native of the neighbourhood of Smyrna. 18. *C. maximum*, Linn. Sp. Pl. 12. Mart. 12. Lam. 11. Willd. 15. Gmel. Sib. 4. p. 150. tab. 62. fig. 2. "Leaves lanceolate, scabrous; petals crenated; capsules globular." Root annual. Stems near a foot long, more or less erect, hairy towards the bottom, smooth near the top. Leaves in distant pairs, sessile, very acute. Flowers large, disposed nearly in an umbel; petals toothed or lacinated. A native of Siberia. 19. *C. aquaticum*, Linn. Sp. Pl. 13. Mart. 13. Lam. 12. Willd. 16. Curt. Lond. Pl. 34. Eng. bot. Pl. 538. (Aline major repens perennis; Rai Syn. 347. Aline maxima folanifolia; Tourn. Inst. 242. Hall. helv. n. 885.) Water chickweed. "Leaves heart-shaped, sessile, peduncles lateral, solitary, reflexed as the fruit ripens; capsule egg-shaped, orifice five-toothed." Dr. Smith. The habit of stellaria nemorum. Root perennial, creeping. Stems two feet long, weak, branched, round, hairy on all sides. Leaves acuminate, waved, hairy; lower ones often petioled. Flowers white; peduncles lateral, intrafoliaceous, one-flowered; leaflets of the calyx egg shaped, hairy, viscid; petals generally the length of the calyx, sometimes longer, deeply bifid; segments somewhat linear; stamens always ten; styles five. Capsules egg-shaped, splitting almost to the middle into five teeth. Seeds kidney-shaped, rough, pale brown. A native of moist ground in England and other parts of Europe. 20. *C. latifolium*, Linn. Sp. Pl. 15. Mart. 14. Lam. 5. Willd. 18. Jacq. Coll. vol. i. tab. 20. Eng. bot. Pl. 473. (C. tomentosum; Hudf. Flor. Ang. Ed. 1. Aline myosotis lanuginosa alpina grandiflora; Rai Syn. 349.) Broad-leaved rough chickweed. "Leaves elliptical, scabrous; peduncles terminal, simple, generally solitary; capsule egg-shaped." Root perennial. Stems in tufts, short, scabrous, one-flowered. Leaves set near together; scabrous, with short, rigid, spreading, and often jointed hairs. Flowers white; peduncles as long as the stem, without bractes. Capsules short. A native of mountains in Wales, Scotland, Switzerland, and Austria, flowering in June. 21. *C. tomentosum*, Linn. Sp. Pl. 16. Mart. 15. Lam. 7. Willd. 19. (Myosotis incana repens; Tourn. Inst. 245. Lychnis; Bauh. pin.

Pin. 206. *Ocymoides lychnitis*, reptante radice L. B. 3. 353. Rai hist. 1031. Col. Phyt. App. tab. 31. *Myofotis*; Hall. helv. n. 891.) "Leaves linear, tomentous, hoary; peduncles branched, somewhat panicled." Lam. Root perennial, creeping. Stems five or six inches long, cottony, branched near the bottom; outer branches procumbent, more abundantly leafy or barren. Leaves white, from six to eight lines long. Flowers white, large, on branched peduncles; calyx cottony, half the length of the corolla. Capsules short but cylindrical. A native of Spain, Switzerland, and Italy; and said, but on very dubious authority, to have been found in Ripton wood in Huntingdonshire. 22. *C. manticum*, Linn. Sp. P. 14 Mart. 16. Lam. 13. Willd. 20. (Alfine *caryophylloides glabra*; Segn. Veron. tab. 4. fig. 2. Hall. helv. n. 883?) "Smooth; stem stiff; leaves lanceolate; peduncles very long; capsules globular." Linn. The habit of *stellaria graminea*. Root annual, slender. Stem half a foot high, commonly simple, sometimes branched. Leaves narrow-lanceolate, very acute. Flowers white, in a trifid panicle; petals twice as long as the calyx, roundish, entire or slightly emarginate (deeply trifid; Hal.); styles three. Capsule with ten teeth. Seeds kidney-shaped, wrinkled, brownish. A native of the neighbourhood of Verona in *Sylvula Mantica*, and of the Grisons.

CERASTIUM, in *Gardening*, contains plants of the herbaceous low growing kind; of which the species cultivated are the perfoliate mouse-ear, (*C. perfoliatum*), and the creeping mouse-ear or sea-pink (*C. repens*); but other species may be cultivated.

Of these, the first, which is an annual plant, rises with an upright stalk a foot high; the leaves have much resemblance of some sorts of catch-fly; they are placed by pairs, embracing the stalks; the flowers come out at the top of the stalks, and also from the wings of the leaves in the upper part of them; are white and shaped like those of chickweed; appearing in May and June. It is a native of Greece.

In the second sort many weak stalks are sent out which trail upon the ground, and put out roots at their joints; the leaves are about two inches long, and little more than half an inch broad, very hoary; and the flowers come out from the side of the stalks upon slender peduncles, which branch out into several smaller, each supporting a white flower. It is a native of France, &c.

Method of Culture. These plants are readily increased, either by seeds, slips from the rooting branches, or parting the roots, each of which operations may be performed either in the autumn or spring season, placing them in proper situations in the open ground. The trailing branches root as they extend themselves, at each joint, by which they easily multiply and extend themselves.

From their spreading growth, they are highly useful for covering naked banks, and running over artificial rock-works, ruins, grottoes, and other similar parts of pleasure grounds. And the last sort was formerly often used as an edging in gardens or other places.

CERASUS, in *Botany*, *capensis*, Petiv.—*Africana*, Pluk. See *CASSINE maurocenia*.

CERASUS americana, Pluk. See *MALPIGIA puniceifolia*.

CERASUS, Bauh. &c. See *PRUNUS*.

CERASUS, in *Gardening*, the cherry-tree. See *PRUNUS*.

CERASUS, in *Ancient Geography*, a town and gulf of Pontus Cappadocius, on the southern coast of the Euxine sea. It was a handsome Greek city, built by the inhabitants of Sinope in Paphlagonia, at the bottom of a bay, between two steep rocks which defended it, according to Pliny and

Arrian; and to whom it paid a yearly tribute, according to Xenophon (Cyr. Exped. lib. v.). This city was much improved by Pharnaces, grandfather of Mithridates, who gave it his own name, and peopled it with barbarians from Colchis; though Ptolemy distinguishes Cerasus from the city of Pharnacea. It was in this city that the unfortunate Monimia terminated her life, as Sallust informs us in his Fragments. This city was episcopal. From hence, as Pliny says, Lucullus first brought cherries into Italy, A.U.C. 680, which were introduced 120 years after into Britain; called therefore by the Latins *Cerasa*. Tournefort tells us, that the country is very hilly, and that the hills are covered with forests, in which cherry-trees grow naturally.

CERATA, the name of two mountains of Greece, which separated the territories of Megara and Athens, according to Strabo, Diodorus Siculus, and Plutarch.

CERATE. See **CERATUM**.

CERATIA, in *Botany*, *Plinii*, Col. ecphr. See **DENTARIA enneaphylla**.

CERATIA filiqua, Lob. See **CERATONIA filiqua**.

CERATIA agrestis virginiana, Rai. dend. See **CERCIS canadensis**.

CERATIA, Bauh. Pin. See **ERYTHRINA**.

CERATIÆ quodam modo affinis, Pluk. See **MIMOSA bigemina**.

CERATIÆS, among *Ancient Naturalists*, denotes a horned comet. The word is formed from *κερας*, a horn. Such is that said to have appeared when Xerxes passed his army into Greece.

CERATINUS, JAMES, in *Biography*, a learned Dutchman of the 16th century, whose family name was *Tryng*, but who assumed the name Ceratinus, of Greek etymology, from *κερας*, the appellation of his native place, Horn or Hoorn. He combined singular modesty with distinguished attainments in Greek and also Latin literature, for which he is highly commended by Erasmus. Such was his extreme diffidence, that, upon being examined for priest's orders, a question was put to him from the Latin grammar, to which he ingenuously replied, that he did not recollect a single rule by heart. The consequence was his rejection; but when he acquainted a friend with the reason of it, this friend immediately repaired to the examiners, and told them, that they had dismissed the most learned man in Louvain, who had given ample evidence of his erudition by an elegant Latin translation from Chrysostom's works. Upon receiving this information, they sent for him again, and ordained him, with many apologies for their former rejection of him. Being obliged by the war to quit a professorship which he held at Tournay, he became a private teacher of Greek at Louvain; and afterwards, on the recommendation of Erasmus to George elector of Saxony, he was chosen to succeed Mosellanus in the university of Leipzig. But returning to Louvain, he died there in 1530, in the prime of life. His works were "A Translation of Chrysostom's Treatise concerning the Priesthood;" an improved edition of the "Græco-Latin Lexicon," printed in 1524, with a preface by Erasmus; and a treatise "De Sono Græcarum Literarum," printed in 1529. Gen. Dict.

CERATINUS Sinus, in *Ancient Geography*, a gulf of the Thracian Bosphorus.

CERATION, **CERATIO**, in *Chemistry*, the operation of waxing.

CERATITES, a name given by many authors to the substance more usually called by authors *unicornu fossile*, and found in great plenty in the caverns of Hartz forest in Germany.

CERATIUM, or **CERATION**, a name given by the *Ancient*

Ancient Physicians to a small weight. The ceration is properly the name of a tree called the carob, or *siliqua dulcis*, the sweet pipe-tree: this tree bears a long pod, in which are contained several seeds among the pulp: these seeds are also called *ceration* and *jembut* by the Arabians; and being dried, they were used as a weight to proportion the doses of medicine. Thus the small weight which took its origin from them, was called ceration; as that small weight, which took its origin from a grain of barley, was called *granum*.

CERATUM was also a small silver coin, the third part of an *obolus*, and the same with what the Romans called *folius*.

CERATOCARPUS, in *Botany* (from *κερας*, a horn, and *καρπος*, fruit), Linn. gen. 1035. Schreb. 1392. Gært. 728. Juss. p. 86. Class and order, *monœcia monandria*. Nat. ord. *Holoraceæ*, Linn. *Atriplicæ*, Juss.

Gen. Char. Male flowers. *Cal.* perianth one-leaved, tubular, wider at the top, thin, coloured, bifid (two-leaved, Gært.). *Cor.* none. *Stam.* filament single, capillary, scarcely longer than the calyx, inserted into the receptacle; anther two-celled, oval, upright. Female flowers. *Cal.* perianth one-leaved, inversely egg-shaped, compressed, keeled on both sides, permanent, two-horned; horns straight, awl-shaped, divaricated. *Cor.* none. *Pist.* germ oblong, superior; styles two, capillary; stigmas simple, standing out between the horns of the calyx. *Peric.* none, except the permanent enlarged calyx, inclosing and closely adhering to it. *Seed* single, oblong, lessened at the bottom, compressed.

Eff. Ch. Male. Calyx one-leaved, bifid. Corolla none. Female. Calyx one-leaved, keeled, permanent, two-horned. Styles two. Seeds single, compressed, inclosed, and covered by the calyx.

Sp. C. *arenaria*, Linn. Sp. Pl. Mart. Lam. Buxbaum Aët. Petrop. 1. 244. tab. 9. Guldenstæt. Nov. Aët. Petrop. 16. 553. tab. 17. fig. 7—12. Gært. tab. 127. fig. 7. Lam. Illust. Pl. 741. (*Ceratoides orientalis major & minor*, Tourn. Cor. 52.) *Root* annual. *Stem* about a foot high, branched, villous. *Leaves* about an inch long, alternate, linear, very acute, villous. *Flowers* axillary, generally solitary, almost sessile. A native of the sandy deserts in Tartary.

CERATOCEPHALUS, in *Botany*, *ballotes folio*, Vaill. See SPILANTHUS *acmella*.

CERATOCEPHALUS *foliis cordatis*, Vaill. See BIDENS *nivea*.

CERATOCEPHALUS *foliis lanceolatis*, Vaill. See COTULA *spilanthus*.

CERATOCEPHALUS *delphinii foliis*, Vaill. See COREOPSIS *coronata*.

CERATOGLOSSUS, in *Anatomy*, is that part of the hyoglossus muscle which arises from the cornu of the os hyoides, and which is described by some anatomists as a distinct muscle. See TONGUE.

CERATOIDES, in *Botany*, *orientalis fruticosa*, Tourn. See AXYSIS *ceratoides*.

CERATOIDES *orientalis major & minor*, Tourn. See CERATOCARPUS.

CERATOMALAGMA, a cerate or cerecloth.

CERATONIA, in *Botany* (*κερατωνια*, Galen. Paulus Ægineta, so called from its hornlike legume), Linn. gen. 1167. Schreb. 1612. Juss. p. 347. Vent. vol. iii. p. 368. Gært. 852. Class and order, *polygamia triœcia*. Nat. ord. *Lomentaceæ*, Linn. *Leguminosæ*, Juss.

Gen. Ch. Hermaphrodite, male and female flowers each on a different plant. Male. *Cal.* perianth small, open, with five divisions. *Cor.* none. *Stam.* filaments five, rarely six or seven, awl-shaped, very long, expanding, opposite to the di-

visions of the calyx, proceeding from the margin of a fleshy disk, which occupies the middle of the flower; anthers large, furrowed, two celled.

Female. *Cal.* perianth one-leaved, divided by five tubercles. *Cor.* none. *Pist.* germ superior, in the centre of the fleshy disk or receptacle which covers the inner part of the calyx; style long, filiform; stigma capitate. *Peric.* legume long, obtuse, flattened, tetraginous when dry, smooth, coriaceous, not opening by valves, divided by transverse partitions into many cells. *Seeds* one in each cell, bedded in a succulent pulp, roundish, compressed, hard, shining.

Eff. Ch. Hermaphrodite. Calyx with five divisions. *Cor.* none. *Stamens* five. Style filiform. Legume coriaceous, many-seeded.

Observ. Fasano, in Aët. Neap. 1787, calls the fleshy disk or receptacle of other authors a permanent corolla.

Sp. C. *siliqua*, Linn. Sp. Pl. Mart. Lam. Illust. Pl. 859. Fasano Aët. Neap. tab. 18. fig. 2. Gært. tab. 146. fig. 1. Dod. Pempt. 787. fig. 1. (*Siliqua edulis*, Bauh. Pin. 402. Blackst. tab. 209.) Carob-tree, St. John's bread. Fr. *Caroubier*. An evergreen tree of a considerable size. *Trunk* rugged. *Branches* crooked, spreading like those of the apple tree. *Leaves* winged, without an odd one; leaflets in six or eight pairs, three inches broad, roundish, entire, thick, rigid, nerved, dark green above, paler beneath. A native of the south of France, of Naples, Spain, Egypt, and the Levant. Its fruit, when ripe, has a tolerably pleasant sweetish taste, and is eaten in times of scarcity by the country people, but is apt to purge and gripe the bowels. It is commonly given to cattle. As a medicine, it has the same properties as cassia, but in a less degree. The pulp, which has the consistence of a blackish syrup, mixed with liquorice-root, dry raisins, and several other kinds of fruit, forms the sherbet of the Turks. It was long supposed to have been the food of John the Baptist in the wilderness; but a better acquaintance with natural history has now rendered it nearly certain that the *ακρὴς*, or locust of the evangelic history, is the well-known destructive insect of that name. It is much more probable that the shells of the carob tree were the husks intended by our Saviour in the parable of the prodigal son. Its leaves are of an astringent nature, and may be used as a substitute for oak-bark in the tanning of hides. Its wood is esteemed in the south of Europe equal to that of the evergreen oak, and is used for the same purposes.

CERATONIA, in *Gardening*, contains a plant of the evergreen, exotic, shrubby kind; of which the species cultivated is the carob-tree, or St. John's bread, (*C. siliqua*), which rises with an upright, thick, woody stem, to the height of 15 or 20 feet in its native situation; the head being divided into many branches; the leaves are pinnate, of a dark green colour, three inches in breadth, and rather more in length; and the flowers small, and of a dark purple colour. It is a native of Syria, &c.

Method of Culture. These plants are increased by sowing the seeds produced from their native situations in pots of light earth in the spring, plunging them in moderate hotbeds; and after the plants have attained sufficient growth, removing them into separate pots, shade, water, and fresh air being occasionally given, and the pots continued in the hotbed. As soon as the weather becomes fine in the summer, they should be gradually hardened by exposure to the free air, and be placed out till the approach of autumn, when the protection of the green house will be necessary to preserve them during the winter season, free air being given in fine days as much as possible; and afterwards they require only to be managed as other green-house plants, in which situation

tion they have a good effect by the variety which they afford.

CERATOPETALUM, in *Botany* (from *κερας*, a horn, and *πεταλον*, a petal), Willd. 861. Smith Nov. Holl. 1. p. 9. Class and order, *decandria monogynia*.

Gen. Ch. *Cal.* perianth five-cleft, bearing the stamens permanent. *Cor.* petals five, pinnatifid. *Stam.* filaments ten, anthers spurred. *Pist.* germ superior; style one. *Peric.* capsule two-celled, seated in the bottom of the calyx.

Sp. *C. gumiferum*, Smith Nov. Holl. tab. 3. A lofty tree. *Leaves* opposite, petioled, ternate; leaflets sessile, lanceolate, toothed, veined, smooth. *Flowers* in terminal panicles; calyxes yellow; segments reddish; petals yellow. A native of New Holland.

CERATOPHYLLUM (compounded of *κερας* and *φυλλον*, signifying a horned leaf), Linn. gen. 1065. Schreb. 1439. Juss. 18. Vent. vol. 4. 5. Gært. 258. Class and order, *monacia polyandria*. Nat. ord. *Imundate*, Linn. *Naiades*, Juss. *Undetermined*, Vent.

Gen. Ch. Male. *Cal.* perianth with many divisions; divisions awl-shaped, equal. *Cor.* none. *Stam.* filaments double the divisions of the calyx, from sixteen to twenty, very short; anthers oblong, erect, longer than the calyx.

Female. *Cal.* and *Cor.* as in the male. *Pist.* germ egg-shaped, compressed; style none; stigma obtuse, oblique. *Peric.* nut small, with a thin, somewhat coriaceous rind, hard, one-celled. *Seed* attached to the bottom of the shell.

Eff. Ch. *Cal.* many parted. *Cor.* none. *Stam.* from sixteen to twenty. *Pist.* one. *Style* none. *Seed* one, coated.

Sp. 1. *C. demersum*, Linn. Sp. Pl. Mart. Lam. Illust. Pl. 775. fig. 2. Flor. Dan. tab. 510. Gært. tab. 44. Eng. Bot. Pl. 947. (*Hydroceratophyllum folio aspero*, Vaill. Aët. 1719, tab. 2. fig. 1. *Millefolium aquaticum cornutum*, Rai. Hist. 191.) "Fruit armed with three spines." *Root* perennial. *Herb* floating under water. *Stem* branched, thread-shaped. *Leaves* about eight in a whorl, dichotomous; segments most frequently four, linear, channelled, toothed on the back, somewhat spiny. *Flowers* axillary, solitary, sessile. *Fruit* elliptical, round, with one long terminal spine, formed of the lengthened style; and two, generally shorter, divaricating lateral ones. Dr. Smith. Common in stagnant waters and slow streams, flowering in September. 2. *C. submersum*, Linn. Sp. Pl. Mart. Lam. Illust. Pl. 775. fig. 1. Eng. Bot. Pl. 679. Flor. Dan. tab. 510. (*Hydroceratophyllum folio lævi*, Vaill. tab. 2. fig. 2.) "Fruit destitute of spines." *Root* perennial, the habit of the former. *Leaves* generally more compound, more slender, and often without spines. *Fruit* smaller, egg-shaped. Less common; found by Dillenius in ditches by the road from Chichester to Selfey island, and by Mr. Dawson Turner between Yarmouth and Gorleston.

CERATOPORUM, in *Ancient Geography*, an episcopal see of Asia Minor, in the Pacatian Phrygia, according to the acts of the council of Ephesus.

CERATOSANTHES, in *Botany, (compounded of *κερας* and *ανθος*, denoting a horned flower). Jussieu, p. 396. Vent. vol. iii. p. 518. A genus formed out of the *Trichosanthes* of Linnæus, for such species as have a four-celled fruit and the inner segments of the calyx not ciliated, but divided at the summit into two revolute horns.*

CERATOSPERMUM, (compounded of *κερας*, and *σπερμα*, denoting a horned seed). Lam. Encyc. Mich. nov. gen. 125. Tab. 56. fig. 1. Hal. helv. n. 2212. Class and ord. *Cryptogamia Algæ*. A plant acknowledged to be very rare, and to have been seen by few botanists.

It is said to grow on the bark of trees, and to consist of numerous crustaceous, orbicular, distinct warts, charged with a fugacious powder, and containing, in small cavities, oblong, curved capsules resembling little horns. But Dillenius suspects that Micheli imagined more than he saw, and that his *ceratospermum* is no other than *Lichenoides verrucosum* and *rugosum*, cinereum glabrum of the *Historia Muscorum*; *Lichen pertusus* of Linnæus. Deprehendat, quisquis poterit, flores Micheli vivos, tab. 56. lit. A, B, C, D. Quidam plus vident, quam alii, quoniam nempe imaginatione pollent. Hist. Musc. p. 129.

CERATOSTEMA, (*κερας* and *σεμα*, denoting a horned stamen.) Juss. 163. Class and order, *decandria monogynia*. Nat. ord. *Campanulaceæ*, Juss.

Gen. Ch. *Cal.* Perianth top-shaped, five-cleft; segments large. *Cor.* coriaceous, tubular-cylindrical; border five-cleft, erect. *Stam.* ten, situated on the calyx; filaments short; anthers very long, attenuated at the tip, and ending in two horns. *Pist.* stigma one. *Peric.* Capsule? crowned with the segments of the calyx, somewhat downy, five-celled, many-seeded.

Sp. Ch. A shrub. *Leaves* coriaceous, sessile. *Flowers* coriaceous, large, in loose terminal spikes, pedicelled, bracteate. A native of Peru, described from a specimen with unripe fruit in the collection of Jos. Jussieu.

CERATUM, **CERATE**, in the *Materia Medica*, a kind of stiff unguent or liniment, made of oil and wax, with other ingredients; used externally in several diseases, especially those of the skin.

It takes its name from its capital ingredient, wax, called in Latin *cera*.

Its consistence is thicker than that of a liniment; the last having usually two ounces of wax to two of oil; but the cerate four of wax to two of oil: yet it is thinner than a plaster.

There are cerates of various kinds, *refrigerative*, *stomachic*, &c. *cerate of sulphur*, of *saunders*, *restringent cerate of bricks*, *divine cerate*, &c.

There is a particular one, called the *refrigerative cerate of Galen*, made of white wax and *oleum rosæ omphacin*.

CERATUM epuloticum, a name given in the late London Dispensatory to the composition commonly called *Turner's cerate*, called in the last London Pharmacopœia "*Ceratum lapidis calaminaris*," and ordered to be made in this manner: take olive oil a pint; yellow wax and prepared calamine, of each half a pound; melt the wax in the oil, expose it to the air, and when the mixture begins to congeal again, sprinkle in the powder of calamine, and continue stirring it till the whole is cold.

CERATUM cantharidis is prepared by mixing six drams by weight of cerate of *spermaceti* softened by the fire, and one dram by weight of finely powdered *cantharis*. This may supply the place of the "*Epithema vesicatorium* of the former dispensatory; and in order to quicken its action, an addition of pulv. *cantharid.* may be made at discretion.

CERATUM lithargyri acetati compositum, or compound cerate of acetated litharge, is composed of $2\frac{1}{2}$ ounces by measure of water of acetated litharge, four ounces by weight of yellow wax, nine ounces by measure of olive oil, and half a dram by weight of camphor. Rub the camphor with a little of the oil: melt the wax with the remaining oil, and when the mixture begins to thicken, pour on gradually the water of acetated litharge, stirring it till it is cold; and then mix in the camphor, which was before rubbed with the oil.

CERATUM resine flavae, or cerate of yellow resin, is prepared by melting together half a pound of ointment of yellow resin with one ounce by weight of yellow wax.

CERATUM saponis, or soap cerate, is composed of the following ingredients; viz. 8 ounces by weight of soap, 10 ounces by weight of yellow wax, one pound of powdered litharge, one pint of olive oil, and one gallon of vinegar. Boil the vinegar with the litharge by means of a slow fire, constantly stirring, till the mixture unites and thickens; then mix in the other ingredients in order to form a cerate.

CERATUM Spermatis Ceti, or cerate of spermaceti, is prepared by mixing together half an ounce by weight of spermaceti, two ounces by weight of white wax, and four ounces by measure of olive oil, and stirring it till the mixture becomes cold.

CERATUM mercuriale, a form of medicine prescribed in the late London Pharmacopœia, and ordered to be made in the following manner: take yellow wax and tried hog's lard, of each half a pound; quicksilver, three ounces; simple balsam of sulphur, a dram: melt the wax and lard, and then add to them gradually the quicksilver, first well divided by the balsam of sulphur.

CERATUS, or *CÆRATUS*, in *Ancient Geography*, a small river of the isle of Crete, which, according to Strabo, ran near the town of Gnossus.

CERAULA, in *Antiquity*, a kind of musician, who blows or plays on the horn.

In which sense, the word amounts to the same with the Latin *cornicem*.

CERANIA, in *Ancient Geography*, a town of the Peloponnesus, in Achaia, according to Polybius. It was one of the twelve cities which formed the Achæan state.

CERAUNIA, now *Cerines*, an ancient town on the north coast of the island of Cyprus; which, like Paphos, exhibits nothing but ruins, as a testimony of its past grandeur.

CERAUNIA, *CERAUNIAS*, or *CERAUNIUS lapis*, in *Natural History*, a sort of flinty figured stone, of no certain colour, but of a pyramidal or wedge-like figure; popularly supposed to fall from the clouds in thunder-storms, and to be possessed of divers notable virtues; as of promoting sleep, preserving from lightning, &c. The word is formed from *κεραυνος*, a thunder bolt. The *ceraunia* is the same with what is otherwise called the thunder-stone, or thunder-bolt; and sometimes also *sagitta*, or arrow's head, on account of its shape.

The *ceraunia* are frequently confounded with the *OMBERIA* and *BRONTIA*, as being all supposed to have the same origin.

The generality of naturalists take the *ceraunia* for a native stone, formed among pyrites, of a saline, concrete, mineral juice. Mercatus and Dr. Woodward assert it to be artificial, and to have been fashioned thus by tools. The *ceraunia*, according to these authors, are *silices*, or heads of the ancient weapons of war, in use before the invention of iron; which, upon the introduction of that metal, growing into disuse, were dispersed in the fields through this and that neighbouring country.

Mr. Dorthes has found, among the worn stones of the Mediterranean shore, javelin-heads of porphyry, jasper, hornstone, schorl, variolite, &c. probably fabricated by the ancient inhabitants, the Gauls. These javelin-heads, made of jasper, &c. on account of their excessive hardness, of which even the savages of Canada have availed themselves in the construction of such weapons, are commonly known by the name of thunder-stones, and are distinguished by the Lithologists by the name of *Ceraunites* or *Ceraunia*.

CERAUNIAS albus, a name given by Pliny to a gem or precious stone, of the nature of the asteria, but somewhat inferior to it in beauty. Pliny tells us that it was a very bright gem, of a crystalline appearance, but

with a cast of bluish; and that it was found in Caramania. Solinus gives us much the same account, but makes Germany the place of its origin. It is, indeed, written Germany in several of the old copies in Pliny, but the most correct have it as it is printed, Caramania; and Caramania was a country from which the Romans had many gems.

CERAUNII, in *Ancient Geography*, a people of Illyria, who, according to Pliny, were divided into 24 decuries. They are also mentioned by Ptolemy.

CERAUNII Montes. See *ACROCERAUNIA*. Pomponius Mela gives this name to a part of mount Taurus, which proceeded from the coast of the Euxine sea, the Palus Mæotis and Tanais.

CERAUNILIA, or *CERAUNÆA*, a town of Italy, which Diodorus Siculus places in the country of the Samnites; and which, he says, was taken by the Romans.

CERAUNITES, in *Natural History*, a name given by several writers to the *BELEMNITES*.

CERAUNIUS, or *Fulminator*, in *Mythology*, an epithet of Jupiter.

CERAUNUS, in *Ancient Geography*, a river of Asia, in Cappadocia, according to Pliny.

CERAUSIUS, a mountain of Peloponnesus, in Arcadia; which, according to Pausanias, formed a part of mount Lycæum.

CERBALITANUS, an episcopal see of the proconsular Africa.

CERBALUS, now *Cervaro*, a river of Italy.

CERBANI, a name given by Pliny to an ancient people of Arabia Felix; called *Cerdanitæ* by Steph. Byz.

CERBANUM, a town of Italy, mentioned by Procopius.

CERBERA, in *Botany*, (so called from Cerberus, on account of its poisonous qualities), Linn. Gen. 294. Schreb. 415. Willd. 475. Juss. 149. Gært. 708. (Ahouai, Tourn. 434.) Class and order, *pentandria monogynia*. Nat. ord. *Contortæ*, Linn. *Apocine*, Juss.

Gen. Ch. Cal. Perianth five-leaved, or five-cleft. Cor. monopetalous, funnel-shaped; tube clavated, longer than the calyx; orifice pentangular, nearly closed by five converging teeth; limb large, five-cleft; segments oblique, obtuse, more gibbous on one side. Stam. filaments five, awl-shaped, in the middle of the tube; anthers erect, converging. Pist. germ roundish; style filiform, short; stigma capitate, two-lobed. Peric. drupe large, roundish, fleshy, hollowed on one side by a longitudinal furrow. Seed, a nut, containing one, two, or four kernels.

Eff. Ch. Corolla contorted. Drupe one-seeded.

Sp. 1. C. *Ahouai*, Linn. Sp. Pl. 1. Mart. 1. Willd. 1. Lam. 1. Illust. Pl. 170. Bot. Mag. Pl. 737. (Ahouai, Thevet. Antarct. 66. Tourn. Inst. 658. tab. 434. Thevetia, Linn. Hort. Cliff. Arbor Americana, foliis pomi, fructu triangulo, Bauh. Pin. 434.) "Leaves egg-shaped, acute." A tree, ten feet high, yielding in all its parts a poisonous milky juice. Stem and branches irregular and crooked. Leaves three inches long, one and a half broad, thick, succulent, bright green, smooth. Flowers in clusters at or near the extremity of the branches, cream-coloured; calyx divided half way down into five acute reflexed segments; tube of the corolla dilated in the upper part; orifice closed, marked with five deep furrows; segments of the limb, oval, oblique, with undulated margins; anthers on short filaments, enclosed in the inflated part of the tube; style the length of the tube; stigma bifid, top-shaped, surrounded at the base by a circle of greenish glands, which secrete a colourless, very sweet honey, perfectly free from any acid or nauseous taste. A native of Brazil and the West Indies. Cultivated by

Mr. Miller, in 1739. It flowers in July and August, but never produces fruit in England. Its wood has a very offensive smell; and the kernels of the nuts are a deadly poison. 2. *C. ovata*, Willd. 2. Cavan. Ic. iii. p. 35. tab. 270. "Leaves elliptical, obtuse." Leaves scattered, nearly sessile. Flowers terminal, about five together. A native of New Spain. 3. *C. thevetia*, Linn. Sp. Pl. 2. Mart. 3. Lam. 2. Willd. 6. Jacq. Amer. 48. tab. 34. Pift. 20. tab. 47. Lam. Ill. Pl. 170. "Leaves linear, very long, crowded." An elegant shrub, from twelve to fifteen feet high. Stem round, abounding in a poisonous milky juice, dividing at the top into numerous weak branches; branches simple, loose, smooth, marked with the scars of fallen leaves. Leaves on short petioles, scattered, narrow, linear, acuminate, four or five inches long, full of a milky juice. Flowers yellow, large, odorous, generally solitary, nodding, axillary, and terminal; peduncles shorter than the leaves; teeth of the tube ciliated; filaments very short; germ five-freaked, surrounded by a yellow, fleshy, nectareous navel. Fruit greenish, round, fleshy, milky; containing an obscurely three or four cornered nut, which opens by a kind of furrow on one side. A native of Cayenne and the West Indies. Received by Mr. Miller in 1735, by the name of French physic-nut. 4. *C. manghas*, Linn. Sp. Pl. 2. Mart. 2. Lam. 3. Willd. 4. Osb. It. 91. Petiv. tab. 16. fig. 4. (Manghas fructu venenato, Bauh. Pin. 440. Burm. Zel. 150. tab. 70. fig. 1. Arbor lactaria, Rumph. Amb. ii. p. 243. tab. 81. Odollam, Rheed. Mal. i. p. 71. tab. 39.) "Leaves lanceolate; nerves transverse." A milky tree, from eighteen to twenty feet high. Wood white and tender; bark even; branches rather spreading, crooked, cylindrical, marked with scars of fallen leaves. Leaves alternate, but scattered near the ends of the branches, ten or twelve inches long, and three broad, on short petioles, quite entire, smooth, even above, furnished underneath with transverse parallel nerves, which proceed from the midrib, and terminate in a nerve-like cord at the border of the leaf. Flowers white, in terminal, branched, unequal, racemes; calyx five-leaved; leaflets lanceolate, spreading, coloured, deciduous; tube of the corolla longer than the calyx, angular within; lobes of the border egg-shaped, large; filaments very short, inserted into the upper part of the tube; anthers egg-shaped, covered with the down of the tube; germ bifid; style filiform, somewhat shorter than the tube; stigma egg-shaped, cloven. Fruit egg-shaped, the size of a goose's egg, green, marked with minute white spots, compressed on one side, with an obsolete furrow; inclosing two large seeds which resemble chestnuts, and have a poisonous, vomiting quality. A native of the East Indies, and of the Society islands. In the island of Amboina its bark is used as a purgative.

Swartz has observed that this species would form a genus distinct from the two preceding, if it were not desirable not to multiply genera without absolute necessity. Gærtner asserts that on account of the difference in the structure of the fruit it cannot be associated with them under the same genus. He maintains moreover, that the *Arbor lactaria* of Rumphius and the *Odollam* of Rheede, quoted by Linnæus as synonyms, are distinct species strongly marked by the characters of the fruit. He gives the following description of the former from a specimen in the collection of Sir Joseph Banks, and of the latter from a specimen preserved in the museum at Amsterdam. *C. Manghas*, Tab. 123 and 124. fig. 1. *Peric.* Drupes two, dry, large, ovate-oblong, gibbous and obsoletely striated behind, more even with a slightly depressed furrow before; outer cuticle membranous, thin, dark brown; flesh fungous, resembling the dried pith of elder, intermingled

with the filaments of the putamen or shell; putamen woody; consisting of round fibres proceeding from the inner part in a radiate manner towards the circumference, and there changed into new, rather even, longitudinal furrows which form a peculiar woody kind of bark; semibivalved by means of a dehiscient suture in the anterior part, and continued to the middle of the back; one celled, but divided into two chambers by a moveable membranous partition placed between the valves. Receptacle none, except the moveable partition, to one surface of which the seed closely coheres its whole length. Seed one, (the other constantly abortive) large, ovate-oblong, lenticularly compressed, attenuated at the tip, of a dull rusty colour.

5. *C. Odollam*, tab. 124. fig. 3. Drupe generally single, elliptic-globular, very convex on one side, greenish yellow; cortical stratum of fibres as in the preceding, woody; fibres broader, more branched and frequently reticulated on the hinder part; putamen semibivalved, one-celled, but divided into two chambers; partition free, double, rising from a woody curved peduncle; each part clothed on its inner side (that towards the axis of the fruit) with an irregular tissue of crooked fibres, and on its outer side bearing the seed. Seed one in each chamber, ovate-acuminate, on one side remarkably convex, flat on the other, and so closely adnate to the partition as to leave only the tip free. Gærtner describes also a seed communicated to him by a friend which appears to belong to another distinct but unknown species. He calls it 6. *C. platyspermus*, tab. 124. fig. 2. Putamen woody, egg-shaped, muricated on all sides by multiform upwardly incurved fibres, nearly two-valved by means of a suture extended to the base, divided into two very compressed chambers by a moveable partition; partition coriaceous, consisting of two lamellæ, opposite to the suture of the valves. Seeds two in each chamber, foliaceous-compressed, free on both sides, unequal; one larger, ovate-spatulate superior; the other smaller, somewhat kidney-shaped, inferior. 7. *C. parviflora*, Willd. 3. Forst. prod. 121. (*Ochrosia borbonica*; Gmel. Syst. nat. p. 439). "Leaves stellated, inversely egg-shaped." A native of the friendly Islands and of Savage Island in the Pacific ocean. 8. *C. maculata*, Willd. 5. (*Ochrosia borbonica*; Juss. O. maculata; Jacq. ic. rar. 2. tab. 321. Dryander in Linn. Trans. 2. p. 227.) "Leaves lanceolate, veined, spotted; cymes axillary, branched, divaricated." It differs from the preceding in the form of its leaves. A native of the Isle of Bourbon. 9. *C. salutaris*, Mart. 5. Lour. Cochin. 136. (*C. oppositifolia*; Lam. 4. *Lactaria salubris*; Rumph. amb. 3. 255. tab. 84.) "Leaves and fruit oval." A middle-sized tree, with a milky juice, and spreading branches. Leaves oblong-oval, obtuse, quite entire, shining, crowded at the ends of the branches, on short petioles. Flowers white, inodorous, in small nearly terminal racemes; calyx five-cleft; segments awl-shaped, long, erect; corolla salver-shaped, with a long incurved tube; segments of the border oblong, fleshy, spreading, not contorted; germ egg-shaped, very small; style longer than the stamens, thick, curved, always bursting the tube of the corolla; stigma top-shaped, vertically compressed, truncated. Drupe oval, large, with a smooth skin, yellow on one side, red on the other, containing a fibrous-woody nut, with a single kernel, not poisonous. The want of a contorted corolla renders its genus dubious. A native of Cochin-China near the coast, and of the Moluccas. 10. *C. musculiformis*, Lam. 5. (*Fructus musculiformis*; Rumph. Amb. 2. Append. 185. tab. 60.) "Fruit muscle-shaped." Leaves alternate, scattered, petioled, oval-oblong, obtuse, smooth, furnished with lateral transverse nerves, from six to eight inches long and two broad.

Flowers

Flowers in a simple raceme, according to Rumphius resembling those of *C. manghas*, but smaller. *Fruit* oblong, acute, full of a milky juice like the leaves and all other parts of the plant, about three inches long and one broad, a little compressed laterally, with a longitudinal furrow, having firm flesh, and containing two or three irregular kernels. The empty dried shell is half split in two on the upper part and bears some resemblance to a muscle. A native of the Moluccas and the Sunda isles. La Marck judges this as well as the preceding to be a doubtful species.

Propagation and Culture. These plants may be propagated by nuts procured from their native countries, and require the same treatment as other tropical trees and shrubs, but as they abound in milky juice, they should be sparingly watered, especially in the winter season.

CERBERUS, in *Astronomy*, a small northern constellation near Hercules, consisting, in Hevelius's Catalogue, of four stars, which are enumerated under HERCULES in the Britannic Catalogue.

CERBERUS, among *Chemists*, denotes MERCURY.

The name *cerberus* is also given by some to a famous purging powder, more usually called *pulvis cornachinus*, and *pulvis comitis Warwicensis*. See CORNACHINE powder.

CERBERUS *chemicus*, in *Chemistry*, a phrase used by Hoffman and others to express the common nitre of saltpetre, which they have called also *sal infernalis*.

CERBERUS, in *Entomology*, *sphinx cerberus* of Pallas. See ZYGÆNA *caudata* of Fabricius.

CERBERUS, in *Mythology*, a name which the ancient poets have given to a dog with three heads and mouths, born of Typhon and Echidna, and stationed at the gate of hell. Those who entered were carested by him; but to such as would return he was more terrible than hell itself; except in the instances of Bacchus and Hercules, and Mercury and Orpheus. The "dog of darkness" of the Edda bears, in some respects, a resemblance of this monster.

Some have supposed that Cerberus is the symbol of the earth, or of all-devouring time; and that its three mouths represent the present, past, and future. Accordingly they derive the name from κερειβωρος, *carnivorous*; it being the property of the earth to devour dead bodies. The victory obtained by Hercules over this monster, denotes the conquest which this hero acquired over his passions. The Platonists consider him as the evil dæmon, who, as Porphyry expressed it, is found in the three elements, air, water, and earth; whence they derive his three heads. In a monument, preserved by Montfaucon, Cerberus is represented on a box, with one head of a man, another of a dog, and the third of an ape; and two serpents twisting round him bind together his legs. This figure was brought from Egypt. Hesiod gives to Cerberus 50, and others 100 heads; but he more commonly appears with three. He is said by some to have had the tail of a dragon; and instead of hair a skin, shagged over with snakes, whence probably is derived the epithet Medusean.

Dr. Bryant supposes that Cerberus was the name of a place, and that it signified the temple of the Sun; deriving it from *Kir-Abor*, the *place of light*. This temple was also called *Tor-Caph-El*, which was changed to τρικηφαλός; and hence Cerberus was supposed to have had three heads. It was likewise called *Tor-Koren*, *Turris Regia*; whence τρικερνός, from τρεις, *three*, and κεφον, *head*. Anal. of Mythology, vol. i. p. 409, &c.

CERBIA, in *Ancient Geography*, a town of the island of Cyprus.

CERBICA, *Shekkah*, a town of Africa, situate 18 leagues

S.W. of Capfa, according to Ptolemy. In this place are found some vestiges of the Romans.

CERBOLI, in *Geography*, a small island, or rather rock, in the Mediterranean, near the coast of Tuscany, a little to the north of the island of Elva.

CERCAPHUS, in *Ancient Geography*, a mountain of Asia Minor, in Ionia, near the town of Colophon.

CERCARIA, in *Zoology*, a genus of animalcules, defined by writers *vermis nudo oculo inconspicuis, pellucidus, caudatus*, Gmel. *Vermis inconspicuis, pellucidus, caudatus*, Müller, &c. A worm, invisible to the naked eye, pellucid, and furnished with a tail.

The animals of this tribe which, from their extreme minuteness, can only be discovered by the assistance of a microscope, are found in vegetable and animal infusions of water, in stagnant waters of every kind, in salt-water, even in pure water, and in spermatic fluids, according to some French writers. The most copious history of these animalcules is to be found in Müller's Hist. Vermes, Havniæ, 1786. *Om infusions dyrenes forplantelses-maader*, &c. The following are the principal species of this genus.

* *Depressed.*

PLEURONECTES. Orbicular, the tail consisting of a single bristle. Müll. Gmel. This is membranaceous, rather round, and white. In the fore-part are two blackish points, and in the middle orbicular intestines of various sizes, the larger of which appears remarkably bright. When swimming, it is observed that one edge of the lateral membrane is upwards, and the other folded down. It is found in water that has been kept several months. Müll. Adams, &c.

TENAX. Membranaceous, anterior part rather thick and truncated; tail three times as short as the body. Müll. This appears an oval pellucid membrane, the anterior part thick, and truncated, the posterior acute, or terminating in a short tail; its motion in the water is circular, whirling about in various directions with great velocity.

CYCLIDIUM. Oval, somewhat emarginate behind, with an exsertile tail. Müll. Found frequently in pure water. The body is oval, smooth, membranaceous, pellucid, with a black margin; the posterior part is somewhat notched, and furnished with a tail which it thrusts out at pleasure. The intestines are remarkably pellucid vesicles.

** *Subtrigonal.*

TRIPUS. With a pointed, reflected arm on each side. Müll. This kind was discovered in sea-water by Müller. The body is of a somewhat triangular form, with a straight tail.

*** *Tapering.*

LEMNA. Changeable, somewhat flattened, with an annulated tail. Müll. Resembles, in some respects, the *proteus* of Baker, though altogether different. The body is capable of being contracted or extended, changing from oblong, or the shape of a pear, to kidney-shape. The tail is short, thick, and annulated. It vibrates, when stretched out, with so much velocity, that it appears double. The intestines are not very distinct. Near the apex is a small pellucid globule, which Müller supposes to be the mouth. Adams, &c. Inhabits stagnant water.

LUPUS. Cylindrical, thick, and elongated: tail terminating in two spines. Müll. Lives in stagnant waters. This is one of the largest species of its genus. It is full of muscles, which are capable of being contracted or extended. The head is larger than the body, with the apex bent down like a hook. The two spines at the extremity of the tail are very bright, and moveable.

PODURA. Cylindrical, posterior part pointed, and slightly cleft

cleft behind. Müll. This species was found by Müller in marſhy places in Denmark, covered with lemna. It appears to conſiſt of a head, a trunk, and a tail; the fore-part reſembles the head of a herring, the trunk is cylindrical, and replete with black ſpiral inteſtines, and which become more or leſs ventricofe at the pleaſure of the animal; when it moves it turns round as upon an axis. It is found in the months of November and December.

CATELLUS. Body three-parted, with a forked tail. Müll. Diſcovered in water where flowers have been kept. This animalculum is more complex in its form than many others. It has a moveable head, which appears connected to the body only by a point. The abdomen is not ſo wide, but twice as long as the head, and is replete with inteſtines. The tail is ſhorter than the head, narrower than the belly, and terminating in two bristles, which can unite and ſeparate at pleaſure. It moves with great velocity.

GYRINUS. Rounded, with pointed tail. Müll. *Macrocerus corpore globoſo, cauda craſſiore* of Hill. The body is white, gelatinous, without any traces of inteſtines; fore-part ſomewhat globular; poſterior ſomewhat globular, long, and pointed. The tail is obſerved to be in continual vibration while ſwimming, like that of tad-poles. Met with in animal infuſions, and appears very ſimilar to the ſpermatic animalcules.

**** *Various.*

GIBBA. Suboval, convex; anterior part acute; tail rounded. Müll. Adams. This is ſmall, gelatinous, white, opaque, without any viſible inteſtines; the upper part convex or gibbous. Found chiefly in infuſions of hay.

INQUIETA. Changeable, convex, with ſmooth tail. Müll. Adams, &c. Diſcovered in ſalt water.

TURBO. Globular, contracted in the middle, with a bristle-form tail. Müll. Adams, &c. Met with in infuſions of duck-weed. This appears to be compoſed of two globules, the lower one of which is ſmalleſt. There are two black points reſembling eyes. It ſometimes carries the tail perfectly ſtraight, and at others the tail is bent back on the body.

SETIFERA. Cylindrical, the fore-part ſmalleſt, poſterior pointed. Adams. Rarely found. Inhabits ſalt water.

HIRTA. Anterior part ſomewhat truncated; lower obtuſe, and terminating in two ſmall points. Adams. This alſo is found in ſalt water.

CRUMENA. Cylindrical and ventricofe; anterior part obliquely truncated; tail linear, and ending in two diverging points. Adams, &c.

VERMICULARIS. Cylindrical, annulated, with projecting ſnout; tail two ſmall ſpines. Adams.

FORCIPATA. Cylindrical, wrinkled with moveable forked proboscis. Adams. Found in marſhy places.

LUNA. Orbicular; tail two ſhort ſpines; anterior part lunated, or crescent-formed. *Cercaria luna*, Adams.

CERCAS, in *Ancient Geography*, a town of Greece, near Aulis, mentioned by Suidas.

CERCASAROPOLIS, a town of Egypt, ſeated on the left bank of the Nile, at the place where this river divides to form the Delta. It is mentioned by Herodotus and Pomponius Mela. Its eaſtern branch is the Peluſian arm, and the weſtern, the Canopian. Strabo calls this town *Cerceſura*, and places it on the ſide of Libya.

CERCASI, in the *Eastern Military Orders*, are a body of horſe in the ſervice of the grand ſignior.

CERCEAU, JOHN ANTHONY DU, in *Biography*, was born at Paris in 1670, and entering at the age of 18 years among the Jeſuits, diſtinguiſhed himſelf in their ſociety by

the vivacity of his talents. Having indulged his taſte for Latin poetry, he published a collection of pieces in 1705, which gained him a conſiderable degree of reputation. He afterwards applied to vernacular poetry, and became an imitator of Marot. But miſtaking vulgarity and inſpidity for ſimplicity, his French poems, with a few exceptions, were generally held in no eſteem. He afterwards wrote ſeveral dramatic pieces, blending in his comedies character and pleaſantry with many traits of haſte and negligence. Among his other productions of different kinds, we may enumerate "Reflections on French Poetry;" "History of the laſt Revolution in Perſia;" "A Critique on Abbé Boileau's History of the Flagellants;" various pieces relating to the ſociety of Jeſuits, and its diſputes. His "History of the Conſpiracy of Rienzi" was one of thoſe performances, among others begun and left unfinished, which was ſo nearly completed, that father Brumoy put the laſt hand to it, and published it in 1733. He was the writer of ſeveral articles in the Journal de Trevoux, particularly on the muſic of the ancients. He died in 1730, at the ſeat of the duke of Aiguillon near Tours, on his return from a tour with the princeſs of Conti. *Nouv. Dict. Hiſt.*

CERCEIS, in *Mythology*, one of the nymphs called Oceanides, the daughter of Oceanus and Thetis. *Helioid. Theogon. v. 355.*

CERCELE, in *Heraldry*. A Croſs CERCELE, is a croſs which, opening at the ends, turns round both ways, like a ram's horn.

The croſs cercele differs from the croſs ANCHORED, as the latter turns but a little rounding, whereas the former turns quite round.

CERCENA, in *Ancient Geography*, a town of Ethiopia, placed by Diodorus Siculus towards the weſtern ocean; belonging to the Atlantides.

CERCENASCO, in *Geography*, a town of Piedmont, in the marquiſate of Saluzzo; 21 miles S.S.W. of Turin.

CERCETÆ, in *Ancient Geography*, a people who dwelt to the ſouth of mount Caucasus and the Euxine ſea, according to Strabo.

CERCETI Montes, mountains of Theſſaly, according to Pliny. They are named "Mons Cercetefias" by Ptolemy, and "Mons Cercetius" by Livy.

CERCETICUS Sinus, a gulf placed by Ptolemy on the northern coaſt of the Euxine ſea, to the eaſt of the Achæans.

CERCETIUS, a mountain of the iſle of Samos; Strabo ſeems to make it a part of mount Ampelos.

CERCHARO, in *Geography*, a town of Naples, in the province of Calabria Citra; 6 miles N.N.E. of Caſſano.

CERCHIARI, a river of Naples, which runs into the gulf of Tarento; 9 miles E.N.E. of Caſſano.

CERCIÆ, in *Ancient Geography*, an iſland of the Mediterranean, placed by Pliny in Aſia Minor, on the coaſt of Ionia.

CERCII, a people of Italy, who were formed by the Romans into a colony under the conſulate of Lucius Valerius and A. Manlius. *Diod. Sic.*

CERCINA and **CERCINITIS**, now *Querkinets*, two flat and contiguous iſlands of Africa, ſituate to the S.E. of Ca-poudia, at the diſtance of five leagues. Strabo and Pliny ſay, that they were joined by a bridge. Ptolemy mentions alſo a town of the name of *Cercina*. Agathemer, Strabo, and other ancient geographers, fix the beginning of the Leſſer Syrtis at theſe iſlands; though, from circumſtances

stances mentioned by Shaw (Travels, p. 112.) it should rather commence at Ca-poudia.

CERCINA, a mountain of Macedonia, between Pæonia and Sintica, according to Thucydides.

CERCINE, a town of Macedonia, at the mouth of the river Pontus in the lake called "Cercinitis palus," which was a marsh extending from west to east, between the town of Cercine and the place called Myrcinus.

CERCINITIS. See CERCINE.

CERCIS, in *Botany*, (*κερξίς*, Theophrast.) Linn. 510. Schreb. 696. Willd. 809. Juss. p. 351. Vent. vol. iii. p. 381. Gært. 844. (*Silicuastrum*; Tourn. 414.) Judas-tree, Fr. Gainer. Class and Order, *decandria monogynia*. Nat. Ord. *Lomentaceæ*, Linn. *Leguminosæ*, Juss. Vent.

Gen. Ch. *Cal.* Perianth one-leaved, very short, bell-shaped, gibbous below, melliferous, with five erect obtuse teeth. *Cor.* Petals five, inserted into the calyx, papilionaceous; wings bent upwards, affixed by long claws; standard roundish, shorter than the wings, and placed beneath them; keel two-petalled, converging into a heart-shaped form, and containing the stamens and pistil; nectary a style-shaped gland under the germ. Linn. (a cavity between the insertion of the stamens and of the pistil. Lam.) *Stam.* Filaments ten, not united, awl-shaped, curved, slightly downy on the inner side of their base, unequal, inserted into the calyx; anthers oblong, incumbent, rising upwards. *Pist.* Germ linear-lanceolate, pedicelled, smooth; style the length of the stamens; stigma obtuse, rising upwards. *Peric.* Legume oblong, obliquely acuminate, one-celled. *Seeds* several, roundish, attached to the upper suture.

Eff. Ch. *Calyx* five-toothed, gibbous below. *Cor.* papilionaceous; standard short, placed beneath the wings; fruit, a legume.

Sp. 1. *C. Silicuastrum*. Common Judas-tree. Linn. Sp. Pl. 1. Mart. 1. Lam. 1. Willd. 1. Lam. Ill. Pl. 328. (*Silicua fylvestris rotundifolia*; Bauh. Pin. Arbor Judæ; Dod. Rai. hist.) "Leaves orbicular-heart-shaped, smooth." A tree, from twenty to twenty-five feet high. *Trunk* upright, with a dark-green bark; branches irregular, spreading. *Leaves* alternate, petioled, quite entire, thickish, pale green above, greyish underneath, deciduous, with diverging leaves proceeding from the extremity of the petiole; stipules oblong, membranous, opposite, caducous. *Flowers* red, or bright purplish rose-colour, sometimes white, appearing before the leaves in lateral racemes on the branches, and sometimes on the trunk of the tree. *Legumes* five or six inches long, near an inch broad, resembling the case of a knife, whence their French name is derived. The flowers are grateful to birds, especially sparrows, who often make great havoc among them and prevent the fruit from coming to perfection. On account of their agreeable poignancy they are used by the French as an ingredient in salads, and are sometimes pickled. A native of the southern parts of Europe, flowering in April and May. Cultivated by Gerard in 1596. 2. *C. canadensis*, Linn. Sp. Pl. Mart. Lam. Willd. (*Ceratia agrestis mucronato folio*, Pluk. Alm. 95.) "Leaves acuminate-heart-shaped, pubescent." Canadian Judas tree. Red-bud tree of the Americans. Resembling the preceding in habit, but smaller and less beautiful. La Marck asserts that its leaves, as well as those of the common kind, are quite smooth: A native of moist parts of North America. Cultivated by Miller in 1730.

CERCIS, in *Gardening*, contains hardy deciduous trees of the following kind; of which the species are the common Judas-tree (*C. Silicuastrum*), and the Canada Judas-tree, or Red-bud tree (*C. Canadensis*.) The first in its native place rises with an upright trunk to the height of

twenty feet, covered with a dark brown bark, dividing upwards into many irregular branches, with the leaves placed irregularly on the branches, on long foot-stalks; they are of a pale-green on their upper, and of a greyish colour on their under side, and fall off in autumn. The flowers come out in the spring, with the leaves, on every side the branches, and many times from the stem of the tree in large clusters, arising from the same point, on short peduncles; and are of a very bright purple colour, being in full beauty before the leaves have attained half their size; and the wood is very beautifully veined with black and green, taking a fine polish. It is a native of the Levant, &c.

It has varieties with white flowers; with flesh-coloured flowers, but without the beauty of the first, and with broader pods.

The second sort grows to a middling size in the places where it is a native; but in this climate rarely rises with a stem more than twelve feet high, but branched out near the root. The branches are weaker than in those of the first sort; the leaves are downy and terminate in points. The flowers are also smaller; but the trees are equally hardy, thriving in the open air. It is a native of North America; where it is known by the title of *Red-bud*, from the appearance of the flower-buds in spring before the leaves come out. And the wood is of the same colour and texture as in the first kind.

Method of Culture. These plants are raised by sowing the seeds in the spring season, as about March, in beds of common ground, to the depth of half an inch. When the plants appear, they should be kept clean, and occasionally watered; and when of sufficient growth be removed into the nursery, planting them in rows at the distance of one foot, and two feet between the rows. After they have remained in this situation for two or three years, they become proper for planting out in the shrubby parts of pleasure grounds.

They are also capable of being raised by layers and cuttings; but they seldom succeed so well in these ways as in the former. They have a highly ornamental effect when planted out in the clumps, borders, and other quarters, among hardy, flowering, deciduous trees of other kinds in the garden or pleasure-grounds.

CERCITÆ, in *Ancient Geography*, a people placed by Ptolemy in Asiatic Sarmatia.

CERCLE, *Grand Cercle*, in *Military Language*, is that which the sergeants, and, behind them, the corporals, formed every evening at an appointed hour, to receive orders. After the grand circle, a small one was formed in each regiment, where the orders were renewed or repeated to the sergeants of each regiment, who communicated them to the officers of their respective companies. This form was observed under the old government of France.

CERCODIA, in *Botany*, Soland. La Marck, Juss. Gært. See HALORAGIS.

CERCOPI, in *Ancient Geography*, a name given by Ovid to the inhabitants of the island of Pithecusa.—Also, a name given to banditti or robbers, who occupied part of the pass of Anopæa, near the Melampyrian rocks, on the confines of the territories of Locris and Melis. See Herodotus, lib. vii. c. 216.

CERCOPIA, a town of Asia, in the Greater Phrygia; Ptolemy.

CERCOPITHECUS, in *Zoology*, a name given by Aldrovandus, Marcgraave, and other writers, to several species of the monkey tribe. Gmelin forms a distinct section, in the *Simia* genus, of the Cercopithecæ, or those with elongated tails, after the *Κηρσοί* of Aristotle. *Simia cyno-*

furus, Hamadryas, Veter, and nearly twenty other species are of this family. See SIMIA.

CERCOPONEDRAS, in *Ancient Geography*, a kind of road or pass in Greece, between mount Oeta and the country of the Trachinians, according to Herodotus; which was occupied by the Cercopi. It was by this pass that the Persians advanced to surprise the Greeks who defended Thermopylae. This path commenced at Asopus, continued through an opening of the mountain called Anopæus, and having reached the summit of the mountain, terminated near the town of Alpene, the first in the country of the Locrians, on the borders of the Melians, near the rock called Melampyge, where was the habitation of the Cercopi. Count de Choiseul-Gouffier discovered this path in his passage from Athens to Larissa.

CERCOSIS, in *Medicine*, a preternatural extension and tumidity of the female CLITORIS, so as to project beyond the *labia pudendi*.

CERCUS, in *Ancient Geography*, a hill of Asia Minor, in Bithynia.

CERCY LA TOUR, in *Geography*, a town of France, in the department of the Nièvre, and district of Nevers; 8 miles E.N.E. of Décise.

CERDA, JOHN-LEWIS DE LA, in *Biography*, a native of Toledo, who entered among the Jesuits in 1574. His literary fame reached Italy, and gained him the particular esteem of pope Urban VIII. His "Commentary on Virgil," 3 vols. fol. has been several times reprinted, and is a work of minute research, and great accuracy, but devoid of taste. His "Commentary on Tertullian's Works," begun in 2 vols. but not completed, is a work of similar character to the former. Cerda died in 1643.

CERDAGNE, LA, a country of the Pyrenées, situate partly in Spain, in the province of Catalonia, and partly in France, in the territory formerly called Roussillon: Puycerda is the capital of the former, and Mont-Louis of the latter.

CERDANA, in *Botany*, Bosc. Nouv. Dict. Flor. Peruv. pl. 184. Class and ord. *Pentandria Monogynia*.

Gen. Ch. *Calyx* tubular, ten-friated, five-toothed. *Cor.* funnel-shaped; tube the length of the calyx; segments of the border oblong, expanded. *Stam.* Filaments five, hairy at the base. *Pist.* Germ superior; style bifid; stigmas two, bifid. *Peric.* Drupe oblong, striated, covered by the permanent calyx and corolla, four-celled. Seeds oval, one in each cell.

Sp. C. —. A large tree, *Leaves* alternate, petioled, oblong, acute, entire, even, shining. *Flowers* white, with red veins, in much branched terminal panicles. A native of Peru. The wood, when the tree is first cut down, has an extremely fetid smell, resembling that of a fox's urine; it afterwards changes to that of garlic, and finally assumes an agreeable pungent odour. The dried leaves and bark are used by the Peruvians as articles of cookery.

CERDICESORA, in *Ancient Geography*, the name of the place where Cerdic the Saxon leader landed, when he invaded Britain in 495, and where he found the Britons drawn up in battle-array to oppose him. This place, according to Camden, was on the coast of Norfolk; but as this is improbable, some learned men have supposed it to be Calshot or Caldishore at the entrance of Southampton river. Others again seek for it at Charford; and Carte thinks, nor is his opinion improbable, that it was Charmouth in Dorsetshire; a place afterwards famous for hostile invasions.

CERDON, in *Geography*, a town of France, in the department of the Ain; four leagues S.E. of Bourg en Bresse.

CERDONIA, in *Ancient Geography*, *Cerdogna*, a place of Italy belonging to the Hirpini.

CERDONIANS, in *Ecclesiastical History*, a sect who maintained most of the errors of Simon Magus, Saturninus, and the Manichees.

They took their name from their leader *Cerdo*, a Syrian, who came to Rome in the time of pope Hyginus, about the year 140; and there abjured his errors, but he did this in appearance only; for he was afterwards convicted of persisting in them, and accordingly was cast out of the church again. Cerdo asserted two principles, the one good, and the other evil: between these, he imagined an intermediate kind of deity, of a mixed nature: this last, according to him, was Creator of the world, and the God that appeared under the old law. To his jurisdiction the Jews were subject; and idolatrous nations were under the empire of the evil principle. The good Being, whom he called *unknown*, was the father of Jesus Christ, who, he taught, was only incarnate in appearance, and was not born of a Virgin; nor did he suffer death, but in appearance. He was a great admirer of virginity, and recommended it to his followers. He rejected or despised the Old Testament; but probably received the books of the New Testament as other Christians did. Marcion, his disciple, succeeded him in his errors: whence the MARCIONITES.

CERDYLIUM, in *Ancient Geography*, a place on the confines of Thrace and Macedonia, near a maritime burgh, in the country of the Argilians, and in the vicinity of the town of Amphipolis, according to Thucydides and Lycophon.

CERE, *Cera*, in *Ornithology*. See ORNITHOLOGY.

CERE, ST. in *Geography*, a town of France, in the department of the Lot, and chief place of a canton, in the district of Figeac; 10 leagues N.E. of Cahors. The place contains 3798, and the canton 12,169 inhabitants: the territory includes 235 kilometres, and 12 communes. N. lat. 44° 52'. E. long. 1° 47'.

CERE-CLOTH, found of *cere*, *cera*, wax, and *cloth*, denotes cloth smeared over with glutinous matter, for the purpose of being applied to wounds or bruises, or for other uses.

CEREA, in *Geography*, a town of Italy, in the Venetian, belonging to the state of Venice; 4 miles W. of Legnano. At this place a battle was fought, in 1796, between the Austrians and French; in which the latter kept the field, and the former lost 100 men killed and 250 prisoners.

CEREALES adiles, two officers of ancient Rome, appointed under Julius Cæsar, to have the superintendency of the corn and grain for the provision of the city. They also presided in the *cerealia*. See ÆDILE.

CEREALES ludi, solemn sports held in honour of Ceres, wherein the matrons represented the grief and lamentation of Ceres for the loss of her daughter Proserpine, and her travels to find her again.

CEREAIA, in *Antiquity*, feasts of Ceres instituted by Triptolemus, son of Celeus, king of Eleusine, in Attica, in gratitude for his having been instructed by Ceres, who was supposed to have been his nurse, in the art of cultivating corn and making bread.

There were two feasts of this kind at Athens; the one called ELEUSINIA, the other THESMOPHORIA.

What both agreed in, and was common to all the Cerealia was, that they were celebrated with a great deal of religion and purity; so that it was esteemed a great pollution to meddle, on those days, in conjugal matters.

It was not Ceres alone that was honoured here, but also Bacchus.

Bacchus. The victims offered were hogs, because of the waste they make in the products of the earth. Whether there was any wine offered, or not, is matter of much debate among the critics. Plautus and Macrobius seem to countenance the negative side; Cato and Virgil, the positive.

The cerealial passed from the Greeks to the Romans: Q. Memmius, the edile, being the first who introduced these rites into Rome, as appears from a coin of this magistrate, on which is the figure of Ceres, holding in one hand three ears of corn, in the other a torch, whilst her left foot trod on a serpent; with this inscription, "Memmius Ædilis Cerealia primus fecit." The Romans held them for eight days successively; commencing, as generally held, on the fifth of the ides of April. The women alone were concerned in the celebration, and were all dressed in white: the men, likewise in white, were only spectators. They eat nothing till after sun-set; in memory of Ceres, who, in search after her daughter, took no rest but in the evening. The festival closed with a banquet and public horse-races.

After the battle of Cannæ the desolation was so great at Rome, that there were no women to celebrate this feast because they were all in mourning, so that it was omitted that year; but after the second Punic war, it was celebrated with an accession of splendour; statues, paintings of chariots, crowns, and rich plunder taken from the enemy, being carried in the procession. According to Macrobius, an egg made part of the shew, being an emblem of Ceres.

CEREALIA *semina*, an appellation given by some to what we call *legumina*, or pulse. Dr. Cullen (Mat. Med. vol. i. p. 274.) refers the several farinacea to three different heads, under the titles of *Cerealia*, *Legumina*, and *Nuces oleosæ*. By this assortment, he says, they may be distinguished as they contain more or less of saccharine and oily matter, or as these are in proportion to one another. In the cerealial he supposes the sugar to be large in proportion to the oil; in the legumina, the oil to be somewhat larger in proportion to the sugar; and in the nuces oleosæ, the proportion of the oil to be still greater. But he is of opinion, that in the several farinaceous seeds the nourishment they afford is in proportion to the oil they contain. Under the title of cerealial are commonly included the seeds of the several gramineous or culmiferous plants, that are employed as the food of men. To this head he refers barley, rye, millet, rice, oats, maize, and wheat; subjoining to his account of each appropriate reflections; and he then enumerates other farinaceous substances which are not of the tribe of gramina, but very much of the same farinaceous nature with these, such as buck-wheat, fago, falop, potatoe, and chestnut. See each of these articles.

CEREBELLI INFERIOR, in *Anatomy*, is an artery, which comes off from the vertebral. See **ARTERIES**.

CEREBELLI SUPERIOR, is a branch of the basilar artery. See **ARTERIES**.

CEREBELLIACA, in *Ancient Geography*, *Chabeuil*, a place of Gaul, between Valencia and Augusta.

CEREBELLUM, in *Anatomy*, that portion of the contents of the cranium, which is contained in the lower fossæ of the occipital bone, and covered by the tentorium. See **BRAIN**.

CEREBRI ANTERIOR, is the anterior branch of the internal carotid artery. See **ARTERIES**.

CEREBRI MEDIA, is the large posterior branch of the internal carotid artery, which runs in the fissura Sylvii. See **ARTERIES**.

CEREBRI POSTERIOR, or *profunda*, is a branch of the basilar artery. See **ARTERIES**.

CEREBRITES of Knorr, in *Zoology*, one of the synonyms of **MADREPORA AREOLA**, which see.

CEREBRUM, in *Anatomy*. This term in common language denotes the brain in general; but anatomists confine it to that part of the encephalon, which occupies all the upper part of the cranium: indeed by far the largest portion of the cavity. See **BRAIN**.

CEREBRUM FOVIS, in *Ichthyology*, a name given by Ennius the poet to a peculiar fish of the *labrus* kind, called by the generality of authors *scarus*: it is distinguished by Artdi from the other species of the same genus, by the name of the *LABRUS*, *qui scarus auctorum est*.

CEREFOLIUM, in *Botany*, *foliis glabris*, Hall. See **SCANDIX cerefolium**.

CEREFOLIUM ANNUUM NODOSUM, Moris. See **SCANDIX nodosa**.

CEREFOLIUM FOLIIS TRIPlicato-pinnatis, Hall. See **CHÆROPHYLLUM sylvestre**.

CEREFOLIUM latifolium hirsutum, Morr. See **CHÆROPHYLLUM hirsutum**.

CEREFOLIUM rugoso angelica folio, Bocc. See **CHÆROPHYLLUM aromaticum**.

CEREFOLIUM foliis hirsutis, Hall. See **CHÆROPHYLLUM aureum**.

CEREIS, in *Botany*, a name used by some authors, and supposed to have been used by the ancients for the *siliquastrum*, or *Judas's tree*. See **CERCIS**.

CERELÆUM, a composition of wax and oil.

Some also give the same denomination to the *oleum cera*, otherwise called *butter of wax*.

CEREMENTS, cloths dipped in melted wax, with which dead bodies were infolded when they were embalmed. Thus the term is used by Shakspeare:

"Let me not burst in ignorance, but tell

"Why canonized bones, buried in earth,

"Have burst their cerements?"

CEREMONIAL is used for the set or system of rules and ceremonies which custom has introduced for regulating our behaviour; and which persons practise towards each other, either out of duty, decency, or civility.

CEREMONIAL, in a more particular sense, denotes the manner wherein princes and their ambassadors use to receive and treat one another. The *ceremonial* is a kind of law introduced by compact, custom, prescription, &c. which sovereigns and their ambassadors are to observe at their interviews, that none of them may either receive more or less marks of respect than they are entitled to. Some distinguish three occasions on which the ceremonial is to take place: viz. when princes meet in person; when they write to each other; and when they send ambassadors.

There are endless disputes among sovereigns about the ceremonial: some endeavouring to be on a level, and some to be superior to others. Numerous schemes have been proposed for fixing the place and rank of each prince; but they have not been accepted of by any, except some alternate princes, as they are called in Germany. See **PRECEDENCY**.

CEREMONIAL is more particularly used in speaking of the laws and regulations given by Moses, relating to the worship of God among the ancient Jews.

In this sense, it amounts to much the same with what we otherwise call Levitical law; and stands contradistinguished from the *moral*, as well as the *judicial* law.

It is disputed, whether the observation of the sabbath be a ceremonial or a moral law. See **SABBATH**.

The ceremonial law prescribed the forms, usages, rites, &c. relating to sacred places, utensils, priests, levites, prophets, congregations, garments, feasts, sacrifices, sabbaths, &c.

Pluto was not disadvantageous to her, and by decreeing, that Proserpine should remain six months of the year with her husband, and the other six months with her mother, she bethought herself how she might repair the calamities occasioned by sterility and famine. As Attica had been more distressed than other countries, she went to Eleusis, where, after having fostered Triptolemus, the son of Celenus, sovereign of the country, and having instructed him in every thing that related to agriculture, she lent him her chariot, and ordered him to travel through the earth in order to teach its inhabitants this necessary and useful art. Triptolemus, having traversed Europe and Asia, arrived in Scythia at the court of Lynceus, a tyrannical prince, who for attempting to assassinate him was transformed into a lynx, an animal which was the symbol of cruelty. The ancient historians agree with the poets in their account of several particulars above recited. Strabo (l. vii.) mentions the meadows of Enna whence Proserpine was carried off; and Cicero (in Verr.) seems to admit the fact, and has given us an elegant and ornamented description of this place. Diodorus Siculus also says, that Sicily, of all the countries on earth, had been most distinguished by the favours of Ceres, and that the goddess had fixed her ordinary residence in this island. "The Sicilians," says he (lib. v. c. 2.), "hold by tradition from their ancestors, that their island is consecrated to Ceres and her daughter Proserpine; some poets have written, that at the marriage of Pluto with that princess, Jupiter gave them Sicily for a nuptial present; and the historians, who are accounted the most faithful, say, that it was in Sicily that Ceres and Proserpine shewed themselves to men for the first time, and that this island is the first in the world where corn grew." Homer, the most celebrated of the poets, has followed this tradition, when he says, speaking of Sicily:

"The soil untill'd a ready harvest yields,
With wheat and barley wave the golden fields,
Spontaneous wines from weighty clusters pour,
And Jove descends in each prolific show'r."

Pope's *Odys.* ix. 123.

This author proceeds to give a description of the fields of Enna, whence Proserpine was carried off; and relates all the other circumstances of this fable much in the same manner as we have above stated them. He also adds, that the Syracusans have a custom of offering oblations every year, each according to his abilities, near the fountain Cyane, which Pluto made to spring up, when in that place he opened a way to himself with a blow of his trident; and that after those private sacrifices they make a public offering of bulls, whose blood they shed over the same fountain. As Attica, says the same author, was the country, which, next to Sicily, was most honoured with the favours of Ceres, the Athenians instituted, from respect to her, not only sacrifices, but the *Eleusinian* mysteries, which became venerable for their sanctity and antiquity. See *ELEUSINIA*. The Sicilians also, beside the sacrifices which they offered at the fountain Cyane, instituted feasts in honour of Ceres and Proserpine; and they celebrated them in a manner suitable to a people on whom these goddesses had conferred so many distinguishing tokens of regard. These feasts they placed in different seasons of the year, in allusion to the different appearances of the corn. The rape of Proserpine was celebrated about the time of harvest, and the search of Ceres in seed time. The latter lasted six days, with splendid and magnificent accompaniments. Whilst this feast continued, it was also customary to intermix in conversation some wanton expressions, because by such kind of intercourse Ceres had been diverted from her affliction for the loss of her daughter. Besides

the cultivation of corn, Diodorus informs us that Ceres had given laws to the Sicilians; and for that reason she was denominated *Thesmophoros* by the people. "It was not possible," adds the historian, "that she could have given men two more valuable presents than the supply of the necessities of life and instructions how to live virtuously." The rape of Proserpine has been represented by most mythologists merely as an allegory, which had an obvious relation to agriculture. However, some ingenious authors, in the number of whom we may reckon Dou Pezron and Le Clerc, relying upon the authority of Diodorus Siculus, have referred this event to real history. Several chronologists, and particularly the celebrated sir Isaac Newton, confiding in the relations of Greek writers, have endeavoured to fix the time when Ceres lived; to determine the date of her expedition from Sicily to Athens; and to mention the year of her death, and the worship that was paid to her not long after. Banier, however, notwithstanding these authorities, is persuaded that we are not to look in Greece for any other Ceres than the Isis of the Egyptians, nor for other mysteries beside those of that goddess. We are unquestionably certain, he says, that almost all the gods of the Greeks and their worship came from the eastern countries, and especially from Egypt, with the colonies that had peopled Greece at different times; and if there be any concerning whose transportation we may be confident, they are Bacchus or Osiris, and Ceres or Isis. Accordingly he thus accounts for the origin of the fable. Greece was infested with a severe famine under the reign of Erechtheus, as we learn from Diodorus Siculus (lib. xviii.), and also from Ovid, who has amply and beautifully described it. The Athenians, whose soil was not very fertile, were more distressed by it than their neighbours. Erechtheus, on this occasion, sent to Egypt for corn; and his messengers brought back with them, not only a supply of corn, but the worship and ceremonies of the divinities who presided over agriculture. The distress they had suffered and the dread of its renewal induced them to adopt the mysteries of a goddess, who was thought competent to secure them from it. Triptolemus at the same time received that worship into Eleusis. Ambitious of being the first priest of Ceres or Isis, he not only enjoyed plenty himself, but took care to assist his neighbours by teaching them the mysteries in which he had been instructed. Sicily had adopted these mysteries some time before, and hence it was said that Ceres had come from Sicily to Athens. It was added, that her daughter had been ravished, because the corn and fruit, indicated by her name, had ceased for some time to yield subsistence. Moreover, it was said that Pluto had carried her away to hell, because the same fruits had remained all that time as it were buried in the earth; and Jupiter's decision of the quarrel between Ceres and Pluto intimated that the earth was again covered with new harvests.

This is the account that is given of the introduction of the mysteries of Ceres into Sicily and Greece. If, however, some learned men, with Diodorus Siculus, incline to maintain, that there really was a Ceres in Italy, who gave instructions and regulations relating to agriculture, we may suppose, for the satisfaction of such, that she, having lost her daughter, and come to Attica in quest of her, taught Triptolemus the mysteries of Isis; and that the Greeks having ranked her afterwards among the deities, her worship was thus at length confounded with that of the goddess of the Egyptians. As Triptolemus was one of those who gave the best entertainment to Ceres when she arrived in Attica, it was hence fabled that this goddess had taught him the art of agriculture, and sent him in her chariot drawn by winged dragons, to propagate this art among mankind. It

was added, that she nursed him with her own milk; thus intimating the care she had taken in the education of this prince. All these mysterious fables, as well as the arrival of Ceres in Attica, which is so finely represented upon a marble tomb, ingeniously explained by M. de Boze, in a dissertation published in the 4th volume of the *Memoirs of the Academy of Belles Lettres*, have no other foundation, as Banier conceives, but the introduction of the worship of Ceres into Greece, and especially into Attica. Triptolemus, who reigned there, came to Eleusis by sea, in order to carry corn into different countries, where at the same time he taught the mysteries of Ceres, of which he himself was priest. Before he set out, he had sown corn in a field of Attica, as we learn from the 10th æra of the Arundel Marbles; this, according to the author now cited, (*Mythology, &c. b. iv. c. 10.*) is the key and solution of this whole fable; for it refers to the time when the worship of Ceres, so ancient in Egypt, was received in Greece; and not to that of agriculture, which had been known there long before; unless we chuse to understand it of a new method of cultivating the ground, which the Greeks learned in their travels into Egypt, and reduced to practice at this time. The marbles now quoted fix this date under the reign of Erechtheus; that is, according to the commentators on these marbles, 1426 years B. C. or about 280 before the Trojan war. The Arundelian marbles, however, point out three dates of these events, which are not ranged in the same manner with that of other authors who speak of them. In the first of those æras, viz. the 12th, they represent Ceres as coming into Attica; in the 13th, they say that Triptolemus began to sow corn in the fields of Eleusis; and in the 14th they mention the rape of Proserpine; so that the arrival of Ceres at Athens precedes the rape of her daughter ten years. Blair, in his *Chronological Tables*, refers the arrival of Ceres in Athens to teach the inhabitants the art of sowing corn, and her sending her son Triptolemus through the rest of Greece, to the year 1383, B. C. Newton, in his "*Chronology*," refers it to the year 1030, B. C. The hazard to which Triptolemus was exposed in his travels gave rise to the fable of Lynceus, already mentioned; and that of his being drawn in a chariot by winged dragons is taken from an ambiguity in the Phœnician language; in which the word used in this history signifies either winged dragons or a ship adorned with iron beaks, as we are told by Bochart (*Hieroz. l. 3. c. 14.*), and after him by M. Le Clerc. Banier, however, inclines to the opinion of Philochorus, cited by Eusebius, who says, that this ship was taken for a flying dragon, because it had upon its prow the figure of a dragon.

Besides the amour of Ceres with her brother Jupiter, fable reports, that she had another with Neptune, the fruit of which was the famous horse Arion, or as the Thelpusians and Phigalians relate, a daughter, called by the Arcadians Hera. In reference to this circumstance Pausanias says, (*Arcad. lib. viii.*) that upon mount Elaius, in Arcadia, 30 stadia from Phigala, Ceres had a cave into which she retired, clothed in mourning, so that she was called black Ceres, and that the Phigalians dedicated to her memory on this spot a wooden image, having the body of a woman, and the head of a horse, and bearing in one hand a dolphin, and in the other a dove. When this statue was accidentally burnt, the Phigalians forgot the worship of Ceres, and neglected her feasts; upon which the goddess punished them with a severe drought. In this distress they consulted an oracle, which informed them, that if they did not re-establish the worship of Ceres, a famine would prevail to such a degree as to oblige them to eat their own children. At length Pan, as he hunted in Arcadia, discovered her retreat, and acquainted

Jupiter with it; and the god, by the intercession of the Parcæ, appeased her, and restored her again to the world; in consequence of which, as the fable reports, the earth produced corn and fruits. Hesiod (in *Theogon.*) informs us, that Ceres had another amour with the hero Jason, by whom she had a son, named Plutus, who was born in the island of Crete, and became very powerful both by sea and land; and who, having brought agriculture to perfection, as the means of acquiring wealth, was called the god of riches.

Ceres was distinguished by a great variety of appellations, the principal of which were "*Magna Mater*," and "*Mater Maxima*;" and she was honoured in many places with feasts and sacrifices. The most customary offerings presented to this goddess were a pregnant sow and a ram; and they also consecrated to her the crane, the turtle-dove, the sea-fish, called Surmullet, and the winged serpent. Of vegetables, corn was the most usual offering to her, and with this they decorated her images, and her garlands were formed of myrtle and rape-weed; but flowers were prohibited, because Proserpine was carried away whilst she was gathering them. The poppy was sacred to her, not only because it grew among corn, but because in her distress, Jupiter gave it her to eat, that she might sleep and forget her troubles. In spring they crowned her images with the stems of gramineous plants; and in her sacrifices they made oblations of wine to her. Cicero mentioned an ancient temple dedicated to her at Catania in Sicily, in which the offices were performed by matrons and virgins only; no male being admitted on this occasion. Ceres, according to the abbé Banier, was usually represented of a tall majestic stature, fair complexion, languishing eyes, and yellow or flaxen hair; her head crowned with a garland of poppies, or ears of corn; her breasts full and swelling; holding in her right hand a bunch of the same materials with her garland, and in her left a lighted torch. When seated in a car or chariot, she is drawn by lions, elephants, or winged dragons. Mr. Spence, in his "*Polymetis*," observes, that the face of Ceres is a very pretty one, and from some expressions in the poets, he concludes, that she was a beauty of the brunette kind. Her head, he says, is often crowned either with corn or poppies, and her robe falls down to her feet, which, in the language of the statuary, denotes dignity. There is one objection that may be made, says this writer, to the beauty of Ceres; as the figures of her which he has seen generally represent her breasts as none of the smallest. Virgil, in his *Georgics*, gives us an idea of Ceres, as regarding the laborious husbandman from heaven, and blessing the work of his hands with success. Ceres has been no where exhibited with more beauty than on a medal of Metapontum, in Magna Græcia, and another found at Naples, in the collection of the duke of Caraffa Noia, with the common reverse of an ear of corn, and a mouse on its blade. On these coins, the goddess appears with her veil thrown behind her vestment; her head, besides the ears and blades of corn, crowned with an elevated diadem in the manner of Juno; and her hair over her forehead, in beautiful disorder, rising in front, and hanging freely, as if to indicate her affliction for the rape of Proserpine. She sometimes holds in her hand a vase, and with this attribute she was worshipped by the Achæans, under the name of *Ἥστια-σφοδρος*. (*Athen. Deipnos. xi. p. 461.*) The drapery of Ceres, in allusion to ripe corn, should be yellow; more especially as she is distinguished by Homer by a corresponding epithet. Ceres is found winged on ancient monuments; with a head-dress in the form of a turban a little elevated, called *πολλων*. She is thus exhibited on a mutilated statue in her temple at Eleusis, bearing on her head, according to Pockocke, a circular ornament about two feet in height. Ceres is often seen accompanied by the horse Arion; and she is frequently

frequently found, not only with torches in her hands, but with a modius, the symbol of fertility, and the mystic cistus of the Eleusinian feasts, placed either on her head or at her sides. On an engraved stone in the collection of Stosch, she is represented in an erect posture over the head of an ox, holding in her left hand ears of corn, and in her right the head of a ram.

The general character of this goddess, Ceres or Damater, says Bryant (*Anal. Anc. Mythol.* vol. ii. p. 35.) is so innocent and rural, that it might be imagined nothing cruel could proceed from her shrine. Nevertheless, there was a time, when some of her temples were as much dreaded as those of Scylla and the Cyclops. They were courts of justice; whence she is often spoken of as a lawgiver. (Ovid. *Metam.* l. 5. v. 351.) She is joined by Cicero (*Orat.* in *Verr.* 5. sect. ult.) with Libera; and they are styled the deities, "a quibus initia vitæ, atque victus, legum, morum, mansuetudinis, humanitatis, exempla hominibus, et civitatis data, ac dispersita esse dicantur." The deity, to whom she was a substitute, continues Bryant, was El, the sun; who was primarily worshipped in these temples. Accordingly Ceres was the deity of fire, according to this learned author; and hence at Cnidus she was called *Kypa*, Cura, a title of the sun. Her Roman name Ceres, expressed by Hesychius Gerys, was by the Dorians more properly rendered Garys; and it was originally the name of a city, called *Xapis*; as many of the deities were erroneously called by the names of the places where they were worshipped. Charis is Char-Is, the city of fire. Hence, as a personage, Ceres is made the wife of Vulcan, on account of her relation to fire. Her title of Damater was equally foreign to Greece; and came from Babylonia, and the east. Hence it should seem extraordinary, that she should ever be esteemed the goddess of corn. This notion, says Bryant, arose in part from the Grecians not understanding their own theology. The towns of Ceres were *Purtain*, or *Περταῖνα*; so called from the fires, which were perpetually preserved in them. The Grecians interpreted this *πυρὸς ταμειον*; and rendered what was a temple of Orus, a granary of corn. Hence they made it a repository of grain: but this was a secondary use to which these places were appropriated. They were properly sacred houses, where a perpetual fire was preserved. Many of these temples were dedicated to the deity under the name of Persephone, or Proserpine, the supposed daughter of Ceres. The persons who resided in these temples are represented as persons of great strength and stature; and hence the Cercyonians, whose name was derived from Cercyon, Ker-Cuon, signifying the temple of the deity, and who were famous for manly achievements, such as wrestling, &c. were the priests of Ceres or Damater; who seems to have been tired of their service, and glad to get rid of them, as we are informed by the poet. (Ovid, *Ibis.* v. 411.)

CERES, *representations of, in Sculpture.* Herodotus in Euterpe, after describing the gods of Egypt, asserts his opinion that Homer and Hesiod first among the Greeks gave names and forms, employments and honours to the gods of their country. That this popular theology had its beginning about the time assigned by Herodotus, seems very likely from a variety of collateral evidence. The learned Fabricius, in his *Bib. Græc.* begins by observing that no Greek writer's work is extant, older than Homer. The theology of Homer and Hesiod is totally different from those of Plato, Aristotle, and their predecessors in philosophy; and such of the Orphic remains as bear any resemblance to it are confessedly more modern. The art of sculpture affords testimonies of the same kind; many small bronze statues of early Greek workmanship are

barbarous imitations of common nature; and, although it is to be supposed some of them are intended for divinities, few are accompanied by symbols. When writing began to be used, sculpture improved its representations; and the divinities were supplied with emblems of their offices, not very distant from the time mentioned by Herodotus. There are specimens of this early sculpture in the valuable collection of Mr. Paine Knight, one of which appears to be a Ceres, with the modius or calathus on her head. This goddess is also represented on a Greek basso-relievo (lately in the Villa Albani, published in Winckelman's *Monumenta Inedita*) with the calathus on her head, the sceptre in her left hand, and the ears of corn and poppies in her right hand. She is represented on various basso-relievos, and on the Greek vases, with two torches, in relation to the search for Proserpine.

The noble fragment of this goddess's statue, anciently worshipped in her renowned temple at Eleusis, has been brought to England, and placed in the university of Cambridge by the zeal and perseverance of our countryman Dr. Clark. The fragment is one piece of marble seven feet high from the top of the calathus, which rests on the head, to the bottom, which terminates at the girdle, a little below the breasts. The height of the calathus is about two feet; the head is one foot six inches; the calathus is ornamented with spikes of corn, the lotus, leaves of olive, and a vase. The features of the face are obliterated; the hair is collected in one large tress, which is tied and falls between the shoulders; her tunic is secured by a bandage, crossed between the breasts, and buttoned with a Medusa's head; the zone a little lower terminates the fragment. Strabo says, the temple of Ceres was built by Ictinus, who also built the parthenon or temple of Minerva, in the citadel of Athens, and was the cotemporary of Phidias. The fragment perfectly agrees with this account, and is of the grandest style of Greek sculpture.

CERESIIUS, in *Ancient Geography*, *Treſa*, a river of Italy in the territory of the Lepontii.

CERESIIUS *lacus*, *Lago di Lugano*, a lake of Italy in the same territory.

CERESOLO, in *Geography*, a town of Italy, in the duchy of Mantua; 13 miles N.W. of Mantua.

CERESSUS, in *Ancient Geography*, a fortified place of Greece in Bœotia, according to Pausanias; belonging to the Theſpians.—Also, a town of Spain in the Tarragonensis, in the country of the Jacetani, according to Ptolemy.

CERET, in *Geography*, a town of France, and principal place of a district in the department of the Eastern Pyrenées, situated at the foot of the Pyrenées on the river Tech, over which is a bridge of one arch, supposed to be the highest and boldest in France. The place contains 2382, and the district 6245 inhabitants: the territory comprehends 247½ kilometres and 18 communes. At this place the commissioners of France and Spain met, in 1660, to settle the bounds of the two kingdoms. Ceret is 5 leagues S.W. of Perpignan. N. lat. 42° 28'. E. long. 2° 46'.

CERETAPA, in *Ancient Geography*, a town of Asia Minor, in Pacatian Phrygia. This town began to strike imperial Greek medals, under the authority of its prætor, in honour of Antonine, M. Aurelius, Commodus, and Severus. Dr. Hunter possessed an Autonomie medal of bronze, with the legend ΚΕΡΕΤΑΠΙΕΩΝ, which Dr. Combe ascribes to Ceretapa.

CERETIA, in *Botany*, Pluk. See HYMENÆA.

CEREUS, in *Botany*, Bauh, &c. See CACTUS.

CEREUS, in *Gardening*. See CACTUS.

CERFENNIA, a place of Italy on the Valerian way, between Alba Fucentia and Corfinium, according to the Itinerary of Antonine.

CERIGLIANO, or **CIGLIANO**, in *Geography*, a town of Naples, in the province of Basilicata; 10 miles S. of Tricarico.

CERIGNOLA, **LA**, a town of Naples, situated on a rising ground, in the province of Capitanata; famous for a victory obtained here, in 1503, by Gonsalvo, over the elector of Nemours, who was slain in the commencement of the battle; 20 miles S. of Manfredonia. It contains about 12,000 inhabitants. Between 50 and 60 years ago an earthquake almost totally destroyed it, and it is not yet thoroughly rebuilt: the streets are crooked and dirty, and the houses are all low, as the owners dare not raise them high for fear of another shock. The eighty-first columna milliaria, inscribed with the name of Trajan, is the only fragment of antiquity observable in this town. The commodities of the place are sheep, horses, and corn; the bread is black and gritty, but well-tasted. The present possessor of this town is Pignatelli, count of Egmont, resident in France, who farms it out at 15,000 ducats a year (2,810*l.*)

CERIGO, in *Geography*, an island of the Grecian Archipelago, well known under the ancient appellation of **CYTHERA**, is separated from the Morea by a narrow strait. It is dry and mountainous, and produces neither corn, wine, nor oil, sufficient for the inhabitants; some of the vallies, however, are fertile; and it abounds with sheep, horses, quails, turtles, and falcons. Although it had formerly several good towns, it now chiefly serves as a rendezvous for pirates. The circumference is about 50 miles; and the inhabitants are Christian Greeks, subject to the Venetians, who change the governor every two years. By the treaty of Campo Formio, in 1797, it was surrendered to the French, together with other Venetian islands. See **CEPHALONIA**. Cerigo, according to Thevenot, (*Voyage*, t. i. p. 25) was called *Porphyris* by the ancients, on account of the quantities of porphyry found in it.

CERIGO, a town of the above island, seated on its western coast on a sharp rock, surrounded by the sea, and defended by a castle. It has a small harbour, and is the see of a Greek bishop. N. lat. 36° 26'. E. long. 23° 13'.

CERIGO, in *Natural History*, a name by which many authors have called that remarkable American animal called the **OPOSSUM**.

The Americans in some places call this animal, in their language, *Carigueya*; and it is probable that this name *Cerigo* is only a corruption of that word, though it be received generally in the world as a proper name, and used as such by Maffei, Barlaeus, Nieremberg, and many others.

CERIGOTTO, in *Geography*, a small uninhabited island in the Grecian Archipelago, between Cerigo and Candia, anciently called *Ægilia*; about 5 miles in compass. N. lat. 36° 2'. E. long. 22° 13'.

CERILLI, in *Ancient Geography*, a place of Italy in that part of Magna Græcia, called Brutium, situate on the sea-coast, at a small distance S.W. from Pandosia.

CERILLUM, a place of Italy in Lucania, according to Strabo; probably the same with *Cerilli*.

CERILLY, in *Geography*, a town of France, in the department of Allier, and chief place of a canton in the district of Montluçon; 7 miles W. of Moulins. The place contains 2400, and the canton 9184 inhabitants; the territory includes 362½ kilometres, and 14 communes.

CERINES, the ancient *Ceraunia*, a sea-port town of the island of Cyprus, with decayed walls, defended by a

castle; the see of a bishop, suffragan of Nicosia. N. lat. 35° 22'. E. long. 33° 24'.

CERINI, **GIOVANNI DOMENICO**, in *Biography*, an historical painter, was born at Perugia in 1606, and studied under Guido and Domenichino; from whom he acquired a very beautiful tone of colouring, and a graceful disposition of his figures; and he particularly excelled in giving elegant and noble airs to his heads. He died in 1681. Pilkington.

CERINTHE, among the *Ancients*, was used by some to express that substance called by others *ambrosia* and *sandarach*, and by some *erithace*. See **WAX**.

CERINTHE, in *Botany*, (*κινυθος*, Theophr. from *κινος*, wax, so called, according to Pliny, because bees were supposed to obtain from it abundance of wax.) Honey-wort. Melinet. Fr. Linn. gen. 186. Schreb. 246. Willd. 281. Tourn. cl. i. § 3. gen. 1. tab. 56. Juss. 130. Vent. vol. ii. 387. Gært. 413. Class and Order, *pentandria monogynia*. Nat. Ord. *Asperifoliae*, Linn. *Boragineæ*, Juss. Vent.

Gen. Ch. *Cal.* Perianth deeply five-cleft, permanent; segments oblong, equal. *Cor.* monopetalous, campanulate; tube short, thick; orifice naked and pervious; border tubular, swollen, a little thicker than the tube, five-cleft at the summit. *Stam.* Filaments five, very short; anthers acute, erect, long, two-celled, bifid at the base. *Pist.* Germ. two-cleft; style filiform, the length of the stamens; stigma obtuse. *Peric.* the permanent calyx. *Nuts* two, bony, glossy, somewhat egg-shaped, outwardly gibbous, two-celled. *Seeds* one in each cell.

Eff. Ch. Border of the corolla tubular, swollen; orifice naked. Nuts two, two-celled. Seeds one in each cell.

Sp. 1. *C. major*, Linn. Sp. Pl. 1. Mart. 1. Desfrousseaux in Encyc. 1. Willd. 1. Bot. Mag. Pl. 333. Lam. Illust. Pl. 39. Gært. tab. 67. (*C. glabra*. Mill. Dict. ed. 6. Pl. 91. *C. Flore rubro purpurascens*; Bauh. Pin. 258. Moris. Hist. tab. 29. fig. 3.) Great honey-wort "Corollas embracing the stem; obtuse, spreading, swollen at the apex, campanulate; stamens shorter than the corolla." Root annual. Stems herbaceous, succulent, eighteen inches high or more, round, smooth, branching, leafy. Leaves glaucous, alternate, embracing the stem, oblong-oval, obtuse, from two to four inches long, thin, soft, ciliated. Flowers in short leafy spikes; tube of the corolla yellow; border purple, with very short revolute segments. A native of the south of Europe, and of the coast of Barbary. 2. *C. aspera*. Willd. 2. Roth. catal. bot. 1. p. 33. (*C. major*. β. Linn. *C. flavo flore asperior*; Moris. Hist. tab. 29. fig. 2.) "Corollas embracing the stem, obtuse, spreading, cylindrical; stamens as long as the corolla." Leaves prickly, smaller than those of the preceding. Flowers yellow. A native of the south of Europe. Not a variety of *C. major*. Both plants, after many years cultivation, retain their specific differences. Willd. 3. *C. minor*, Linn. Sp. Pl. 2. Mart. 2. Desfrousseaux 2. Willd. 3. Bauh. pin. 258. Moris. tab. 29. fig. 5. Jacq. Flor. Aust. tab. 124. "Corollas embracing the stem, entire; corollas acute, closed." Root biennial. Stems herbaceous, upright, cylindrical, greenish, about two feet high. Leaves similar to those of the two preceding species; but of a deeper glaucous colour, smooth, rarely ciliated, commonly marked with white spots. Flowers small, in long leafy terminal racemes, yellow, pedicelled; corolla a little longer than the calyx, contracted at the top and bottom, obscurely five-furrowed, cleft to the middle; segments linear-lanceolate, acute, straight, forming a kind of cone; filaments scarcely discernible. A native of the south of Europe. There is a variety with emarginate leaves, described

described by Allioni under the name of *maculata*, and said by him to be perennial.

CERINTHE maritima procumbens, Dill. Elt. See *PULMONARIA maritima*.

CERINTHE echioides, Scop. See *ONOSMA echioides*.

CERINTHE, in *Gardening*, furnishes a plant of the ornamental, hardy, flowering annual kind; of which the species cultivated is the great honeywort (*C. major*), which rises with stems eighteen inches high, and more, round, smooth, branching, and leafy; the leaves are glaucous, becoming blue by age, smooth, without prickles, but ciliated about the edge, and dotted with white: the branches are leafy and nodding, with flowers among the leaves, hanging on long peduncles. It is a native of Italy, flowering in June. It has varieties with smooth leaves and purple flowers, and with prickly leaves and yellow flowers.

Method of Culture. These plants may be raised by sowing the seeds annually in the autumn or early spring months in patches, in the borders, clumps, or other parts. The autumn sowings should be made as early as possible. They also often rise from the self-sown seeds; and should be managed as other hardy annuals. They are proper for being planted out about the apiary, or in the small beds or borders in the shrubbery or other parts of pleasure-grounds, where they produce variety.

*CERINTHIAN*S, in *Ecclesiastical History*, called also *Merinthians*, a sect that took its name from *Cerintus*, contemporary with St. John, towards the close of the first or commencement of the second century; said to have been a native Jew, educated at Alexandria, and to have lived at Antioch; who formed a singular system of doctrine and discipline, by combining the doctrines of Christ with some of the opinions and errors of the Jews and Gnostics. Some learned moderns have represented Cerintus as a vicious person; but Dr. Lardner is of a different opinion; and he says, that nothing of this kind is charged upon him by the writers of heresies; not by Irenæus, nor Epiphanius, nor Theodoret, nor the rest. Cerintus ascribed the creation of the world, and the legislature of the Jews, to a created being, who derived from the Supreme God extraordinary virtues and powers, but afterwards became apostate and degraded. He supposed that *Jesus* was a mere man, born of Joseph and Mary; but that, in his baptism, the Holy Ghost, or the *Christ*, who was one of the *Eons*, descended upon him in the form of a dove; and that he was commissioned to oppose the degenerate god of the Jews, and to destroy his empire. In consequence of which, by his instigation, the man *Jesus* was seized and crucified; but *Christ* ascended up on high, without suffering at all. He recommended to his followers the worship of the Supreme God in conjunction with his Son; he required them to abandon the lawgiver of the Jews; and though they were permitted to retain circumcision and the rites of the Mosaic law, and, according to Jerom, this was the principal error of Cerintus, that he was for joining the law with the gospel; yet they were to make the precepts of Christ the rule of their conduct. For their encouragement, he promised them the resurrection of the body; after which the millennium was to commence under the government of *Christ* united to the man *Jesus*: and this he represented as consisting in eating and drinking, nuptial entertainments, and other festivities.

Some authors ascribe the book of the Apocalypse to Cerintus, adding, that he put it off under the name of St. John, the better to authorize his reveries touching Christ's reign in the flesh: but it is observed by the bishop of London, in his third Pastoral Letter, p. 58, that his millenary state was not the life of saints, as the Apocalypse represents it, but the life

of libertines: and it is even certain that he published some works of this kind, under the title of Apocalypses.

That Cerintus was a Millenarian is asserted by Theodoret, though neither Irenæus nor Epiphanius makes any mention of it. Nevertheless, Le Clerc seems scarcely convinced that this error is rightly imputed to him. If there be any truth in the accounts of his being a Millenarian, it is highly probable (says Dr. Lardner) that he respected the apostle John, if the Revelation be a work of that apostle. Several writers, who did not like the Millenarian doctrine received by many Catholics, affirmed the book of Revelation, upon which they chiefly built, to be a work not of St. John, but of Cerintus. Theodoret says, that whether he wrote himself in the name of John, or only appealed to it in support of his opinions, it is a proof of his having respected that apostle: and if he did, it is probable he received his gospel, and the epistle generally ascribed to him. Irenæus says that John wrote his gospel to confute the doctrine lately taught by Cerintus, and long before by the Nicolaitans; and St. Jerom has somewhat to the like purpose concerning the occasion of St. John's writing his gospel. Some have asserted, that the Cerinthians received the gospel of St. Matthew to countenance their doctrine of circumcision, from Christ's having been circumcised; but that they omitted the genealogy. This latter assertion is founded on an erroneous interpretation of a passage in Epiphanius; whereas the true meaning of the said passage is, that the Cerinthians preferred this gospel to the others, because of the genealogy; from whence they thought they could prove Christ to be really a mere man, born of Joseph and Mary. It has been said also, on the authority of Epiphanius, that they discarded the epistles of St. Paul, because that apostle held circumcision abolished. Of the truth of this there may, however, be some reason to doubt, from what Epiphanius himself says elsewhere. For he informs us that there was a tradition, that when some of them had died without baptism, others were baptised for them, lest at the time when they should be hereafter raised up at the general resurrection, they should be punished for that omission. And it was supposed that St. Paul refers to it in 1 Cor. xv. 29. He afterwards argues against them from Isaiah, and from St. Luke's and St. John's gospels, which seems to imply, that they respected these parts of scripture, as well as the gospel of St. Matthew, some part of St. Paul's writings, and the Revelation of St. John. Upon the whole then, says Dr. Lardner, it is certain, that the Old Testament, and several of the books of the New Testament, were received by Cerintus. This candid and impartial writer questions whether the opinions of the Cerinthians concerning the person of Jesus be rightly represented. They might speak of Jesus as a man only, though they thought him to be born of a virgin. That they allowed this, may be argued with considerable force, if they received St. Matthew's genealogy, as it is probable they did. They allowed the Holy Ghost to have descended upon Jesus at his baptism; which is agreeable to our gospels. But by the Holy Ghost they probably did not mean a person but a power, as Epiphanius expresseth it; and as to what is said that the Holy Ghost, or the Christ, was impassible, and lest Jesus to suffer alone, their real opinion may have been only and no more than this, that the divine nature in Jesus, and the power that came down upon him at baptism, and by which he wrought miracles, did not suffer.

A story has been related concerning Cerintus, of which we shall subjoin to this article a brief account. There are some, says Irenæus, who have heard Polycarp say, that John, the disciple of the Lord, going to bathe at Ephesus, and seeing Cerintus already in the bath, came out again in haste

hafte without bathing, saying to those who were with him, "Let us flee hence, lest this bath should fall, while Cerinthus the enemy of the truth is within." The same story is told with different circumstances by Epiphanius. But the truth of it has been questioned. It is observable, that Irenæus, though personally acquainted with Polycarp, does not say that he had it from him; but that there were some who heard him say as much. It is not at all likely, that the apostle John should go to a public bath; and, therefore, Epiphanius says, in order to account for this impropriety, that John was moved by the Spirit to go thither; and Theodoret affirms, that he went thither on account of some indisposition under which he laboured. Irenæus and Theodoret say, it was Cerinthus; Epiphanius that it was Ebion, who was in the bath. There are other different circumstances in the relations of this matter, and also other objections against the whole story; and, indeed, some of the ancients who mention it speak of it only as an uncertain report, particularly Theodoret. Mosheim's E. H. vol. i. Cave, H. L. vol. i. p. 36. Lardner's Works, vol. ii. p. 86. vol. ix. p. 319, &c.

CERINTHUS, in *Ancient Geography*, a town of Greece, in the island of Eubœa, situated on the eastern coast, N.E. of Chalcis.

CERISAY, in *Geography*, a town of France, in the department of the Two Sèvres, and chief place of a canton in the district of Thouars; $2\frac{1}{4}$ leagues S.S.E. of Chatillon-sur-Seine. The place contains 928, and the canton 5 244 inhabitants; the territory includes $217\frac{1}{2}$ kilometres and 13 communes.

CERISIERS, a town of France, in the department of the Yonne, and chief place of a canton in the district of Joigny; 4 leagues N.N.E. of St. Florentin. The place contains 1,222, and the canton 9 038 inhabitants: the territory includes $207\frac{1}{2}$ kilometres and 9 communes.

CERISY-LA-SALLE, a town of France, in the department of the Channel, and chief place of a canton in the district of Coutances; 2 leagues E. of Coutances. The place contains 2,445, and the canton 13,498 inhabitants; the territory includes 150 kilometres and 11 communes.

CERITE, in *Conchology*, Adantou's name of *Murex aluco*. See **MUREX**.

CERITES, in *Ancient Geography*, a people of Italy, inhabiting *Cære*, in Etruria. They received into their cities the Vestals who fled from Rome on the arrival of the Gauls; and the Romans granted them the right of freedom, without that of suffrage.

CERITES, the *wax-stone*, a name used by some old authors for that yellow agate usually called cerachates.

CERIUM, in *Botany*, Bosc. Nouv. Diët. Loureiro Flor. Coch. Clafs and ord. *Pentandria monogynia*.

Gen. Ch. *Calyx* permanent, five-lobed; segments awl-shaped, straight. *Corol.* monopetalous, bell-shaped, with five round divisions. *Stam.* five. *Pist.* germ superior; style awl-shaped; stigma thick. *Peric.* berry globular, many-celled. *Seeds* one in each cell. Nearly allied to *Brunsfelia*.

Sp. C.—*Root* annual. *Stem* five or six feet high. *Leaves* alternate, petioled, large, lanceolate, almost entire. *Flowers* white, peduncled, in long, simple, straight, terminal spikes; bractes filiform. A native of Cochinchina, in cultivated ground.

CERLIER, in *Geography*. See **ERLACH**.

CERMENATI, **JOHN DE**, in *Biography*, a man of letters and historian, was a notary and syndic of Milan, and flourished in the earlier part of the 14th century. In 1312 he was deputed by his countrymen as envoy to Guarnieri,

vicar of the emperor Henry VII. His history of his native city, comprehending, besides its origin, situation, and the character of its inhabitants, all the occurrences in it from 1307 to 1313, is written with uncommon force and precision, and in a style of unusual elegance for that period. We have two editions of it by Muratori, the last in the 9th volume of his Collection of Italian historians, 1726. Cermenati was living in 1337. Moreri. Tiraboschi.

CERMORUS, in *Ancient Geography*, the name of a gulf and small town of Macedonia, on the frontiers of Thrace; placed by Pliny between Amphipolis and Posidium.

CERNA, in *Geography*, a river of Piedmont, which runs into the Sesia, 3 miles N.W. of Vercelli.

CERNACHE, a town of Portugal, in the province of Beira; 4 miles S. of Coimbra.

CERNAY, a town of France, in the department of the Upper Rhine, and chief place of a canton in the district of Befort; 5 leagues N.E. of Befort. The place contains 1088, and the canton 9111 inhabitants: the territory includes 140 kilometres and 11 communes.

CERNAY-en-Dormois, a town of France, in the department of the Marne; 10 miles N. of St. Menehould.

CERNE', in *Ancient Geography*, an island near which Hanno cast anchor, situate on the coast of Africa, in the Atlantic Ocean. He says, in his Periplus, that it was at an equal distance from the straits of the Colones, and from the strait of Carthage. On this island he is said to have built a fort, and established a colony. In the time of Scylax the island of Cerné became a term in navigation for large buildings. The colony of Hanno maintained itself in this island, and it was always the depot of the Carthaginians on the south of Africa. The situation of this island, however, is not clearly ascertained; so that ancient authors have much differed with regard to its position.

CERNÉ, a town of Ethiopia, near the ocean, according to an ancient scholiast, cited by Casaubon in his notes on Strabo.

CERNE, or *Cerne-Abbas*, in *Geography*, a small town in Dorsetshire, England, consisting of four or five indifferently built streets, is situated in a pleasant valley, surrounded by steep hills, and watered by the river Cerne, from which it derives its name. A market (Wednesday) was granted in the fifteenth of king John, and is well frequented. Three fairs are held here. The trade of the town is chiefly confined to malting and brewing, though some hands are employed in a silk manufactory. The beer brewed here is equal, if not superior, to any in the kingdom. Cerne is only remarkable for the remains of its abbey, which, according to William of Malmesbury, Camden, and some others, was founded by St. Augustine, whose zeal in the conversion of the Saxons to the Christian faith is said to have induced him to visit these parts, where, according to the monkish legends, he performed several miracles. There does not appear, however, any decisive evidence that Augustine ever travelled so far from Kent, or that any missionary arrived in the west of England before Birinus, which was 30 years after the time of the English apostle. The most early intimation of any religious foundation here that can be depended upon occurs about the year 870, when Edwald, or Eadwald, brother of St. Edmund the martyr, king of the East Angles, greatly affected by the murder of his unhappy brother by the Danes, declined the crown, and commenced hermit, fixing his retreat near this place, where Ailmer afterwards founded a monastery of the Benedictine order. A gate-house, and some few fragments of the abbey only remain. Cerne is 120 miles W. from London: the population was, under the late act, returned at 847, number of houses 165.

From

From this town ascends an immense chalk hill, which is crowned by a very large entrenchment, called *Trendle hill*; on the declivity of this eminence may be traced a gigantic figure, cut in the chalk, in the manner of the famous white horse in Berkshire; though whether of a similar origin and antiquity is doubtful. It represents a man holding a club in his right hand, and extending the other; the whole figure measures about 180 feet in height. Hutchins's History of Dorsetshire, fol.

CERNETANI, in *Ancient Geography*, a people of Italy in Campania, surnamed Mariani, according to Pliny.

CERNETZ, in *Geography*, a town of Switzerland, in Lower Engadina, situated on a small rich plain, bounded by two ridges of mountains converging at both extremities, and producing wheat, barley, flax, and abundance of rich pasture; 24 miles S.E. of Coire.

CERNIA, in *Ancient Geography*, a town of Cyprus, on the northern coast, N.E. of Solæ.

CERNIN, Str., in *Geography*, a town of France, in the department of the Cantal, and chief place of a canton in the district of Aurillac. The place contains 4141, and the canton 8429, inhabitants: the territory includes 230 kilometres and 6 communes.

CERNITIS PALUS, in *Ancient Geography*, a kind of marsh situated in Thrace, near the mouth of the Strymon.

CERNON, in *Geography*, a town of France, in the department of the Marne, and district of Chalons; 8 miles S. of Chalons.

CERNU, a town of Africa, in the kingdom of Morocco; 7 miles from Safia.

CERNUA, in *Ichthyology*, the name of a small fresh water fish of the perch genus, better known by the titles of the ruff, or ruffe, and pope, and among the old writers by that of *apredo* and *perca minor*. It is caught in several of the English rivers, though far more local than the common perch. This is the *perca cernua* of modern naturalists. See PERCA.

CERNUOUS, in *Botany*, *drooping*, a term applied by Linnæus to the peduncle of a flower. It denotes a greater and more determinate degree of downward curvature than is expressed by nutans, or nodding; as in *bidens radiata* and *helianthus annuus*.

CERO, in *Geography*, a town of Italy, in the Veronese; 6 miles N.N.E. of Verona.

CEROCHYTOS, in *Antiquity*, a method of painting in wax, melted and coloured with pigments for the purpose, and applied with pencils.

The word is compounded of *κηρός*, *cera*, *wax*, and *χύνω*, *fundo*, *I melt down*. Plin. Hist. Nat. lib. xxxv. cap. 11. and lib. xxi. cap. 14.

CEROCOMA, in *Entomology*, the name of one of the Fabrician genera of coleopterous insects. See MELOE.

CEROMA, originally denoted a mixture of oil and wax, with which the ancient wrestlers rubbed themselves, not only to make their limbs more sleek, and less capable of being laid hold of, but more pliable, and fit for exercise.

The name *ceroma* is sometimes applied by ancient physicians to a cerate or cerecloth.

The champions, ready to engage in the *palestra*, having stripped themselves naked, were first anointed with oil, then strewed over with dust, to which was lastly added wax. From the last ingredient, this composition was denominated *ceroma*, from *cera*, *wax*.

CEROMANTIA, an ancient method of divination, by means of wax melted over a vessel of water, and let drop in three distinct spaces; observing the figure, situation, distance, and concretion of the drops.

CERON, in *Ancient Geography*, a country of Asia in Assyria, famous for its odoriferous trees. Josephus says that in his time it presented remains of Noah's ark.—Also, a fountain of Greece, in the Esticeotide, a country of Thesaly, according to Pliny.

CERONE, DOMINICO PEDRO, in *Biography*, maestro di cappella to the viceroy of Naples, while that city and kingdom were in the possession of the Spaniards: though himself an Italian, and born in the Venetian state, he published, in the Spanish language, the most ample, correct, and useful musical treatise that appeared in any country during the 17th century; entitled "*El Melopeo y Maestro*," Naples, 1613, not 1619, as Walter says. See Draudius Bibl. Exot. p. 279. It was reprinted at Antwerp in folio, 1619. This scarce and truly valuable work for counterpoint, and all the arcana of fugue, canon, double counterpoint, augmentation, diminution, &c. occupies nearly 1200 folio pages. Though his rules for double counterpoint are good, we shall recommend to the musical student the instructions on this subject given by Padre Martini, as more accessible, if not more clear; and the examples given by Sala, of whom we shall speak hereafter, as most intelligible and elegant. The study of this species of composition is strongly recommended by regular bred musicians, and practised by composers of the first class.

CERONES, in *Ancient Geography*, probably the same people with the *Creeones* mentioned also by Ptolemy as inhabitants of the isle of Albion; were, according to Horfley, the most ancient inhabitants of Lochabar, and of part of Rosse.

CERONIA. See CERINES.

CEROPEGIUM, in *Botany*, (from *κηροπήγιον*, a candelabrum or lamp-stand) Linn. gen. 302. Schr. 431. Willd. 493. Juss. p. 146. Vent. vol. ii. p. 426. Class and Order, *pentandria monogynia*, Linn. *Digynia*, Schreb. Lam. Willd. Nat. Ord. *Contortæ*, Linn. *Apocineæ*, Juss. Vent.

Gen. Ch. Cal. five-toothed, or five-leaved, permanent. Cor. monopetalous, tubular or campanulate, sometimes swollen at the base; border five-cleft, converging. Stam. Filaments five, in the base of the corolla, small. *Pist.* Style scarcely apparent; stigmas two. *Peric.* Follicles two, very long, cylindrical, erect, one-celled, one-valved. Seeds numerous, imbricated, crowned with a pappus.

Eff. Ch. Contorted. Follicles two, erect; seeds feathery; border of the corolla converging.

Sp. 1. *C. candelabrum*, Linn. Sp. 1. Mart. 1. Lam. 1. Willd. 1. (*Niota-niodem-valli*; Rheed. Mal. 9. tab. 16.) "Leaves egg-shaped, mucronate; umbels pendulous; flowers erect." Stems twining, slender, round, green or reddish. Leaves opposite, petioled, egg-shaped, thick, soft, smooth. Flowers reddish, in axillary umbels, at first pendulous, afterwards erect, the common peduncles continuing pendulous. A native of the East Indies. 2. *C. tuberosa*, Willd. 2. Roxb. Cor. 1. tab. 9. "Leaves egg-shaped, acute, umbels erect; root creeping, tuberous." A native of waste ground in the East Indies. 3. *C. bulbosa*, Willd. 3. Roxb. Cor. 1. tab. 7. "Leaves obovate-elliptical, cuspidate; umbels erect; root bulbous." Distinct from the preceding. Leaves less and different in form. Flowers only half the size. Bulb solitary, depressed. A native of dry woods in the East Indies. 4. *C. biflora*, Linn. Sp. 2. Mart. 2. Lam. 2. Willd. 4. "Leaves egg-shaped; peduncles two-flowered." Stem climbing. Leaves opposite, quite entire. Peduncles axillary, most frequently two-flowered. Flowers opposite to the peduncle, not reflexed but extended in a right line. A native of the island of Ceylon. 5. *C. juncea*, Willd. 5. Roxb. Cor. 1. tab. 10. "Leaves lanceolate, sessile; peduncles with about two flowers;

flowers; stem fleshy." *Stem* nearly simple, twining. *Leaves* opposite, distant, appearing like scales. *Flowers* large for this genus, near an inch and half long, very pale green, beautifully variegated with transverse purple streaks. A native of the East Indies, on dry uncultivated ground. 6. *C. acuminata*, Willd. 6. Roxb. Cor. 1. tab. 8*. "Leaves lanceolate, acuminate to a great length; umbels many-flowered, upright; root bulbous." A native of the East Indies in dry woods. 7. *C. sagittata*, Linn. Mant. 215. Thunb. prod. 37. (Cynanchum; Burm. afr. 36. tab. 15?) "Umbels nearly sessile; leaves arrow-shaped." *Stem* twining, filiform, downy. *Leaves* opposite, on short petioles, revolute at the edges, downy on both sides, paler underneath. *Umbels* axillary, many flowered, peduncles shorter than the umbel. *Flowers* scarlet; corolla nearly cylindrical, but little swollen at the base; segments very short, mucronate, converging; calyx half the length of the corolla, with five linear acute segments. A native of the Cape of Good Hope. 8. *C. tenuiflora*, Murr. Syst. veg. 211. Mart. 4. Lam. 4. Willd. 8. (Periploca tenuiflora, Linn. Sp. Pl. Cynanchum; Burm. afr. tab. 15? Apocynum; Pluk. Mant. 17. tab. 335. fig. 5. Nau-mindi; Rheed. Mal. 10. tab. 34.) "Leaves linear-lanceolate." *Root* woody. *Stem* climbing, slender, branched, milky, green or reddish, leafy. *Leaves* opposite, narrow, very acute, on very short petioles. *Umbels* axillary, nearly sessile, three or four-flowered. *Flowers* within reddish; on the outside yellowish green. A native of the East Indies. 9. *C. obtusa*, Mart. 5. Lour. Cochin. 114. "Leaves blunt." *Stem* twining, filiform, smooth. *Leaves* opposite, oblong, quite entire, flat, few. *Flowers* like those of the first species, but on shorter peduncles. A native of Cochin-China. 10. *C. cordata*, Mart. 6. Lour. Cochin. 114. "Leaves heart-shaped; umbels pendulous." *Stem* climbing, long, branched, round. *Leaves* opposite, quite entire, smooth, on long petioles. *Flowers* greenish yellow, in large hemispherical axillary umbels, on long peduncles; calyx five-leaved; leaflets egg-shaped, acute, small, spreading; nectary fleshy, upright, five-cleft; with ten oblong glands standing round the pistil; filaments none; anthers oblong, converging; germ longish, bifid; style thick, very short; stigma blunt, emarginate. A native of Cochin-China in the hedges. All the species are perennial.

CEROPELLA, in *Ancient Geography*, a place of Thrace, being one of the places which the Romans assigned to the Goths for their dwelling.

CEROPHÆI, a people placed by Ptolemy in Africa Propria.

CERROSSUS, a place in the Ionian sea, between the island of Melita and Macedonia, in the Adriatic sea.

CEROSTROTUM, in *Ancient Writers*, denotes a sort of picture composed of pieces of horn; answering to what among us is called *mosaic work*. Some write the word *cerostratum*, and suppose it primarily to denote a sort of pavement composed of pieces of wood, inlaid and joined with slips of horn, variously coloured and figured. Salmassius will have *cerostrata* to denote a method of painting, or enamelling with wax, otherwise called CEROCYOTOS.

CEROU, in *Geography*, a river of France, which runs into the Aveyron.

CERQUOZZI, MICHAEL ANGIOLO, called *M. A. dell Battaglie*, in *Biography*, a painter of battles, formed himself with regard to style and the selection of his subjects on Bamboccio, but differed from him as to the character and physiognomy of his figures, painting those of Italy instead of Dutch or Flemish mobs. The tints of both are strong and vivid. Whilst Bamboccio excels Cerquozzi in landscape, the latter is superior in the spirit of

his figures. His principal work is in the palace Spada at Rome, in which he has represented an army of fanatic Lazzaroni shouting applause to Maso Aniello. He died in 1665, at the age of 60 years. Pilkington by Fuseli.

CERRATO, PAUL, a Latin poet, descended of a noble family, was born at Alba in Monterrat, in 1485; and though by profession a lawyer, he acquired very great literary reputation. Several editions were printed of his epithalamium, written in Latin verse, on the nuptials of William marquis of Monterrat and Anne d'Alençon in 1508; but his principal performance was a poem "De Virginitate," in three books, heroic measure. Scaliger the elder reckons Cerrato among the first poets in Italy, though he says that he had so much accustomed himself to the lofty style, that he could not descend to the familiar, but would describe a fly in terms as elevated as he would a hero. His works are inserted in the "Deliciæ Poëtarum;" and the last separate edition of them, with an elegant biographical memoir prefixed, was given by Signo. Joseph Vernazza at Vercelli in 1778. Moreri. Tiraboschi.

CERRETANI, in *Ancient Geography*, an ancient people of Spain, who dwelt along the Pyrenées, near the Vasconi. They are mentioned by Strabo, Ptolemy, and Pliny; the latter of whom distinguishes them into *Juliani* and *Augustiani*. Julius Cæsar gave them the right of freedom, and Augustus incorporated them into a small nation, and extended their borders to those of the Vasconi.

CERRI glans, and CERRUS, in *Botany*, J. Bauh. Park. and Ray. See *QUERCUS agilops*.

CERRETO, in *Geography*, a town of Italy in the province of Umbria; 15 miles W. of Nursia.

CERRITO, a town of Naples, in the province of Lavora, the residence of the bishop of Telefa, with a cathedral and collegiate church, and three convents; 18 miles N.N.W. of Benevento.

CERRO, a town of Italy, in the duchy of Milan; 18 miles W. of Como.

CERRUS, in *Botany*. See *CERRI glans*.

CERRUS, in *Ichthyology*, a name given by some old writers, Pliny, Martial, and others, to a fish called by other writers *smaris*, and *maña candida*. They speak of it as being distinguished from the rest of the fishes in the same tribe, by having a black spot in the middle of each side, and the pectoral and tail fins being red. As the fish is certainly of the *sparus* genus, this description left us by the ancients is not entirely satisfactory, there being at least thirty distinct fishes of this genus, which possess the characteristic lateral spot they mention. Artedi describes the *cerrus* as *sparus macula nigra in utroque latere medio, pinnis pectoralibus caudaque rubris*. It is generally believed that the *cerrus*, and the *sparus smarvis* of modern ichthyologists are the same species. See *SPARUS smarvis*.

CERSUNUM, in *Ancient Geography*, a town placed by Ptolemy in the interior of the island of Corsica.

CERSUS, or CARSUS, a river of Asia, which ran between the defiles of Syria, according to Xenophon.

CERTAINTY. See CERTITUDE.

CERTAINTY, in *Law*, denotes a plain, clear, and distinct setting down of things, so that they may be understood. 5 Rep. 121. A convenient certainty is required in writs, declarations, and pleadings, &c. But if a writ abate for want of it, the plaintiff may have another writ; it is otherwise if a deed become void by uncertainty, as the party may not have a new deed at his pleasure. 11 Rep. 25. 121. Dyer. 84. That has certainty enough, which may be made certain; but not like what is certain of itself. 4 Rep. 97. See *PLEADING*. See also *DEED*, *FINE*, and *WILL*.

CERTALDO, or CASTRO CALTALDO, in *Geography*, a town of Italy, in the territory of Sienna.

CERTETÆ, in *Ancient Geography*, a people who inhabited the northern coast of the Euxine sea, between the Tauric Chersonesus and Colchis, among the Achæans and Zichians, according to Strabo. They are the *Cercetii* of Dionysius Periegetes.

CERTHIA, in *Ornithology*, a genus of birds among the PICÆ, which have the bill arched, slender, somewhat triangular, and pointed; tongue acute; feet formed for walking. This is the Gmelinian character of the genus as it stands in the last edition of the Linnæan *Systema Naturæ*. In the General Synopsis by Dr. Latham it is defined rather differently; that writer describes it as having the bill slender, incurved, and sharp pointed; nostrils small in general, but sometimes pretty large, and covered with a membrane; tongue in shape uncertain; legs moderately stout; toes placed three before and one behind; back toe large; claws hooked and long; and tail consisting of twelve feathers. The character of the genus *certhia* in Index Ornithologicus corresponds more closely with that assigned it by Gmelin, namely, bill bent, slender, and pointed; tongue various; feet formed for walking; tail composed of twelve feathers.

The birds of this tribe bear a near resemblance in a variety of particulars, and especially in the splendour, and beauty of plumage, to the *Trochili* or humming-birds. Some authors have united them as forming only one natural family. This has been objected to because the creepers are not confined to any climate, being found in all parts of the world, while the humming-birds are met with only in the warmer parts of America: the creepers, besides, feed principally on insects, while the food of the humming bird consists only of the nectareous juices which it extracts from flowers. There are, indeed, a few species of creepers that have the tongue long and tubular as in the humming-birds, but the greater part of them have the tongue short and pointed: in some it is rather long, and flattened at the tip, and in others the sides of the tongue are ciliated. Their habits and modes of life are different; the creepers, feeding chiefly on insects, are almost constantly observed creeping slowly up and down trees in search of their food, but the humming-bird hovers on the wing over the flowers which furnish its food like the bee: the creepers breed in the hollows of trees and lay many eggs; the humming-birds, on the contrary, rarely lay more than two eggs, and build their nests very differently; preferring the covert of a bush to the hollow of a tree; their nests are generally observed perched on a furcated branch in a low tree, or among the sugar-canes; and sometimes among grass and other low herbage.

CERTHIA FAMILIARIS is one of the most universally diffused species in this genus, though generally believed to be no where common; it is found in Asia and America, and in most parts of Europe. The species is of a brownish colour, beneath white; quill feathers fuscous, and ten marked with a white spot each. Linn. Fn. Suec.

This is the common, or European creeper as it is sometimes called, of English authors, a bird not often observed in this country, though perfectly well known as a British species. It is described under various names by authors. Kramer calls it *Ispida cauda rigida*; Klein, *Falcinellus arboreus nostras*; and Buffon and Sonnini *Grimpereau*. Frisch describes a large variety of the same bird under the title of *Granspecht*, which Gmelin calls *β Certhia major*, and Buffon *Le Grand Grimpereau*.—Our common Creeper is about five inches and a half in length. The bill is hooked, the upper mandible brown, and the lower whitish; head and upper

part of the neck brown, streaked with black; rump tawny; wing-coverts varied with brown and blackish; breast and belly silvery white; tail long, and consisting of twelve feathers that slope off to a point; legs and claws grey. It feeds principally on insects, which it finds in the crevices, and holes, in the trunks and branches of trees. The nest is usually built in the hollow of a tree, and contains five or more eggs of an ash colour, marked at the end with spots and streaks of a deeper colour.

VIRIDIS. Above greenish, beneath varied with pale yellow and green; quill feathers brown, with the outer edge green. Scop. ann. l. 52. n. 60.

This species is described by Scopoli as being nearly the same size as *certhia familiaris*, of which he supposed it may be only a sexual difference or a variety. We may easily conclude, if his description be correct, that it is not a sexual difference of the former; but it may be a variety, although most probably it is a distinct species. He mentions a blue stripe that passes from the base of the bill, and descends down the neck on each side; and a rufous spot on the throat; the tail is greenish brown, and the legs black. Inhabits Carniola.

FALCATA. Green; beneath and tail violet; wings, belly, and vent pale brown. Gmel. *Sickle-billed creeper*, Latham.

The length of this species is five inches and a half; the bill is dusky, sickle-shaped, and dusky. The upper parts of the head, neck, and body are green with a gloss of violet on the head; beneath as far as the breast violet; legs brown with black claws. This was first described by Dr. Latham from a specimen in the British Museum.

PACIFICA. Black, beneath dusky; shoulders, lower part of the back, rump, and vent yellow; lower wing-coverts snowy. Gmel. *Great hook-billed creeper*, Latham.

Length eight inches. Bill an inch and three quarters, brown, and pale at the base; legs black brown. Described from a specimen in the late Leverian Museum that was brought from the Friendly islands in the South Seas. It is mentioned in the last voyage of Captain Cook under the name of Hoohoo.

OBSCURA. Olivaceous; wing and equal tail dusky edged with green. Gmel. *Hook-billed green creeper*, Lath. Lev. Mus.

The length of this bird is seven inches. Bill an inch and three quarters long, blackish and very much curved; the under mandible a quarter of an inch shorter than the upper. The nostrils covered with a membrane. Between the bill and eye a pale brown streak; plumage olive green, palest beneath, and somewhat yellowish: legs dusky brown, with the feathers just above the knee white.—This species inhabits the Sandwich islands, and is one of those birds the feathers of which are employed by the natives in the manufacture of the feathered vestments of their chiefs. An elegant cloak of this description formed of the feathers of this kind of creeper, and decorated with a deep border of red and yellow feathers, was brought by our last circumnavigators from Owhyhee, and deposited among the artificial rarities in the late Leverian Museum. This is understood to have been the only article of dress formed of the feathers of this bird by the English, although cloaks and other vestments formed of feathers were worn on all occasions of great public ceremony by the chiefs in the Sandwich islands. A singular anecdote is related of this cloak that may be worth repeating, to shew the value those islanders attach to the articles of dress composed of the feathers of this bird, while those composed of red and yellow feathers were to be obtained on easy terms. The cloak was the property of one of the chiefestain

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chieftain warriors of Owhyhee who among others were tempted by curiosity on board English ships; its beauty attracted the notice of an officer in the expedition, Lieutenant Williamson, who wished to purchase it, but the cloak being considered by the owner as extremely valuable, his proposals were rejected. The officer offered him a double barrelled gun for it, which was refused; and he afterwards offered his regimental coat which was refused. Some time after, however, the owner of the cloak observed in the corner of the cabin a bottle and basin of common white or Queen's ware, and was so struck with the novelty that he hastily snatched them up in his arms, and throwing his cloak upon the floor without further ceremony jumped overboard, and swam ashore with his prize, which very fortunately he bore off unbroken.

COCCINEA. Scarlet: wings, and tail black. Forster. — *Hook billed red Creeper*, Lath. *Carmosinrotbor Honigsauger*, Merrem. Lev. Mus.

A beautiful species that inhabits the Sandwich islands, the feathers of which are those principally employed by the natives in the formation of their fine scarlet cloaks, and other parts of dress; and in their grotesque feathered idols. The length is six inches. Bill three quarters of an inch long, and much curved, the colour pale brown. Some birds have the forehead buff coloured, and a mixture of buff and dusky black about the head and neck which are supposed to indicate those not yet arrived at their perfect plumage.

Obs. This is called by Born *Polytmus*. *Certhia vestliaria*, Lath. Ind. Orn.

SOVI-MANGA. Green, beneath yellowish; rump olive; breast brown, with two transverse bars, one brown, the other blue; tail black. Gmel. *Certhia, Madagascariensis violacea*, and *le Grimpereau violet de Madagascar*, Briss. *Soui manga*, Buff. *Violet creeper*, Lath. *Certhia Madagascariensis*, Lath. Ind. Orn.

Size of a wren; length above four inches; bill three quarters of an inch, long and black; tongue rather longer than the bill, and bifid. The head, throat, neck, upper part of the back, scapulars, and wing-coverts, are shining green with an olive gloss; lower part of the back, rump, and upper tail coverts olive brown; breast brown, with a blue band, and below that another of chestnut; belly and under tail coverts pale yellow. On the shoulders a spot of deep yellow; tail black. The feathers edged with green, except the outer feather, which is grey brown for half its length, and the next tipped at the end with the same. Legs and claws black. The female is smaller than the male, and has the upper parts olive-brown; the under parts yellow with a tinge of olive. Inhabits Madagascar.

MANILLENSIS. Green, glossed with blue and violet; beneath greyish olive; neck barred with green, blue, violet, and yellow; wings fuscous. Gmel. A native of Manilla; scarcely four inches long. Obs. There are two yellow spots between the shoulders, and the upper wing-coverts are brown. This is considered as a mere variety of *certhia soui-manga* by Latham. Ind. Orn. Buffon calls it *soui-manga* de Luçon.

BURBONICA. Green and fuscous; beneath varied with grey; rump yellow; wings and tail blackish. Gmel. *Le Soui manga de l'île de Bourbon*, Buff. *Grimpereau de l'île de Bourbon*, Pl. enl. *Yellow rumped creeper* of Latham.

The length of this bird is about five inches. The bill black; upper part of the head and body greenish brown; the rump yellow, inclining to olive; under parts grey and yellowish varied; sides rufous; tail blackish; legs black. Inhabits the île of Bourbon.

VIOLACEA. Two middle tail feathers very long; body

glossed with violet: breast and abdomen pale yellow. Gmel. *Certhia violacea*, Linn. *Certhia longicauda minor capitis bonae spei*, Briss. *Soui-manga à longue queue et à capuchon violet*, Buff. *Petit grimpereau à longue queue du cap de bonne espérance*, Buff. pl. enl. *Violet-headed creeper*, Lath.

This is rather more than six inches in length. Bill blackish, and near an inch long. The head, neck, upper parts of the back, scapulars, lesser wing-coverts bright violet, glossed with green; fore part of the neck bluish. Lower part of the back, rump, and upper tail coverts, olive brown; breast, belly, and under tail-coverts bright orange; sides of the body orange, with a mixture of olive; tail blackish brown, wedge-shaped, with the two middle tail-feathers an inch longer than the rest; the colour blackish brown, edged on the outside with olive; legs and claws blackish.

Inhabits the Cape of Good Hope. The nest, which consists of materials of a silky nature, is constructed with great art. Lev. Mus.

FAMOSA. Two middle tail-feathers very long; body glossed with green; arm-pits yellow; lores black. Gmel. *Certhia longicauda capitis bonae spei*, Briss. *Certhia famosa*, Borowsk. *Grand soui-manga vert à longue queue*, Buff. *Grimpereau à longue queue du cap de bonne espérance*, Buff. Pl. Enl.

This is a large species. Length nine inches. The bill an inch and a quarter; the plumage is green-gold, with a gloss of coppery; between the bill and eyes a black velvety stripe; under the shoulders a fine yellow spot; greater wing-coverts and quills blackish, edged with green; tail black, the two middle feathers exceed the rest by two inches and a half in length, and are edged with gold, and coppery on both sides; claws and legs black. The female has the head and upper parts of the body of a greenish brown, with a mixture of bright green; rump green, with the quills and tail black brown; body beneath yellowish, with a mixture of green feathers on the breast; two middle tail-feathers nearly as long as in the male, but so narrow as almost to resemble a thread. A native of the Cape of Good Hope.

PULCHELLA. Two middle tail-feathers very long; body glossed with green; breast red. Gmel. *Certhia longicauda senegalensis*, Briss. *Avicula amboinensis discolor*, Seba. *Soui-manga vert doré changeant à longue queue*, Buff. *Grimpereau à longue queue du Sénégal*, Buff. Pl. Enl. *Beautiful creeper*, Lath.

Length near seven inches and a quarter. Bill two-thirds of an inch, and blackish. The head, neck, back, rump, belly, sides, scapulars, upper and under tail-coverts, and upper wing-coverts are of a fine golden green, glossed with copper, and the breast is a beautiful red; on the lower part of the belly is a mixture of white. The greater wing-coverts and tail are brown; tail blackish, edged on the outside with green gold; two middle tail-feathers rather more than two inches and a half longer than the rest, and very little rounded at the ends; legs blackish. The plumage of the female is tinged with brown above, beneath yellowish, mixed with brown, the under tail-coverts white, sprinkled with brown and blue. This species inhabits Senegal.

PHILIPPINA. Two middle tail-feathers very long; body greenish grey, beneath yellowish white. Gmel. Linn. &c. *Certhia philippensis*, Briss. *Grimpereau des Philippines*, Buff. *Grimpereau second de l'île de Luçon*, Sonner. *Philippine creeper*, Lath. The length of this bird is four inches and three quarters; bill and legs, with the claws, black; tongue tubular; two middle tail-feathers black, glossed with gold, the rest blackish, and white at the tip.

CYANEA. Blue, with the ocular band, shoulders, wings, and tail black; legs fuscous. Gmel. *Certhia Bresslinensis caerulea*, Briss. *Gairacarcla*, Marcgr. *Guit-guit noir et bleu*, Buff.

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Buff. *Grimpereau du Bresil*, Buff. Pl. Enl. *Black and blue creeper*, Edwards, &c.

This species is rather larger than the common creeper; the length four inches and a quarter. Bill two thirds of an inch long, and black, the tongue as long as the bill, and ciliated. The head, throat, fore part of the neck, breast, belly, sides, thighs, lower part of the back, rump, and upper part of the tail, and wing-coverts fine blue; the top of the head of a beautiful beryl blue; on each side of the head a black stripe passing through the eyes; hind part of the neck, and upper part of the back velvety black; tail black; under wing-coverts yellowish; legs red, claws black.

This inhabits Brasil and Cayenne, and is observed to vary in the colour of the plumage in some specimens.

ZEYLONICA. Cap green; back ferruginous; abdomen yellow; throat and rump azure, Gmel. *Certhia philippensis olivacea*, Briff. *Grimpereau olive des Philippines*, Buff. *Souimanga olive à gorge pourpre*, Buff. Hist. Ois. *Ceylonefe creeper*, Lath.

This is the size of a wren. Bill three quarters of an inch long, and black; upper parts of the body dull brownish olive; under parts yellow, except the throat, fore part of the neck and breast, which are of a beautiful deep violet; legs and claws black. Inhabits the Philippine islands.

There is a variety of this bird of a green colour, and white beneath, with the chin, throat, breast, and back fuscous; tail black. Described from a specimen in the British Museum.

LOTENIA. Blue, with golden-red pectoral band; lores black. Gmel. Linn. *Certhia Madagascariensis viridis*, Briff. *Angala-dian*, Buff. *Grimpereau verd de Madagascar*, Buff. *Loten's creeper*, Lath.

The length of this species is five inches and a quarter; bill nearly one inch and a quarter long, and black, and the tongue compressed at the end. The head, neck, back, rump, scapulars, and upper tail-coverts, are green-gold; between the bill and eye on each side is a narrow velvety line; legs black. Buffon tells us this bird makes its nest of the down of plants, in the form of a cup, like that of the chaffinch, in which the female lays generally five or six eggs. Its greatest enemy, he observes, is a spider as large, or larger than itself, which is very voracious, and often seizes on the whole brood. This is the great bird-catching spider, *aranea avicularia*. Loten's creeper is a native of Ceylon and Madagascar, and is named in compliment to governor Loten.

OMNICOLORE. Green, mixed with almost every other colour. Gmel. &c. *Avis zeylonica omnicolor*, Seba. *Falcinellus omnicolor zeylanicus*, Klein. *Le soui-manga des toutes couleurs*, Buff. *Green-gold creeper*, Lath.

Length eight inches. Inhabits the same country as the last, and supposed by some to be only a variety, but it differs so materially in size, that Gmelin and Latham are led to think them distinct, and describe them as two species.

SANNIO. Olivaceous; crown of the head somewhat violet; spot on the cheeks white; wings, and slightly furcated tail brown, Gmel. *Mocking creeper*, Lath.

This inhabits New Zealand. It has an agreeable note in general, but at times so varies and modulates its voice, that it seems to imitate the notes of all other birds, and hence it was called by the English the mocking bird. The length is seven inches and a quarter. Bill somewhat bent, slender, long, and dusky; nostrils large, and covered with a membrane; tongue sharp; head, especially on the crown, inclining to violet; plumage, in general, olive green, inclining to yellow on the under parts; quills brown, secondaries edged with olive; tail the same, and somewhat furcated; legs dusky blue; claws black, the posterior one longest. Lev. Mus.

AURANTIA. Green, beneath yellowish; throat orange; wings and tail black. Gmel. *Orange-breasted creeper*, Lath.

Discovered by Smeathman in Africa. The length is four inches. Bill about three quarters of an inch long, curved, and black. The head, throat, hind part of the neck, back, and wing coverts green; quills and tail dusky-black; legs black.

FLAVIPES. Green, beneath blue; wings and tail black. Gmel. *Blue-throated creeper*, Lath.

This kind inhabits Cayenne. The length is four inches and a quarter. Bill nearly an inch long, curved, and black; upper part of the head, sides, and back of the neck, and back green; chin, throat, and breast, deep blue; blue on the belly paler; on each side the neck, between the blue and green, yellowish white; quills and tail black; legs yellow, with black claws.

OCHROCHLORA. Green; cheeks, throat, and abdomen yellow; breast and flanks yellowish-green, spotted with bluish. Gmel. *Yellow-checked creeper*, Lath.

Inhabits Surinam. This is about half the size of the common creeper. The head, back, wings, and tail are green.

CARDINALIS. Black; head, collar, breast, and line down the middle of the back red; tail equal. Gmel. *Cardinal creeper*, Lath.

Described from a specimen in the Leverian museum. It is the same size as our common creeper. Bill the length of the head, and curved, black, and whitish at the base; tongue long, and ciliated half way down from the tip; between the bill and eye a streak of black which encircles the eyes; wings and tail black; legs lead coloured, claws black. Inhabits the cultivated parts of the island of Tanna, and is known there by the name of *kuyameta*. It subsists on the nectareous juices of flowers like the humming-bird.

CARUNCULATA. Olivaceous; chin and throat orange; breast ferruginous; abdomen ash-coloured; at the base of the lower mandible on each side a yellow wattle. Gmel. *Wattled creeper*, Lath.

A specimen of this singular species brought by our navigators from Tonga-Tabu, or Amsterdam isle in the South seas, was preserved in the late Leverian Museum. The length was seven inches and three quarters. Bill an inch long, and rather bent; tongue longer than the bill, and divided for half its length into four segments like threads; wattle at the base of the bill surrounded by a patch of yellow feathers which extends under the eye; the plumage brownish olive-green, darkish on the middle of the black; belly inclining to ash-colour; legs blue black; claws black.

FUSCA. Fuscous; throat and breast lined with fuscous and white. Gmel. *Brown creeper*, Lath. Lev. Mus.

The length of this bird is six inches. The bill is an inch long, moderately bent and dusky brown; with a pale orange spot in the middle. General colour of the plumage brown; belly very pale brown; tail brown and even at the end; legs black, claws long and hooked. Inhabits islands in the South seas.

MURARIA. Cinereous; wings with a tawny spot. Gmel. *Certhia muralis*, Briff. *Grimpereau de muraille*, Buff. *Wall creeper or spider catcher*, Willughby, Latham, &c.

Inhabits the south of Europe and Asia. Frequents old walls in search of insects, especially spiders; is solitary and migrates in autumn.

PUSILLA. Fuscous, beneath white; eye-brows white; tail fuscous, the outer feathers white at the tip. *Certhia indica*. Briff. *Sovi magna brun et blanc*, Buff. *Little brown and white creeper*, Edwards.

Length three inches and a half. A black streak extending

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ing from the bill to the eye; quill feathers edged with brassy. This inhabits the Cape of Good Hope.

CAPENSIS. Fuscous; tail feathers blackish; outer ones fringed with white on the outside. Gmel. *Certhia capitis bone spei*, Briss.

CARRUCARIA. Olivaceous, beneath yellowish; tail feathers equal. Gmel. *Certhia philippensis*, Briss. *Grimpereau gris des Philippines*, Buff. *Grey creeper*, Lath.

Inhabits the Philippine isles. Length four inches. Bill three quarters of an inch long, and black; tongue forked. Body above olivaceous; under parts yellowish white, deepest on the breast; down the middle of the neck as far as the breast a deep violet stripe; upper wing-coverts violet; quills brown; tail feathers black, edged with steel blue, and whitish at the tips; legs and claws black.

JUGULARIS. Somewhat griseous; beneath yellow; throat violaceous; two exterior tail feathers yellow at the tip. Gmel. *Certhia philippensis minor*, Briss. *Petit grimpereau des Philippines*, Buff. *Certhia jugularis*, Linn.

Length three inches and a half. Inhabits the same country as the last, and is supposed by some writers to be only a variety of it.

OLIVACEA. Olivaceous; beneath fuscous; orbits whitish. Gmel. *Certhia olivacea madagascariensis*, Briss. *Sou-manga olive à gorge pourpre*, Buff. *Grimpereau olive de Madagascar*, Buff. *Olive creeper*, Lath.

Length four inches. Bill above half an inch long, and black; colour of the upper parts from the forehead to the rump, dull olive green, inclining to brown on the forehead and crown; the under parts grey brown; round the eyes whitish; quills and tail brown, with a tinge of olive green; the two outer feathers white at the end; legs pale brown. Inhabits Madagascar.

Dr. Latham suspects this may be the female of the Ceylonese creeper, *certhia zeylonica*.

CÆRULEA. Blue; ocular band, throat, wings and tail feathers black. Linn. Scopoli, &c. *Certhia cayanaensis cerulea*, Briss. *Avis boitziilli, papilio vocata* Seba. *Certhia of Guiana*, Bancroft. *Blue creeper*, Edwards.

A native of Cayenne, where, according to Seba it makes its nest with great art in the shape of a retort, which is suspended from some weak twig at the end of a branch of a tree, with the opening downwards. The neck at the entrance is a foot in length, the nest itself being quite at the top, so that this bird has to climb up this funnel-shaped opening to gain access to its nest. The nest being so stationed is secure; neither monkeys, snakes, nor lizards, daring to venture at the weak extremity of the branch to the nest as it would not support them. The outside of the nest is composed of dry stalks of grass, the lining of softer materials. This bird is four inches in length. The bill is three fourths of an inch long, and black; the head fine blue; legs yellow, claws black.

BRASILANA. Black; crown of the head gold-green; rump, chin, and throat violaceous; breast purple-tawny. *Certhia brasiliensis violacea*, Briss. *Guit-guit noir et violet*, Buff. *Black and violet creeper*, Lath.

This kind inhabits Brasil. Length three inches and a quarter. Bill rather exceeding half an inch, and black; crown of the head is fine green-gold; sides of the head, hind part of the neck, back and scapulars deep velvety black; lower part of the back and rump, lesser wing, and upper tail coverts violet, with a gloss like polished steel; belly black; thighs chestnut brown; quill black; tail black edged with violet.

VARIEGATA. Waved with blue, black, yellow, and white; beneath saffron coloured; crown red; hind head

blue. Gmel. *Certhia americana varia*, Briss. *Guit-guit varie*, Buff. *Variegated creeper*, Lath.

This species inhabits America. The length is five inches. Bill three quarters of an inch in length. The cheeks, and below the eyes are blue and white mixed; hind part of the neck, back, and rump undulated with blue, black, yellow, and white; scapulars, under-wing, and tail coverts, quills, and tail the same.

CAYANA. Glossy-green, beneath striated with white; tail feathers greenish, the lateral ones blackish within. Gmel. *Certhia viridis cayannensis*, Briss. *Certhia corpore supino viridi, gula lutea*, Ruff. Transf. *Guit-guit vert tacheté*, Buff. *Cayenne creeper*, Lath.

Length four inches. Bill three quarters of an inch and black; upper part of the head, neck, back, and rump, fine palish green; scapulars, upper wing and tail coverts the same; throat, and a small spot between the nostrils and eye rufous; cheeks white, each feather margined on both sides with green; under parts of the body green, with a mixture of blue; two middle tail-feathers wholly green, the rest blackish, edged with green; legs and claws grey. The female has the plumage more obscure, and is destitute both of the rufous spot between the nostril and eye, and that on the throat. Inhabits Cayenne.

CHALYBEA. Glossy-green; breast red, with a steel blue collar. Gmel. &c. *Certhia torquata capitis bone spei*, Briss. *Sou-manga à collier*, Buff. *Grimpereau du cap de bonne espérance*, Buff. pl. enl. *Purple Indian creeper*, Edwards. *Collared creeper*, Lath.

Length four inches and a half. Bill near an inch long and black. The head, neck, throat, and upper parts of the body green gold, glossed with coppery; breast a beautiful red, neck green, and separated from the red by a steel-blue collar, changeable to green. The belly, sides, thighs, and under tail coverts grey, with a mixture of yellowish on the lower parts of the breast and sides; tail shining black; outer margin of the ten middle tail feathers green gold, and all tipped with grey; legs and claws black. The female differs in having yellow spots on the sides according to Brisson. Buffon thinks this may be a young bird of the Linnæan *Certhia senegalensis*, and supposes further the Linnæan *Certhia capensis* may be the female. It is a native of the Cape of Good Hope.

SENEGALENSIS. Violaceous-black; crown of the head and chin green gold; breast scarlet. Gmel. Linn. &c. *Certhia senegalensis violacea*, Briss. *Sou-manga violet à poitrine rouge*, Buff. *Senegal creeper*, Lath.

This species is five inches in length; bill nearly an inch and black; top of the head and throat green gold, glossed with coppery; rest of the body above and beneath violet; feathers on the neck and breast greenish, tipped with red; thighs violet brown; greater wing-coverts, quills, and tail brown; legs and claws blackish. A native of Senegal.

AFRA. Green; abdomen white; breast red; rump blue. Gmel. *Sou-manga vert à gorge rouge*, Buff. *Red-breasted green creeper*, Edward. *African creeper*, Lath.

Length about four inches and a half; the bill an inch long, and dusky; head, neck, back, and wing-coverts shining green, glossed with burnished gold and copper; on the breast a bar of red; upper tail-coverts blue; greater wing-feathers and tail dark brown; belly, thighs, and under tail-coverts white; legs black. Inhabits the Cape of Good Hope.

There are two or three varieties of this species, one having the abdomen cinereous; a yellow tuft under the wing; and the tip of the tongue bifid: and another has the chin, throat, and breast blue-purple, with a pectoral red band. Latham

CERTHIA.

considers the Gmelinian *Trochilus varius* as a variety of this species.

SPERATA. Purple, beneath scarlet; head, chin, and rump purple. Linn. Gmel. *Certhia philippensis purpurea*, Briss. *Sou-manga marron-pourpré à poitrine rouge*, Buff. *Grimpereau des Philippines*, Buff. Pl. Enl. *Red-breasted creeper*, Lath.

Length four inches; bill two-thirds of an inch long, and black, with the base whitish; tongue furcated; head, throat, and fore part of the neck glossy-violet; hind part of the neck, back, and scapulars purplish-chestnut; lower part of the back, rump, and upper tail-coverts violet changeable to green and gold; lower part of the belly yellowish olive; tail black, with a steel-like gloss, edged exteriorly with violet, and glossed with greenish-gold; legs and claws brown. Female olive-green above, beneath olivaceous yellow. This species inhabits all the Philippine islands, and has a note like that of the nightingale.

Obs. There is a variety of this bird with a violet chin, β C. *gula violacea* of Gmelin. It is called by Sonnerat *Grimpereau troisieme de l'isle de Lugon*, and by Buffon *Sou-manga à gorge violette et poitrine rouge*.

SPIZA. Green; head and wings blackish. Gmel. *Motacilla spiza*, Linn. Syst. *Certhia americana viridis atricapilla*, Briss. *Guit-guit vert et bleu à tête noire*, Buff. *Black-beaded creeper*, Lath.

Size of a chaffinch; length five inches and a quarter; bill three quarters of an inch long and whitish; head and throat velvety black; hind part of the neck, back, rump, scapulars, upper wing, and tail-coverts, and quills fine green; fore part of the neck, breast, belly, sides, and under tail coverts blue; tail deep green. This species inhabits America, and seems liable to vary considerably; the three following are described as distinct varieties of this species.

Certhia spiza β , Gmel. Green, with the cap black. This is the size of the first, and has the upper mandible blackish, the lower whitish, and both yellow at the base. In this the throat is not black as in the first, the black passing downwards just below the eye on each side, and as far as the nape behind; legs lead colour. Inhabits Surinam, Brasil, and Guiana. Bancroft calls this the *Green black-cap fly-catcher*.

γ Green, with white chin, and crown of the head blue. *Guit-guit vert et bleu à gorge blanche*, Buff. *Blue-headed green fly-catcher*, Edwards. Size of the last, but the top of the head, and also the wing-coverts, are blue; the throat white; plumage paler green; legs yellowish; and claws black. Inhabits same countries as the last.

δ . Entirely green. *Guit-guit tout vert*, Buff. *Grimpereau vert de Cayenne*, Buff. Pl. Enl. *All green creeper*, Edwards. This is rather larger than the rest, with the bill longer, and rather more incurvated; blackish, and somewhat paler at the base; plumage above green, beneath paler. Found in Cayenne, and other parts of South America.

PURPUREA. Entirely purple. Gmel. *Certhia virginiana purpurea*, Briss. *Avis virginiana phoenicea de Atototl diſta*, Seba. *Oiseau pourpré à bec de grimpereau*, Buff. *Purple creeper*, Lath.

Inhabits Virginia. Length four inches and a half; bill one inch and a half long. This bird is said to sing well.

GUTTURALIS. Blackish; throat glossy-green; breast purple. Gmel. *Grimpereau brundu Bresil*, Buff. *Oiseau brun à bec de grimpereau*, Buff. Hist. des Ois. *Green-faced creeper*, Lath.

Length five inches. Bill an inch long, and black; forehead and throat green gold; head, upper part of the neck, and rest of the body blackish brown; feathers on the breast red at the tip; tail rufous; legs black. Inhabits Brasil.

PINUS. Yellow, above olive; wings blue, with two white bands. Gmel. *Parus americanus*, Briss. *Figuier des Japins*, Buff. *Pine warbler*, Lath. *Pine creeper*, Edwards, Catesby, &c.

CRUENTATA. Bluish-black; beneath white; crown, neck, back, and rump red. Gmel. *Certhia bengalensis*, Briss. *Sou-manga rouge, noir et blanc*, Buff. *Black, white, and red Indian creeper*, Edwards. *Red-spotted creeper*, Lath.

This kind inhabits Bengal; the length is three inches and a quarter; bill short and black; quills and tail blackish-blue; legs black.

SANGUINEA. Deep-red; wings, and tail black; abdomen dusky; vent white. Gmel. *Crimson creeper*, Lath. Length five inches, inhabits the Sandwich islands. The bill is dusky; secondary quill feathers edged with grey; tail-feathers pointed with white shafts; legs black.

VIRENS. Olivaceous-green; wing and tail-feathers edged with yellow. Gmel. *Olive-green creeper*, Lath.

A native of the Sandwich islands. Length five inches; bill slightly curved, and of a dusky colour, palest at the base; between the bill and eye dusky; quills and tail dusky-green; legs blackish. Lev. Mus. It is supposed by Gmelin and others that this may be the female of *Certhia sanguinea*.

RUBRA. Red; wings and tail black; vent white. Gmel. *Scarlet creeper*, Lath.

Inhabits the islands of the South seas. Length scarcely four inches; the bill half an inch long, very little bent, and black. General colour of the plumage scarlet, except the wings and tail; lower part of the belly and vent white; legs and claws black. Lev. Mus.

FLAVEOLA. Black, beneath pale yellow; eye-brows whitish; outer tail-feathers tipped with white. Linn. Gmel. *Le grimpereau, ou sucrier de la Jamaïque*, Briss. *Black and yellow creeper*, Edwards, Lath.

This inhabits Jamaica. Size of a wren; bill black; head, throat, neck, back, scapulars, upper wing and tail-coverts fine black; from the base of the bill extends a white stripe passing over the eyes to the hind part of the head; breast upper part of the belly, sides, edges of the wings, and rump fine yellow; lower part of the belly, with the thighs, and under tail-coverts white; tail black, with all the feathers, except the two middle ones, with white tips; legs and claws blackish. The *yellow bellied creeper* of Edwards is supposed to be the female. Gmelin makes it a var. β .

Several varieties of this bird are described by authors, one of which, the *Babama timouſe* of Catesby, *Certhia bahamanſis*, Briss. is rather larger than the first described kind. General colour fuscous, pale yellow beneath; throat pale; lower part of the abdomen and vent brownish; eye-brows white. This inhabits the Bahama islands: and there is another *Certhia bartolemica*, Mus. Carlſ. of a lead-coloured brown above, beneath yellow; eye-brows yellowish-green; rump greenish; vent whitish; bill, legs, wings, and tail fuscous. Length five inches. These birds subsist chiefly on the sweet juices of the sugar-canes, which they extract through the crevices of the stalks.

CINNAMOMEA. Cinnamon colour; beneath white. Gmel. *Cinnamon creeper*, Lath. Length five inches; bill rather bent and black; tail formed as in *Certhia familiaris*; legs dusky.

MACASSARIENSIS. Golden-green; beneath blackish-brown. Gmel. *Polytmus indicus*, Briss. *Avis ifioei indica orientalis*, Seba. *Macassar creeper*, Lath. Inhabits the islands of Bali and Macassar in the East Indies.

INDICA. Blue; throat whitish. Gmel. *Polytmus ceruleus indicus*, Briss. *Avis colubri orientalis*, Seba. *Indian creeper*, Lath.

Length four inches and a half. Inhabits India. The bill and legs are black.

AMBOINENSIS. Cinereous; beneath green; head and collar yellow; breast red; wings black. Gmel. *Polytmus amboinensis*. Briss. *Avis amboinensis, ifnoi vel kakopit*, Seba. *Amboina creeper*, Lath. Length two inches and three quarters; bill yellowish. A native of Amboina.

MEXICANA. Red; throat green; quill-feathers bluish at the tip. Gmel. *Trochilus coccineus*. Linn. *Avicula mexicana* f. *Hoitzellin*, Seba. *Red creeper*, Lath.

The length of this bird is four inches and a half; bill nearly one inch and pale yellow; upper part of the head light shining red; throat and fore part of the neck green; tail deep red; legs and claws pale yellow. Supposed to inhabit New Spain. Seba mentions a variety of this bird with a black head, *avicula de tatic ex Nova Hispania*; *Grimpereau rouge à tête noire du mexique*.

CINEREA. Cinereous; rump and wing-coverts green; wings fuscous. abdomen yellowish; vent white; tail black. Gmel. *Cinereous creeper*, Lath. Inhabits the Cape of Good Hope. Length nine inches.

NOVÆ HOLLANDIÆ. Black; beneath streaked with white; eye-brows and spot near the ears white; quills and tail-feathers edged with yellow, Lath. Ind. Orn. A native of New Holland.

Size of the nightingale. Bill dusky pale at the tip; nostrils covered with a membrane; tail rounded, with the two outer tail-feathers tipped within with white; legs pale. White's Hist. New Holland.

INCANA. Somewhat fuscous; neck and wings hoary. Inhabits New Caledonia and is of a small size. Anderson.

PEREGRINA. Olive, beneath yellow; wings with a pale bifid band; tail somewhat furcated; two exterior tail feathers tipped within with white. Lath. Ind. Orn. Obs. This is of the middle size, and has the bill, wings, and tail dusky. Lev. Mus.

VERTICALIS. Olivaceous green; beneath ash coloured; crown green; wings and tail fuscous. Lath. Ind. Orn. *Ash bellied creeper*. Gen. Syn. Inhabits Africa.

CANTILLANS. Bluish grey; spot on the back, and under parts of the body yellow. Lath. Ind. Ord. *Orange backed creeper*. Gen. Syn. A native of China.

ERYTHRORYNCHOS. Olive; body beneath white; wings and tail blackish; bill red. Lath. Ind. Orn. *Red billed creeper*. Gen. Syn. Inhabits India.

GRISEA. Greyish; beneath reddish; tail cuneated; two middle feathers brown, lateral ones grey; and all barred with black at the tip. Lath. Ind. Orn. Inhabits China. The bill and legs are yellow.

PRASINOPTERA. Black; fore part of the neck purple; wings and tail yellowish green. Mus. Carl. &c.

VENUSTA. Gold-green; fore-head, chin, broad pectoral band, and rump violet; wings brown; belly yellow. Shaw. Nat. Misc. Inhabits Sierra Leona.

TABACINA. Two middle tail feathers very long; head, neck, and upper part of the body snuff-coloured, beneath green; tail blackish green. Lath. Ind. Orn. Length eight inches and a half.

CERTIFICANDO de recognitione staple, in Law, is a writ commanding the mayor of the staple to certify to the lord chancellor a statute staple taken before him, where the party himself detains it, and refuseth to bring in the same. Reg. Orig. 152. There is the like writ to certify a statute merchant; and in divers other cases. Ib. 148. 151, &c.

CERTIFICATE, a testimony given in writing, to assure

and notify the truth of any thing to a court of justice, or the like. See **TESTIMONIAL**.

A certificate is sometimes made by an officer of the court, where matters are referred to him, or a rule of court is obtained; containing the effect and tenor of what is done. The clerks of the crown, assize, peace, are to make certificates into B. R. of the tenor of indictments, convictions, &c. under penalties by stat. 34 & 35 Hen. VIII. c. 14. 3 W. & M. c. 9.

CERTIFICATE of Assize, in Law. See **ASSIZE** and **CERTIFICATION of Assize**, &c.

CERTIFICATE for costs, relates to the case of the plaintiff, who, in an action of trespass, is allowed no more costs than damages, when the jury give less damages than 40s. unless the judge certify under his hand that the freehold or title of the land came chiefly in question. To this rule there are two exceptions: the one is grounded on stat. 8 & 9 W. III. c. 11. whereby the plaintiff obtains full costs, if the judge certify that the trespass was wilful and malicious. The other exception is by stat. 4 & 5 W. & M. c. 23. which gives full costs against any inferior tradesman, apprentice, or other dissolute person, who is convicted of a trespass in hawking, hunting, fishing, or fowling upon another's land. Blackst. Com. vol. iii. p. 214.

Upon this statute it has been adjudged, that if a person be an inferior tradesman, as a clothier for instance, it matters not what qualification he may have in point of estate; but, if he be guilty of such trespass, he shall be liable to pay full costs. Id. Raym. 149.

CERTIFICATE into Chancery. If a question of mere law arises in the course of a cause in Chancery, as whether by the words of a will, an estate for life, or in tail, is created, or whether a future interest, devised by a testator, shall operate as a remainder or an executory devise, it is the practice of this court to refer it to the opinion of the judges of King's Bench or Common Pleas, upon a case stated for that purpose; wherein all the material facts are admitted, and the point of law is submitted to their decision, who thereupon hear it solemnly argued by counsel on both sides, and certify their opinion to the chancellor. And upon such certificate the decree is usually founded. Blackst. Com. vol. iii. p. 453. See **CASE stated**, &c.

CERTIFICATE of Bankrupt. See **BANKRUPT**.

CERTIFICATE of the Poor, is an acknowledgment from the parish to which they belong of their being parishioners: which prevents their removal till they become actually chargeable. Such certificated persons can obtain a settlement only by renting a tenement of 10l. per annum, or by serving an annual office in the parish in consequence of a legal appointment; but no apprentice or servant of such persons can gain a settlement by such their service. 8 and 9 W. III. 12 Ann. stat. 1. cap. 18.

There is, says Dr. Burn, somewhat of hardship in this matter of certificates, by putting it in the power of a parish officer to imprison a man, as it were, for life; however inconvenient it may be for him to continue at that place where he has had the misfortune to acquire what is called a settlement, or whatever advantage he may propose to himself by living elsewhere. Although a certificate carries with it no testimonial of good behaviour, and certifies nothing but that the person belongs to the parish to which he really does belong; it is altogether discretionary in the parish-officers either to grant or refuse it. A mandamus was once moved for, says Dr. Burn, to compel the church-wardens and overseers to sign a certificate; but the court of King's Bench rejected the motion as a very strange attempt. See **POOR**.

CERTIFICATE, *trial by*, is a mode of trial allowed in such cases, where the evidence of the person certifying is the only proper criterion of the point in dispute.

Thus, 1. If the issue be whether A. was absent with the king in his army out of the realm in time of war, this shall be tried by the certificate of the marshal of the king's host in writing under his seal, which shall be sent to the justices. Litt. § 102.

2. If, in order to avoid an outlawry, or the like, it was alleged that the defendant was in prison, *ultra mare*, at Bourdeaux, or in the service of the mayor of Bourdeaux, this should have been tried by the certificate of the mayor; and the like of the captain of Calais. But when this was law (2 Roll. Abr. 583.), those towns were under the dominion of the crown of England. And therefore, by a parity of reason, it should now hold that in similar cases, arising at Jamaica or other places belonging to the crown of England, the trial should be by certificate from the governor respectively.

3. For matters within the realm; the customs of the city of London shall be tried by the certificate of the mayor and aldermen, certified by the mouth of their recorder; upon a demise from the party alleging it, that the custom ought to be thus tried; or else it must be tried by the country. As the custom of distributing the effects of freemen deceased; of enrolling apprentices; or that he who is free of one trade may use another; if any of these points or others similar to them, come in issue. This rule, however, admits of an exception, where the corporation of London is party, or interested, in the suit; as in an action brought for a penalty inflicted by the custom; which shall be determined by a jury, and not by the mayor and aldermen, certifying by the mouth of their recorder. Co. Litt. 74. 4 Burr. 248. Bro. Abr. t. trial, pl. 96. Hob. 85. But see 1 Term Rep. 423. If the recorder shall have once certified a custom, the court is in future bound to take notice of it. Doug. 380.

4. In some cases, the sheriff of London's certificate shall be the final trial; as if the issue be, whether the defendant be a citizen of London or a foreigner, in case of privilege pleaded to be sued only in the city courts. Co. Litt. 74. Of a nature somewhat similar to this is the trial of the privilege of either university, when the chancellor claims cognizance of the cause, because one of the parties is a privileged person; in which case, the charters, confirmed by act of parliament, direct the trial of the question, with regard to privilege, to be determined by the certificate and notification of the chancellor under seal; to which it has been usual to add an affidavit of the fact; but if the parties be at issue between themselves, whether A is a member of the university or not, on a plea of privilege, the trial shall be by jury, and not by the chancellor's certificate. 2 Roll. Abr. 583.

5. In matters of ecclesiastical jurisdiction, as marriage, general bastardy, excommunication, and orders, these and other like matters, shall be tried by the bishop's certificate. As if it be pleaded in abatement, that the plaintiff is excommunicated, and issue is joined thereon; or if a man claims an estate by descent, and the tenant alleges the demandant to be a bastard; or if in a writ of dower the heir pleads no marriage; or if the issue in a *quare impedit* be, whether or not the church be full by institution;—all these, being matters of mere ecclesiastical cognizance, shall be tried by certificate from the ordinary. But in an action on the case for calling a man a bastard, the defendant having pleaded in justification that the plaintiff was really so, this was directed to be tried by a jury; because, whether the

plaintiff be found either a general or special bastard (see **BASTARD**) the justification will be good; and no question of special bastardy shall be tried by the bishop's certificate, but by a jury. Co. Litt. 74. 2 Lev. 250. Hob. 179. Dyer. 79. Ability of a clerk presented, admission, institution, and deprivation of a clerk, shall also be tried by certificate from the ordinary or metropolitan; because of these he is the most competent judge; but induction shall be tried by a jury, because it is a matter of public notoriety, and is likewise the corporal investiture of the temporal profits. Resignation of a benefice may be tried either way; but it seems most properly to fall within the bishop's cognizance. 2 Inst. 632. Shaw P. C. 88. 2 Roll. abr. 583, &c. Dyer, 229.

6. The trial of all customs and practice of the courts shall be by certificate from the proper officers of those courts respectively; and what return was made on a writ by the sheriff or under-sheriff, shall be only tried by his own certificate. Blackst. Com. vol. iii. p. 333, &c.

CERTIFICATE, in the *Royal Navy*, a certain written instrument, signed by the proper officer or officers, to substantiate, at any time, the validity of any civil transaction on board a ship of war, without having recourse to personal evidence which in all cases would be troublesome, and in many impracticable. The captain gives certificates to the several officers under his command, stating the time they have served on board his ship, or under him, and their behaviour during that period; other certificates are signed by the captain and master captain, master and boatswain, doctor and the purser, &c.

CERTIFICATION of assise of novel disseisin, in Law, anciently a writ granted for re-examining a matter passed by assise before justices. It was used where a person appeared by his bailiff to an assise, brought by another, and has lost the cause; but having something more to plead for himself, not stated by his bailiff, he obtained a writ to the sheriff to call both the party from whom the assise passed, and the jury that was impanelled on the same, before the said justices at a certain day and place, to be re-examined. It was called a *certificate*, because mention is made in it to the sheriff, that upon the party's complaint of defective examination; as to the assise passed, the king hath directed his letters patent to the justices for the better certifying of themselves, whether all points of the said assise were duly examined. Reg. orig. 8vo. F. N. B. 181. Bracton, lib. iv. c. 13. Horn's Mur. lib. iii. This writ is now wholly superseded by the remedy afforded by means of new trials. See **ASSISE**.

CERTIFICATS MILITAIRES, *military certificates*. There are of various kinds according to the several objects or purposes they relate to, and the different descriptions of persons empowered to grant them, in order to verify or give undeniable proofs of facts, whether they be governors, commanding officers, commissaries of war, officers of detail, staff officers, paymasters, officers of cities, or communities, &c. They are chiefly reducible, however, to the following heads, viz.

A certificate from a field-officer to the commander in chief affirming the eligibility of a young man to a commission in his majesty's service.

The certificate of an officer upon honour, that he does not exceed the regulation in the purchase of his commission.

The certificate of a general officer to affirm and prove the losses, which officers under him may have sustained in the field.

The certificates of colonels of regiments to the board for the admission of proper objects to the hospital at Chelsea.

Certi-

Certificates from magistrates to identify the persons of recruits, and to affirm that they have enlisted themselves voluntarily into the service, and that the articles of war have been read to them.

Certificates from regimental surgeons, whether men when they join are fit and proper objects to be enlisted.

Certificates from ditto of men's being fit objects to be discharged.

Certificates of commanding officers for stores, &c.

Certificates to enable officers on half-pay to receive it.

Certificates of surgeons and assistant-surgeons to prove that they have passed proper examinations.

CERTIMA, in *Ancient Geography*, a very strong town of Spain, in Celtiberia, which was taken by Gracchus.

CERTIORARI, or CERTIORARI FACIAS, in *Law*, an original writ issuing out of the court of chancery or K. B., directed in the king's name to the judges or officers of inferior courts commanding them to certify, or to return the records of a cause there depending, to the end that the party complaining may have the more sure and speedy justice before the king, or justices assigned by him for determining the cause. Fitz. N. B. fol. 242. This writ is either returnable in the king's bench, and then hath these words, *nobis mittatis*, "send to us;" or in the common bench, and then hath *justiciariis nostris de banco*, "to our justices of the bench;" or in the chancery, and then it has *in cancellaria nostra*, "in our chancery, &c." or into the court of parliament, or into that of the lord high steward of Great Britain, in case of indictments against a peer.

A writ of certiorari may be had at any time after indictment found and before trial, to certify and remove indictments, with all the proceedings on them, from any inferior court of criminal jurisdiction into the court of King's-bench, the sovereign ordinary court of justice in causes criminal. And this is frequently done for one of these four purposes; either, 1. To consider and determine the validity of appeals or indictments, and the proceedings thereon; and to quash or confirm them as there is cause; or, 2. In order to have the prisoner or defendant tried at the bar of the court of King's bench, or before the justices of *Nisi Prius*, where it is surmised that a partial or insufficient trial will probably be had in the court below: or, 3. In order to plead the king's pardon in the court of K. B.; or, 4. To issue process of outlawry against the offender, in those counties or places where the process of the inferior judges will not reach him. 2 Hal. P. C. 210. It is at this stage of the prosecution, that indictments found by the grand jury against a peer must in consequence of a writ of certiorari be certified and transmitted into the court of parliament, or into that of the lord high steward of Great Britain; and that in places of exclusive jurisdiction, as the two universities, indictments must be delivered, (upon challenge and claim of cognizance), to the courts therein established by charter, and confirmed by act of parliament, to be there respectively tried and determined.

A certiorari may be granted at the instance of either the prosecutor or the defendant; the former as a matter of right, the latter as a matter of discretion: and therefore it is seldom granted to remove indictments from the justices of gaol-delivery, or after issue joined on confession of the fact in any of the courts below. On indictments of perjury, forgery, or for heinous misdemeanors, the court will not generally grant a certiorari to remove at the instance of the defendant. But in particular cases, the court will use their discretion to grant a certiorari; as, if the defendant be of good character, or the prosecution be malicious or attended with oppressive circumstances. 2 Hawk. P. C. c. 27. 4 Burr. 749. Lord Raym.

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1452. A certiorari lies in all judicial proceedings, in which a writ of error does not lie; and it is a consequence of all inferior jurisdictions, erected by act of parliament, to have their proceedings returnable in K. B. Lord Raym. 469, 580. A certiorari lies to justices of the peace and others, even in such cases, which they are empowered by statute finally to hear and determine; and the superintendency of the court of K. B. is not taken away without express words. 2 Hawk. P. C. c. 27. But a certiorari does not lie to remove any other than judicial acts. Cald. i. 309. Say. 6. Where issue is joined in the court below, it is a good objection against granting a certiorari; and if a person does not make use of this writ till the jury are sworn, he loses the benefit of it. Mod. Ca. 16. stat. 43. Eliz. c. 5. After conviction, a certiorari may not be had to remove an indictment, &c. unless there be special cause; as if the judge below is doubtful what judgment is proper to be given, when it may. Stra. 1227. Burr. 749.; and after conviction, &c. it lies in such cases where writ of error will not lie. 1. Salk. 149. The court on motion in an extraordinary case will grant a certiorari to remove a judgment given in an inferior court; but this is done where the ordinary way of taking out execution is hindered in the inferior court. 1. Lill. abr. 253. In common cases a certiorari will not lie to remove a cause out of an inferior court, after verdict. It is never sued out after a writ of error, but where diminution is alleged; and when the thing in demand does not exceed 5l. a certiorari shall not be had, but a writ of error or attain. Stat. 21. Jac. 1. c. 23. stat 12. Geo. 1. c. 29. A certiorari is to be granted in matter of law only; and in many cases there must be a judge's hand for it. 1. Lill. 252. Certioraris to remove indictments, &c. are to be signed by a judge; and to remove orders, the fiat for making out the writ must be signed by some judge. 1. Salk. 150. Certiorari lies to the courts of Wales, and the Cinque-ports, counties palatine, &c. 2 Hawk. P. C. c. 27. But without laying a special ground before the court, it cannot be sued out to remove proceedings in an action from the courts of the counties palatine. Doug. 749. It does not lie to judges of oyer and terminer to remove a recognizance of appearance. Lucas. 278. Nor to remove a poor's rate. Stra. 932, 975. Leach's Hawk. P. C. ii. c. 27.

Things may not be removed from before justices of peace, which cannot be proceeded in by the court where removed; as in case of refusing to take the oaths, &c. which is to be certified and inquired into, according to the statute. 1 Salk. 145. Where the court which awards the certiorari cannot hold plea on the record, there merely a tenor of the record shall be certified; for otherwise, if the record was removed into B. R. as it cannot be sent back, there would be a failure of right afterwards. But a record sent by certiorari into B. R. may be sent after by *mittimus* into C. B. 1. Danv. abr. 792, 789. And a record into B. R. may be certified into chancery, and from thence be sent by *mittimus* into an inferior court, where an action of debt is brought in an inferior court, and the defendant pleads that the plaintiff hath recovered in B. R. and the plaintiff replies, "Nul tiel record, &c." 1. Saund. 97, 99.

There are several statutes which restrain, and many which absolutely prohibit a certiorari; in order to avoid frivolous and unfounded delays in justice. Among these we may specify the following. By 1 Ann. c. 18. concerning the repair of bridges, no certiorari shall be allowed. Nor by 2 Geo. II. c. 20. for punishing destroyers of turnpikes, nor by 12 Geo. II. c. 29. for assessing county-rates, nor on 23 Geo. II. c. 21. against cursing and swearing. Nor on 23

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Geo. II. c. 13. against seducing artificers. Nor on 25 Geo. II. c. 36. against bawdy-houses. Nor on 29 Geo. II. c. 40. against stealing lead, iron, &c. Nor on 30 Geo. II. c. 21. for preserving fish in the Thames. Nor on 30 Geo. II. c. 24. for restraining gaming in public houses. Nor on 31 Geo. II. c. 29. for regulating bread. Nor on 2 Geo. III. c. 30. for preventing thefts in bum-boats. Nor on 10 Geo. III. c. 18. against dog-stealers. See on this subject 2 Hawk. P. C. c. 27.

By stat. 1 and 2 P. and M. c. 13. no certiorari shall be granted to remove any recognizance, unless signed by the chief justice, or, in case of his absence, by one of the other judges. By 5 and 6 W. and M. c. 11. and 8 and 9 W. III. c. 33, a certiorari may be granted in vacation time by any of the judges of B. R. and security is to be found before it is allowed. In case of certiorari granted in vacation, the name of the judge and party applying are to be indorsed on the writ. See *HABEAS CORPUS*. No judgment or order to be removed by certiorari without sureties found to the amount of 50l. 5 Geo. II. c. 19. Certiorari to remove convictions, orders, or proceedings of justices, must be applied for within six calendar months, and upon 6 days' notice to the justices. 13 Geo. II. c. 18. Stra. 991.

A writ of certiorari, when issued and delivered to the inferior court for removing any record or other proceeding, as well upon indictment as otherwise, supercedes the jurisdiction of such inferior court, and makes all subsequent proceedings therein erroneous and illegal: unless the court of B. R. remands the record to the court below, to be there tried and determined. But if a certiorari for the removal of an indictment before justices of peace be not delivered before the jury be sworn for the trial of it, the justices may proceed. And they may set a fine to complete their judgment after a certiorari delivered. 2 Hawk. P. C. c. 27. *Ld. Raym.* 1515. A certiorari removes all things done between the teste and return. *Ld. Raym.* 835, 1305. And as it removes the record itself out of the inferior court, therefore if it remove the record against the principal, the accessory cannot be tried there. 2 Hawk. P. C. c. 29. And if the defendant be convicted of a capital crime, his person must be removed by Habeas Corpus, in order to be present in court, if he will move in arrest of judgment. And herein the case of a conviction differs from that of a special verdict. *Burr.* 930. Although on a Habeas Corpus to remove a person, the court may bail or discharge the prisoner; they can give no judgment upon the record of the indictment against him. without a certiorari to remove it, but the same stands in force as it did, and new process may issue upon it. 2 H. P. c. 211. If an indictment be one, but the offences several; where four persons are indicted together; a certiorari to remove this indictment against two of them removes it not as to the others, but as to them the record remains below. 2 Hale's Hist. 214.

If a cause be removed from an inferior court by certiorari, the pledges in the court below are not discharged; because a defendant may bring a certiorari, and thereby the plaintiff may lose his pledges. *Skin. Rep.* 244, 246. A certiorari from K. B. is a superedeas to restitution in a forcible entry. 1. Hawk. P. C. c. 64.

The return of a certiorari is to be under seal; and the person to whom a certiorari is directed may make what return he pleases, and the court will not stop the filing of it, on affidavit of its falsity, except when the public good requires it: the remedy for a false return is action on the case, at the suit of the party injured; and information, &c. at the suit of the king. 2 Hawk. P. C. c. 27. If the person to whom

the certiorari is directed, do not make a return, then an *alias*, then a *pluries*, *vel causam nobis significes quare*, shall be awarded, and then an attachment. *Crompt.* 116. *Blackst. Comm.* vol. iv. *Jacob's Law Dictionary* by Tomlins.

CERTISSA, or CIRTISSA, in *Ancient Geography*, a town of Pannonia, not far from the Danube.

CERTITUDE, or CERTAINTY, is properly a quality of the judgment, importing an adhesion of the mind to the proposition we affirm, or the strength with which we adhere to it.

Certitude is of the same nature with the evidence that produces it; the evidence is in the things that the mind sees and considers, i. e. in the ideas: *certitude* is in the judgment which the mind makes of those ideas.

The schoolmen distinguish two kinds of certitude: the one of *speculation*, arising from the evidence of the thing; the other of *adhesion*, which arises from the importance of it; which last they apply to matters of faith.

Further, the schools distinguish three other kinds of certitude, with regard to the three different kinds of evidence whence they arise.

CERTITUDE, *metaphysical*, is that arising from a metaphysical evidence; such is that which a geometrician has of the truth of this proposition, "That the three angles of a triangle are equal to two right ones."

CERTITUDE, *physical*, is that arising from physical evidence: such is that which a man has, that there is fire on his hand, when he feels it blaze and feels it burn.

CERTITUDE, *moral*, is that founded on moral evidence; such is that which a person has, that he has got, or lost a cause, when his attorney and friends send him an express notice of it, or a copy of the judgment, &c.

Moral certitude is frequently equivalent to metaphysical certitude. Thus a criminal who hears his sentence read, frequently makes no doubt either of his condemnation or execution; and yet has nothing, here, beyond a moral certitude; for metaphysical certitude he has none: neither has he any physical certitude, except as to what relates to the reading of the sentence, and to the action of the executioner, when he takes him into his possession.

It is observed by Mr. Kirwan in his "Essay on Human Liberty," (*Irish Transl.* vol. vii. p. 306.) that certainty differs from necessity in this, that what is necessary *cannot*, and what is certain *will not*, fail to happen. What is necessary is certain, but not *vice versa*. Whilst that is said to be morally necessary, whose non-existence is contrary to the laws by which moral agents constantly and universally govern their conduct; we, on the other hand, call that future object *certain*, which will not fail to come to pass. He further observes, that certainty is an ambiguous term; as it sometimes denotes the reality of an object, sometimes the foundation or cause of that reality, and sometimes the firm persuasion of the mind of the reality of an object. In the first sense it is opposed to unreality or non-existence; in the third, it is opposed to uncertainty or mere probability. See *PROBABILITY* and *CHANCE*. See also *LIBERTY* and *NECESSITY*.

In the "Philosophical Transactions" for 1699, (vol. xxi. p. 359—365.) we have an algebraic calculation of the degrees of moral certitude, arising from human testimony in all its cases; whether immediate, mediate, concurring, oral, or written.

The author thereof shews, that if the report pass through several reporters' hands before it arrive, each conveying $\frac{1}{2}$ of certitude; after twelve transmissions, it will only be an equal lay, whether it be true or not: if the proportion of certitude be

be fixed at $\frac{100}{100}$, it will come to half from the 70th hand; if at $\frac{100}{80}$, from the 605th hand.

For concurring evidences, if two reporters have each $\frac{1}{2}$ of certainty, they will both give an assurance of $\frac{3}{4}$, or of $\frac{35}{35}$ to 1; if three, of $\frac{215}{216}$; and the co-attestation of ten would give $\frac{1023}{1024}$ of certainty. He shews, farther, that if there be six particulars in a narrative, all equally remarkable; and that he to whom the report is given has $\frac{1}{2}$ of certitude for the whole; there is 35 to 1 against the failure in any one certain particular.

He proceeds to compute the certainty of tradition, both oral and written, in whole and part; successively transmitted, and also co-attested by several successors of transmittents.

The learned Knittel has availed himself of this hint in his commentary on a fragment of Ulphilas, p. 169—197, where he has examined by mathematical rules the evidence for and against the readings of the Greek Testament, and applied for that purpose even algebraical series. See also an ingenious argument, deduced from the doctrine of chances, and applied to enforce the practice of virtue, in the conclusion to Dr. Price's Review of the principal Questions in Morals.

CERT-MONEY, *Head-money*, a common fine, paid yearly, by the tenants of several manors to the lords thereof; and sometimes to the hundred, *pro certo leto*, for the certain keeping of the lect.—This, in ancient records, is called *certum leto*.

CERTONIUM, in *Ancient Geography*, a town of Asia Minor, between Adramyttium and the river Caicus, according to Xenophon.

CERUANA, in *Botany*, Juss. p. 190. Forsk. Class and Order, *syngenesia, polygamia superflua*. Nat. Ord. *Corymbifera*; Juss.

Gen. Ch. *Florets* of the ray strap-shaped, linear, three-toothed. *Calyx* many-leaved, equal, converging, cylindrical. *Seeds* wedge-shaped, compressed, crowned with small teeth which terminate in a brittle.

Herb diffuse. *Flowers* some sessile, axillary; others peduncled, terminal; bracts three. Character from Forsk.

CERVANTES DE SAAVEDRA, MIGUEL, in *Biography*, universally recognised as the author of Don Quixote, was born probably of an honourable family, as some say in the province of Andalusia in Spain, or according to others at Madrid, in the year 1549. He seems to have had every advantage of education, and to have been a master in polite learning. But in other respects fortune was not very indulgent to him. He served many years in the army of Mark Antony Colonna in no higher station than that of a private soldier. In that capacity he fought at the battle of Lepanto, under Don John of Austria, in 1571, where he had the misfortune, or, as he rather thought it, the honour to lose his left hand. In this expedition, or in his service as chamberlain to cardinal Aquaviva at Rome, he amassed a certain portion of wealth; for in his captivity at Algiers, during $5\frac{1}{2}$ years, which commenced in 1574, when he was taken by a Barbary corsair, he was then well furnished with money, which he liberally distributed among his fellow-captives. The high price of his ransom and his subsequent free manner of living exhausted his store and reduced him to the distresses of penury. However, his reputation for poetical talents had been already established in his own country; and it derived such accessions by the publication, in 1584, of his "Galatea," a poem in six books dedicated to Afcanio Colonna. About the same time he wrote many dramatic pieces, which were acted with applause on the Spanish theatre, and which acquired him both money and fame. But though his supplies were considerable, his want of eco-

nomy and unbounded generosity dissipated them as they occurred; and he had also married a wife, which involved him in additional expence. Accordingly, he was actually confined in prison for debt, when he composed the first part of "The History of Don Quixote;"—a work which every body admires for its humour; but which ought also to be considered as a most useful performance, that brought about a great revolution in the manners and literature of Europe, by banishing the wild dreams of chivalry, and reviving a taste for the simplicity of nature. In this view, the publication of Don Quixote forms an important era in the history of mankind. Don Quixote is represented as a man, whom it is impossible not to esteem for his cultivated understanding, and the goodness of his heart; but who, by poring night and day upon old romances, had impaired his reason to such a degree, as to mistake them for history, and form the design of traversing the world, in the character, and with the accoutrements, of a knight-errant. His distempered fancy takes the most common occurrences for adventures similar to those he had read in his books of chivalry. And thus, the extravagance of these books being placed, as it were, in the same group with the appearances of nature and the real business of life, the hideous disproportion of the former becomes so glaring by the contrast, that the most inattentive reader cannot fail to be struck with it. The person, the pretensions, and the exploits, of the errant-knight, are held up to view in a thousand ridiculous attitudes. In a word, the humour and satire are irresistible; and their effects were instantaneous. This work no sooner appeared than chivalry vanished. Mankind awoke as from a dream. They laughed at themselves for having been so long imposed on by absurdity; and wondered they had not made the discovery sooner. They were astonished to find, that nature and good sense could yield a more exquisite entertainment than they had ever derived from the most sublime phrenzies of chivalry. This, however, was the case; and that Don Quixote was more read, and more relished, than any other romance had ever been, we may infer from the sudden and powerful effects it produced on the sentiments of mankind, as well as from the declaration of the author himself; who tells us, that upwards of 12,000 copies of the first part (printed at Madrid in 1605) were circulated before the second could be ready for the press; an amazing rapidity of sale, at a time when the readers and purchasers of books were but an inconsiderable number compared to what they are in our days. "The very children (says he) handle it, boys read it, men understand, and old people applaud the performance. It is no sooner laid down by one than another takes it up; some struggling, and some intreating, for a sight of it. In fine (continues he) this history is the most delightful, and the least prejudicial entertainment, that ever was seen; for, in the whole book, there is not the least shadow of a dishonourable word, nor one thought unworthy of a good catholic." Don Quixote occasioned the death of the old romance, and gave birth to the new. Fiction from this time divested herself of her gigantic size, tremendous aspect, and frantic demeanour: and, descending to the level of common life, conversed with man as his equal, and as a polite and cheerful companion. Not that every subsequent romance-writer adopted the plan, or the manner of Cervantes; but it was from him they learned to avoid extravagance and to imitate nature. And now probability was as much studied, as it had been formerly neglected. The publication of the first part of this work appears to have been the means of liberating the author from prison and obtaining for him from the great a considerable degree of patronage. Nevertheless, the court and kingdom of Spain have by no act of solid bounty exonerated themselves

selves from the disgrace of suffering their greatest genius to sink under the depression of habitual indigence. In 1613, he published his "Novels," which are agreeable specimens of that kind of writing, and became popular; they display his inventive and descriptive talents in serious story, as his *Don Quixote* had done in burlesque. While he was preparing for the press a second part of his *Don Quixote*, he was anticipated by an Arragonian writer of mean genius, under the name of Alonzo Fernandez de Avellaneda; who not only debased the original by a very insipid and absurd application of its plan and characters, but loaded the author with much personal abuse. Cervantes, however, published, in 1615, a true second part, which contained the character of the first, and which was received with avidity by all who had been interested in the genuine *Don Quixote*. About this time he also published a poem entitled "A Voyage to Parnassus," which was an ironical satire upon the Spanish poetry of his time, and upon the bad taste of patrons. The effect of this publication was to increase the number of his enemies, without acquiring for him any substantial favours from the great. At this period his indigence was such, that he was obliged to sell eight plays and as many interludes to a bookseller, for want of means to print them on his own account. Being on bad terms with the actors, they prevented his producing them on the stage; and the rising reputation of Lope de la Vega had also eclipsed that of Cervantes as a dramatic writer. His last performance was a novel, entitled "The Troubles of Persiles and Sigismunda," which he did not live to print. In this work he relates an adventure which occurred to him in a journey on horseback to Toledo, when a scholar, being informed who he was, leaps in rapture from his ass, and after paying him high compliments, recommends to him a regimen for the dropy under which he laboured. Cervantes, however, made an apology for not complying with his advice. "My life," says he, "is drawing to a period, and by the daily journal of my purse, which I find will have finished its course by next Sunday at farthest, I shall also have finished my career: so that you are come in the very nick of time to be acquainted with me." An affectionate dedication of this work to his best patron, the count de Lemos, is dated April 19, 1617; and as he mentions in it that he had already received extreme unction, it is probable that a day or two more finished the scene. In the September following a licence was granted to the widow of Cervantes to print this novel for her own benefit; and it is probable that this was the only property which this literary glory of his country had to leave. Life of Cervantes, prefixed to Smollet's Translation of *Don Quixote*. Beattie's Dissertations, Moral and Critical.

CERVANTESIA, in *Botany*, Bosc. Nouv. Dict. Flor. Peruv. pl. 7.

Class and order, *pentandria monogynia*.

Gen. Ch. *Cal.* perianth bell-shaped, five-cleft. *Cor.* none. Five scales inserted into the middle of the calyx. *Pist.* germ superior; stigma sessile. *Peric.* nut egg-shaped, one-celled, surrounded by the calyx, which has increased in size and become fleshy. A shrub; native of Peru. Cavanilles, pl. 475, has figured another species with alternate, petioled, oblong leaves, covered with rust-coloured hairs and small white flower, in terminal and axillary panicles.

CERVARIA, in *Ancient Geography*, a promontory at the extremity of Gallia Narbonensis, on the coast of Spain. Its present name is *Cervera*.

CERVARIA, in *Botany*, Rib. Pent. Gart. i. 105. tab. 21. fig. 10. See *ATHAMANTA cervaria*.

CERVARIA *valerianoides*, Bauh. Pin. See *TRACHELIUM caruleum*.

CERVARO, in *Geography*, a town of Naples, in the province of Principato Citra; 9 miles E.N.E. of Policastro.

CERVELIERE, in *Military Language*, a sort of casque, helmet, or defensive armour for the head.

CERVELLE, a French word, literally signifying brains. The French make use of the phrase, *mine sans cervelle*, when the miner works in earth so loose and devoid of cohesion, that it will neither stand nor support itself at the sides, nor at the top of the gallery, and he is under the necessity of having recourse to contrivances to obviate this defect.

CERVERA, in *Geography*, a river of Spain, which runs into the Segre, a little above Lerida, in Catalonia.—Also, a city of Spain, and capital of a vigueria, to which it gives name, in the province of Catalonia. It is situated in a most delightful vale, which is extremely fertile, and surrounded by hills, on one side of chalk, on the other of limestone. This part of the country, between the Noya, which runs into the Lobregat, and the Segre, which joins the Ebro, is the highest land in this part of Catalonia. The university in this city was founded by Philip V. A. D. 1717, and has commonly about 900 under-graduates, chiefly designed for employments in the church and at the bar, with some few for medicine. Cervera is about seven leagues N.W. of Tarragona.—Also, a town of Spain, in the province of Catalonia, seated on the coast of the Mediterranean, between Roses and Collioure.—Also, a town of Spain, in New Castile; 6 leagues from Cuenca.—Also, a cape of Spain, on the coast of Catalonia; and another on the coast of Valencia.

CERVETTO, the elder, in *Biography*, an Italian performer on the violoncello, of great merit, who arrived in England in 1738; and was remarkable from several circumstances besides his professional abilities. He was an honest Hebrew, had the largest nose, and wore the finest diamond ring on the fore finger of his bow hand; had a son (who is still living) who, during childhood, surpassed his father in tone and expression on the violoncello; and who, in riper years, was as much noticed at the opera for his manner of accompanying recitative, as the vocal performers of the principal characters for singing the airs. The rivalry between the admirable Crofdil and the younger Cervetto, in their youth, did them as much good in their struggles for excellence, as in riper years their friendship has done honour to their hearts. Another remarkable circumstance in the history of the elder Cervetto, so long and so well known at Drury-lane play-house, is, that he extended his existence to 100 years complete, with the character, not only of a good musician, but a good man.

CERVI, in *Geography*, a small island of the Grecian Archipelago, near the coast of the Morea, on the east side of the entrance into the gulf of Kolokitia; 6 miles N. of Cerigo.

CERVI cornu. See *HART'S HORN*.

CERVIA, in *Geography*, a modern built town in the state of the church, and province of Romagna, near the Adriatic sea, about half-way betwixt Casenatico and Savio, which, at the beginning of the last century, entirely changed its situation, on account of the insalubrity of the air, having formerly stood a quarter of a mile distant from the sea. The new city is built with beautiful broad streets, which, for the greatest part, are under covering. By an inscription over one of the gates it appears, that popes Innocent XII. and Clement XI. removed the city of Cervia for the benefit of a more salubrious air in the year 1703. Without this gate, situate on the side of the city opposite to Savio or Ravenna,

is a beautiful and broad canal, through which, in June, July, and August, (when the season is hottest and driest), the water is let out into a low piece of ground covered with rushes and weeds, about half a mile in length, and in some places as broad. Here the heat of the sun totally exhales the water, and the salt remains at the bottom and sides, to the great profit of the court of Rome. The papal provinces Urbino, Ferrara, Ancona, Bologna, and Romagna, that lie near the Apennine mountains, derive from these salt-works the greatest part of the salt they use. Cervia is the see of a bishop, suffragan of Ravenna, from which it is distant S.S.E. 15 miles, and 144 N. of Rome.

CERVICAL arteries, in *Anatomy*, some arteries which are distributed about the neck. See **ARTERIES**.

CERVICAL nerves, those which come off from the medulla spinalis, where it is lodged in the vertebræ of the neck. See **NERVES**.

CERVICALIS, or **CERVICIS DESCENDENS**, is a slender muscle at the root of the neck, closely connected to the upper part of the sacrolumbaris. It arises from the three or four upper ribs, near their tubercles, and is inserted into the same number of transverse processes of the lower cervical vertebræ. It extends the neck, and at the same time twists it to one side. This muscle is the *transversalis gracilis* of Winslow.

CERVICAPRA, in *Zoology*. See **ANTILOPE pygarga**, the white-faced antelope.

CERVICARIA, in *Botany*, a term used by some authors to express the *thapsia* of the shops, or lesser *libanotis* of Theophrastus.

CERVICARIA, is also a name given by some to the *tracheolum*.

CERVICIS transversus, in *Anatomy*, a small muscle at the back of the neck, connected to the upper end of the longissimus dorsi, and lying close to the cervicalis descendens. It arises from the transverse processes of the four or five upper dorsal vertebræ, and is inserted into as many of those of the neck. It is generally connected with the cervicalis descendens and trachelo-mastoideus. Winslow calls it *transversalis colli major*. It carries the neck backwards, and at the same time twists it towards its own side.

CERVIERES, in *Geography*, a town of France, in the department of the Rhone and Loire; 6 leagues S.W. of Roanne.

CERVINARA, a town of Naples, in the province of Principato Ultra; 12 miles S.W. of Benevento.

CERVINE Antelope of Pennant, *antelope bubalis*, in *Zoology*, *Βουβαλός* of Oppian and Aristotle, *bubalus* of Pliny, Gesner, Aldrov. and Jonst. *yachmur* of the Bible, *bucephalus* of Caj. op. Gefn. quad. and Ray, *capra dorcas* of Houttuyn, *antelope bucelaphus* of Pallas, *bubale* of Buffon, *vache de barbarie* of Aët. Parif. and Valent, is a species of antelope, whose horns are thick, twisted spirally, annulated, bent in form of a lyre, almost straight, and upright at their ends; the head and tail are somewhat lengthened. Pall. Sp. Zool. Erxleb. lib. Mam. This animal inhabits Africa, especially Barbary, and is also found near the Cape of Good Hope, and in Arabia. It is about four feet high, having an appearance between the general form of the deer and ox tribes, with its head resembling that of an ox; the horns are about 20 inches long, very strong and black, almost close at their bases, and distant at the points; the general colour is a reddish brown, the belly, inner side of the thighs, and a space about the rump are white, with a dark coloured bed on the ridge of the back, the upper part of the fore-legs, and hinder parts of the thighs; the tail is about a foot long, is terminated by a tuft of longish hairs, and resembles that of an

ass. It feeds solitarily, gallops heavily, and yet very swiftly, and fights on its knees: its flesh is reckoned rather dry. This species, according to Mr. Pennant, is the animal called "Hart-beest," at the Cape; and Sparman describes it under the same name in the Stockholm Transactions; though the figure of the hart-beest, in his journey to the Cape, differs very considerably in the form of the horns, which bend much backward, at their ends, from which it is more probably the species called *Antelope Koba*.

CERVINI, in *Ancient Geography*, a people placed by Ptolemy on the western coast of the island of Corfica.

CERVIONE, in *Geography*, a town of the island of Corfica, or French department of Golo; 20 miles E. of Corté.

CERVISPINA, in *Botany*, Cord. Hist.. See **RHAMNUS catharticus**.

CERVIX, in *Anatomy*, is a Latin term denoting that part of the body which we call the neck. The adjective derived from this term is applied to several parts about the neck; as cervical arteries, cervical nerves, &c.

The word *cervix* is also used in the anatomical description of various parts of the body, where it indicates some contraction or diminution in size; as *cervix* of the femur, of the humerus, of the bladder, of the uterus, &c.: for which we refer to the individual articles.

CERUMEN, a thick, viscous, bitter, excrementitious humour, separated from the blood by proper glands placed in the *meatus auditorius*, or outer passage of the ear.

This is also called *cerumen aurium*; in English, *ear-wax*. See an account of experiments on *cerumen*, to discover the best method of dissolving it; with the cause of deafness. Lond. Medic. Observ. &c. vol. iv. p. 198.

It is by some ranked in the class of medicines; especially that species of it obtained from the human ears, and which is used both internally and externally.

CERVOCAMELUS, in *Zoology*. See **CAMELUS glama**.

CERVON, in *Geography*, a town of France, in the department of the Nièvre, and district of Clamecy; 3 miles E. of Corbigny.

CERUSE, **CERUSSE**, or **WHITE LEAD**. The mode of manufacturing this article was long made a particular secret, and it still continues so with some manufacturers: the following account is obtained from a visit to the works of a respectable house in that line.

The first operation in making ceruse is melting the blue or metallic lead, (the softer quality is the better for this work) into a case or mould which shall form each sheet nearly two feet long, about five inches broad, and about the sixteenth of an inch thick, that it may with convenience roll spirally up so as to leave the space of half an inch or an inch between each coil, and thus be placed vertically in earthen pots in shape like garden pots, and capable of containing from 1½ pint to six pints each; these pots are made with one projection or more rising within on the middle, so as to prevent the lead resting on the bottom; on these the coil is placed perpendicularly, and upon its top edge, another piece near one foot across is laid horizontally: about half, or a whole pint, wine measure, according to the size of the pots, of strong vinegar, or other acid liquor, is poured into each pot, but care ought to be taken that it does not quite touch the lower edge of the leaden spiral; the principle acted on here being to expose as much surface as possible to the action of the acid vapour: each pot ought to hold about 2½ pounds avoirdupois weight, and having also a cover of the same metal placed tight upon its mouth, by which means nearly the whole of the steam will have an ob-

ject for its action. A stratum of these pots thus prepared being formed by packing them close to each other in rows, placing them in a layer of horse dung about two feet thick, which is previously prepared, they are covered with boards, and then they are surrounded on every part with that material; thus is this part of the work continued layer upon layer until it arrives at the height of the building prepared for it, which ought to be perfectly water-tight. These strata (forming what the workmen call a "blue bed," from the lead being placed there in its blue state,) continue undisturbed until the acid is exhausted or evaporated, which is generally in about two or three months. It is supposed that the operation is effected in this state by the vapours of the vinegar (assisted by the tendency of the lead to combine with the pure part of the air which is present) corroding it and converting the external portion into a white calx. At the above time, the boards on being removed exhibit the appearance of being strongly scorched, most probably from the acid steam that may (after all the above care to preserve it) have escaped during the immersion in the dung: or, perhaps, the mere heat by opening and preparing the boards will make them more liable to the action of the acid, even though very little should escape; or indeed the continued heat may be alone sufficient to account for this change in them. At the expiration of the above time the beds are "drawn," that is, the pots are removed and opened, the lead is taken out and thrown together into a large receiver full of cold water, having a partition running across it slanting from the highest part, where it may be only 12 inches from the top towards the lower, and the depth from the top of the receiver to the frame or partition may be three feet; this is pierced from its highest to its lowest part with holes of about $\frac{1}{2}$ inch diameter. In many manufactories a workman is employed here, who, with a long pole and a strong head annexed to it, stirs, beats, and breaks the pieces, by which means the corroded lead breaks off in flakes or as dust, and falls through the holes to the bottom of the receiver: in other white lead works this part of the process is accomplished by a machine receiving its motion and strength from the power that turns the mill which is to grind the white lead into powder. The introduction of water into this part of the process has been a great means of preserving the health of the people employed in the works; thus removing a strong objection against apprenticing children to this business. Formerly the lead was uncovered, and the corroded parts broken off without the intervention of water, and the lead dust got upon the lungs of the workmen, from which, owing to the peculiar deleteriousness of this metal in any shape, few lived beyond 40 years. The blue lead left from this part is melted again, with a proper addition of fresh metal, and submitted to the above operations. The white substance is transferred to the mill and ground; the immediate act of grinding being conducted in the wet, almost as snuff is ground in the dry state, by a large horizontal wheel, whose power is derived either from horses, steam, wind, or water, with cogs turning from 8 to 16 or more pestle-shaped pieces of metal which revolve in mortars in which the ceruse is put. After being finely levigated it is formed into cakes or "pieces," and dried, in some manufactories, in the same manner that glue, paper, dry colours, &c. are, on laths, in shades placed in the open air, or in a long room, generally the attics of the ware-rooms; but in others, in a circular stove with a stove pan, or cockle, placed in the midst, as hats, &c. are dried. By this last way the operation is effected in a few days, whilst, in the former, some weeks, or even months, as in winter, must elapse before it is completed. When arrived at this state, it is ready for sale.

Many manufacturers have a pair of horizontal stones like those of the flour-mill for the purpose of grinding it in oil.

A patent was obtained in this business by Mr. Richard Fishwick, of Newcastle upon Tyne, to preserve to himself the advantage of substituting exhausted tanner's bark in the place of horse-litter, or mixing a proportion of the one with the other.

Cerusse makes a beautiful white colour, and is much used by the painters, both in oil and water colours. It makes the principal ingredient in the fucus used by the ladies for the complexion. Taken inwardly, it is a dangerous poison; it soon shews its malignity, spoiling the breath and teeth, and hastening wrinkles, and all the symptoms of old age. Even the external use of it as a paint or enamel, for it is said that it has been so used, is attended with very disagreeable, and, in the end, with fatal consequences. Its effects in nervous disorders are terrible; witness the case of Mr. Butler at Moscow. See a curious account of it, in the *Phil. Trans.* vol. l. part i. N^o 2. an. 1764.

Cerusse is the only white hitherto found fit for painting in oil; the discovery of some other white for this purpose is desirable, not only from the faults of cerusse as a paint, but also from its injuring the health of its manufacturers, and producing a dreadful disease, which lead and all its preparations frequently occasion, called the *Colic of minerals*, or the *Colic of painters*.

The Chinese make an use of this preparation of lead, which it is easier to see the advantages of, than to comprehend the manner in which they are brought about. The China vessels when they have been baked and finished as to the matter, and even covered with their varnish, will yet receive into their very substance, the colours which those people mix up with an addition of cerusse, and, as some of the old accounts say, of copperas and saltpetre; but though these latter ingredients had used to be added, the cerusse alone supplies their place at this time, at least in very many things. It would be worth while to try an admixture of cerusse with the colours used in the painting of glass; and this, after a second baking, might perhaps be found to incorporate itself in the same manner that it does into China ware, and recover the long secret of letting in the strongest colours, without hurting the transparency.

CERUSSE *of antimony* is a perfect oxyd of antimony, prepared by nitre. See *ANTIMONY*.

CERUSSE, CERUSSA ACETATA, in *Pharmacy*. Both the cerusse, and particularly the acetited cerusse are largely employed in medicinal purposes. An acetited oxyd of lead, somewhat different from the fugar of lead, forms the common *Goulard's Extra*. For an account of the different pharmaceutical preparations of this metal with their respective uses, see the article *LEAD*.

CERUTI, FREDERIC, in *Biography*, an Italian philologist, was born at Verona in 1541, educated in France, and at first followed the profession of arms. But being taken to Rome by his first patron the bishop of Agen, who wished to promote him in the church, he declined that mode of life and returned to his native place, where he married, and opened a school, which was much frequented. He became one of the heads of the academy of Moderati, and maintained a correspondence with several persons of the most eminent literary character. In 1585, he published at Verona an edition of Horace, with a paraphrase, and, in 1597, a similar edition of the satires of Persius and Juvenal. He likewise published a Latin dialogue "On Comedy," and another "De recta Adolescentulorum Institutione;" and a collection of Latin poems. He left in MS. a translation of the "Anthologia." Ceruti died in 1579. Moreri.

CERVULA,

CERVULA, or **CERVULUS**, in *Middle Age Writers*, a kind of sport, celebrated by pagans, and after their example by the Christians, on New-Year's day; when they ran about in masquerade, dressed in imitation of deer, and other beasts. We find divers censures of the fathers, and decrees of councils against the observance of this ceremony. Even litanies were composed, and fasting prescribed for that day, *ad calcandum gentiliū consuetudinem*. Du-Cange.

CERVUS, in *Fortification*, a sort of forked stake or palisade, planted sometimes in the middle of the ditch, sometimes in the bottom of the same, close to the foot of the inner slope thereof, sometimes on the barn between the inner edge of the ditch and the parapet of the retrenchment to prevent the approach and ascent of the enemy, and to annoy and wound him in attempting to force or carry such a work. Cervi were also sometimes planted in holes, or *trous de-loup* at some little distance, to impede and prevent the attack of an enemy. Cæsar made use of cervi near Alesia, as appears from the c. 72. of the 7th book of his commentaries *De Bello Gallico*.

CERVUS, in *Zoology*, a genus of quadrupeds, in the order *Pecora*. The horns are solid, branched, thickest at tip, covered while young with a downy skin, and annual; front teeth in the lower jaw eight; tusks none, or sometimes one solitary on each side, in the upper jaw.

Species.

Pygærgus. No tail; horns trifurcated. Pallas It. and Schreber Saugth. *Cervus aba*, Gmel.

This is truly an alpine species, inhabiting for the most part the woody summits of the mountains of Hicania, Russia, and Siberia, in the summer; and descending into the plains only in winter. It is larger than the roe-buck, and is observed to become hoary in winter. At other times the body is of a deep reddish-brown, with the lower part and limbs paler; round the nose, and on the sides of the lower lip black; the tip of the lip, and also the rump, are white. The horns are tuberculated at the base. Ears white, and villous within, fringed with a few long black hairs; and instead of tail, a broad cutaneous excrescence.

Alces. Horns palmated, without stems; throat carunculated. Linn. Fn. Suec. *Cervus alces*, Briss. *Alce*, Pliny, Johnst. &c. *Alces*, Cæsar Bell. Gall. &c. *Mosse*, Laet. *Moose deer*. Dndley, Dale, &c. *Original*, Charlev. *Elan*, Buff. *Elk*, Lawson.

Should the elk of Europe and Asia, and the moose deer of America be the same animal, it will rank as the largest species of the cervine tribe extant at this time, to our knowledge, either in the old or new continent. It has been usual with writers to consider the history of the two kinds together; and, for the sake of perspicuity, it will not be amiss to follow their example, reserving to ourselves hereafter an opportunity of stating, in a few words, how far we dissent from this generally received opinion. The elk, when full grown, is scarcely inferior to a horse in size. In shape it is much less elegant than the rest of the deer kind, having a very short and thick neck, a large head, horns dilating almost immediately from the base into a broad palmated form; a thick, broad, heavy upper lip, hanging very much over the lower, very high shoulders, and long legs. The colour is a dark greyish-brown, much paler, or whitish on the legs, and beneath the tail. The hair is of a strong, coarse, and elastic nature, and is much longer on the top of the shoulders, and ridge of the neck, than on other parts, forming together a kind of stiffish mane; beneath the neck also the hair is of considerable length, and in some specimens of the animal, a

sort of caruncle, or excrescence, covered with long hair, is pendent from beneath the throat; a circumstance spoken of by Linnæus as part of the specific character of the animal, but which is more visible at some particular seasons than at others, and is sometimes wanting. The eyes and ears are large; the hoofs broad, and the tail extremely short. According to Pennant, the greatest height of the elk is about seven hands, and the weight of such an animal about 1229 pounds. The horns have been known to weigh 56 pounds, and to measure each 32 inches in length. The female is rather smaller than the male, and has no horns. This applies only to the American moose, which is observed to arrive at a greater magnitude than the European kind.

The elk of Europe and Asia is found chiefly in Sweden and Norway, in the woody tracts of the Russian dominions, and in Siberia; but not in the flat countries of the Arctic regions, nor in Kamtschatka. The American moose inhabits the isle of cape Breton, Nova Scotia, the western side of the bay of Fundy, Canada, and the country surrounding the great lakes, almost as far south as Ohio; both in the old and new continent these animals preferring the colder climates. The elk resides principally in the midst of forests, for the convenience of browsing the boughs of trees; because it is prevented from grazing with facility on account of the shortness of the neck, and disproportionate length of the legs. They often have recourse to aquatic plants, which they can readily obtain by wading into the water. Sarrafin tells us they are very fond of the stinking trefoil, *Anagris fatida*, and will uncover the snow with their feet to procure it. When passing through the woods, they raise their heads to an horizontal position to prevent their horns from being entangled among the branches. Their gait is remarkable; their general pace is described to be a high, shambling, but very swift trot, the feet being lifted up very high, and the hoofs clattering much during their motion, as is the case also with the rein-deer; in their common walk they lift their feet very high, and will, without difficulty, step over a gate five feet high. They feed principally in the night, and whenever they graze are observed to choose an ascending ground, for the greater convenience of reaching the surface with their lips. They ruminate like an ox. The rutting-season is in autumn. The female brings forth two young at a birth, in the month of April, which follow the dam a whole year. During the summer they keep in families. In deep snows they collect in numbers in the forests of pines, for protection from the inclemency of the weather, under the shelter of those evergreens. The elk, though naturally of an inoffensive and peaceable disposition, displays a considerable share of courage when suddenly attacked, defending himself with great vigour not only with his horns, but also by striking violently with his fore feet, in which he is so dextrous, as easily to kill a dog, or even wolf, at a single blow. The flesh of the moose is extremely sweet and nourishing: the Indians say, that they can travel three times farther after a meal of moose, than after any other animal food. The tongues are excellent, but the nose is said to be perfectly marrow, and is considered the greatest delicacy in Canada. The skin makes excellent buff, being soft, strong, and light. The Indians dress the hide, and after soaking it for some time, stretch and render it supple by a lather of the brains in hot water. They not only make their snow-shoes of the skin, but after the chase cover the hull of their canoes with it, in which they return home with the spoils of their chase. The hair on the neck, withers, and hams of a full grown elk is of considerable use in making mattresses and saddles; and the palmated parts of the horns are further excavated by the Indians,

Indians, and converted into ladles, and other culinary articles.

The chase of the moose deer forms an important occupation among the natives of North America, and is performed by them in various methods. The first is the most simple, and is conducted in the following manner. Before the lakes and rivers are frozen, multitudes of the savages assemble in their canoes, and form with them a vast crescent, each horn touching the shore. Another party perform their share of the chase among the woods, surrounding an extensive tract, letting loose their dogs, and pressing towards the water with loud cries. The animals alarmed by the noise, fly before the hunters, and plunge into the lake, where they are killed by the other savages in their boats, who are prepared to receive them with clubs and lances. Another method pursued at times by the hunters is more artful. They enclose a large space of ground with stakes hedged with branches of trees, and forming two sides of a triangle. The bottom space opens into a second space completely triangular. At the opening are hung numbers of snares made of slips of raw hides. The Indians, as before, assemble in great troops, and with all kinds of noises drive into the first enclosure not only the mooses, but the other kinds of deer, which abound in that country. Some forcing their way into the farthest triangle, are caught in the snares by the neck or horns; and those which escape the snares and pass the opening find their fate from the arrows directed at them from all quarters. They are often killed with the gun. When first dislodged, the animal falls down, or squats, as if disabled, for a moment or two, at which instant the hunter fires; if he misses, the moose sets off at a swift trot, making at the same time a prodigious clattering with the hoofs, like the rein deer, and will oftentimes run 20 or 30 miles before he comes to bay, or takes to the water. The usual time for this diversion is the winter. The hunters avoid entering on the chase till the sun is strong enough to melt the frozen crust with which the snow is covered, otherwise the animal can run over the firm surface: they wait till it becomes soft enough to impede the flight of the moose, which sinks up to the shoulders, flounders, and gets on with difficulty, while the sportsman pursues at his ease on his broad rackets, or snow-shoes, and makes a ready prey of the distressed animal. An ancient superstition has prevailed that the elk is naturally subject to the epilepsy, and that it finds its cure by scratching its ear with the hoof till it draws blood; and in consequence of this notion the hoofs of the elk form an article of the ancient materia medica. A piece of the hoof was anciently set in a ring, and worn as a preservative against the complaint above mentioned; and sometimes the hoof was held in the patient's hand, or applied to the pulse, to the left ear, or suspended in such a manner from the neck as to touch the breast. The hoof has been used by the Indians in the falling-sickness; they apply it to the heart of the person afflicted, and make him hold it in his left hand, and rub his ear with it. They also use it in the colic, vertigo, pleurisy, and purple fever, pulverising the hoof, and drinking it in water.

It should be farther mentioned, that, although the synonyms referred to by naturalists for *Cervus alces* are repeated in the above account, we wish to impress on the reader's mind our distrust of their accuracy in some leading points. Perhaps on further investigation, the European elk and the moose deer of America may prove, as we suspect, to be two distinct species. With regard to the enormous palmated, fossilised horns that are sometimes dug up in Ireland and other parts of Britain, a more positive opinion may be advanced; they are certainly not the horns of the moose deer,

as most writers imagine. In point of size they very far exceed the horns of the largest moose, and in their appearance differ so materially that they could not possibly have belonged to that animal; they have long beams to support the palmated part instead of short ones, as in the moose; they are also stronger and thicker, and are commonly from 10 to 12, or sometimes 15 feet from tip to tip! It requires no argument to prove that such stupendous horns cannot be referred to any species of the Cervine race at present known, and that they must of course have belonged to some species either totally extinct, or hitherto undiscovered.

TARANDUS. Horns ramose, recurved, round, with palmated summits. Linn. Faun. Suec. Amœn. Acad. &c. *Tarandus*, Plin. Aldr. &c. *Rangifer*, Gefn. Aldr. &c. *Renne*, Buff. *Rein deer*, Penn.

The Rein Deer, when full grown, according to Pennant, is four feet six inches in height, the body of a somewhat thick and square form, and the legs shorter in proportion than those of the common stag. The general colour is brown above, and white beneath, but as it advances in age it often becomes of a greyish white, and sometimes almost entirely black; the hair on the under part of the neck is of much greater length than the rest, and forms a kind of hanging-beard in that part. Both sexes are furnished with horns, but those of the male are much larger and longer than those of the female. The hoofs are long, large, and black, as are also the false or secondary hoofs behind; and these latter while the animal is running, by striking against each other, make a remarkable clattering sound that may be heard at a considerable distance. No animal of this tribe appears to vary so much in the form and length of the horns as the rein deer. In general the horns are remarkable for their great length, and slenderness in proportion, and are furnished at the base with a pair of brow antlers, and at the extremity with widely expanded and palmated tips directed forwards; towards the middle of the horn rises another large branch, which turns upwards, and is branched at the tip; the remainder of the horn runs on to a great length in a backward direction, and is more or less ramose at the extremity. In the young and middle aged rein deer the horns are remarkably slender. Gefner gives the figure of a full grown male rein deer, which Linnæus has pronounced to be a good representation of the animal, and in this, the horns which extend horizontally along the back even project beyond the tail. The height of the domesticated rein deer is about three feet; of the wild ones, four. It lives to the age of sixteen years. The female goes with young thirty three weeks. The male casts his horns annually at the end of November, the female not till she saws about the middle of May.

The rein deer is celebrated for its services to the simple and harmless inhabitants of Lapland, who, undisturbed by the sounds of war, or the troubles of commerce, lead a kind of pastoral life even within the frozen limits of the arctic circle, and have no other cares than those of providing for the rigours of their long winter, and of rearing and supporting their numerous herds of rein deer, which may be said to constitute almost their whole wealth; and which are used not only for the purposes of food, but for travelling occasionally over that frozen country during winter. To the Laplander this animal is considered as at once the substitute of the horse, the cow, the sheep, and the goat. The milk affords them cheese, the flesh food, the skin cloathing, the tendons bow-strings, and when split, thread, the horns glue, and the bones spoons. During winter it supplies the want of a horse and draws their sledges with amazing swiftness over the frozen lakes and rivers, or over the snow which at that season covers the

the whole country. A rich Laplander is sometimes possessed of a thousand rein deer. In autumn they seek the highest hills to avoid the Lapland gad-fly, which at that time deposits its eggs in their skin, and in many instances proves fatal to the animal. So dreadful is this scourge, that the moment a single fly appears, the whole herd perceive it, and betray every symptom of terror by their gestures, shaking, and tossing their heads, and running about for shelter, or to avoid the stroke of their diminutive but cruel enemy. The chief food of the rein deer is a species of lichen, commonly called the rein deer moss, which covers vast tracts of the northern regions, and on which these animals particularly delight to browse. In summer they readily procure it in vast plenty, and in winter dig with their feet and brow antlers through the snow to obtain it. The Laplanders devote their whole care to the management of these useful animals, occasionally housing and nursing their herds during winter; and attending them in summer to the tops of the mountains.

The mode of travelling in sledges drawn by the rein deer deserves mention. There are in Lapland two races of the rein deer, the wild and the tame. The latter are preferable for drawing the sledge, to which the Laplander accustoms them betimes, yoking them to it by a strap which goes round the neck and comes down between the legs. The sledge is extremely slight, and covered at the bottom with the skin of a young deer, the hair turned to slide on the frozen snow. The person who sits on this guides the animal with a cord, fastened round the horns, and encourages it to proceed with his voice, and drives it with a goad. The wild breed are by far the strongest, but these often prove refractory, and turn upon their drivers, who have then no other resource but to cover themselves with the sledge, and let the animal vent its fury upon that. But it is otherwise with those that are tame; no creature can be more active, patient, and willing; when hard pushed they will trot nine or ten Swedish miles, it is said, or between fifty and sixty English miles at one stretch; but in such a case the poor obedient creature fatigues itself to death, and if not killed, to relieve it from misery, will die in a day or two after. In general they can go about thirty miles without halting, and without any great or dangerous effort. This, which is the only mode of travelling in Lapland, can be performed to advantage only when the snow is glazed over with the ice; and though it be a speedy method of conveyance, it is inconvenient, dangerous, and troublesome. The Samoieds consider them as animals of draught. The Koreki, a nation of Kamtschatka who keep immense herds of rein deer, also train them to the sledges. They usually harness two to each carriage, and it is said they will travel 150 versts in one day, a distance equal to about 112 English miles.

The rein deer is a native of the northern regions. In Europe its chief residence is in Norway and Lapland. In Asia it frequents the north coast as far as Kamtschatka, and the inland parts as far as Siberia. In America it occurs in Greenland and does not extend farther south than Canada. The Samoieds, the Esquimaux, and the Greenlanders, all of whom possess this animal, consider it principally as an object of chase. Among the two last people the flesh constitutes their chief article of food. They eat it either raw, dressed fresh, or dried and smoked with the snow lichen. The wearied hunters will drink the raw blood, but it is usually dressed with the berries of the heath. The skin dressed with the hair on is soft and pliant, and is employed in making their dress, the inner lining of their tents, or as blankets. The tendons serve for bow-strings, and when split are the threads with which they sew their jackets.

Before the Greenlanders became acquainted with fire arms

they were accustomed to take the rein deer by what was called the clapper-hunt; in which the women and children surrounded a large space, and, where people were wanting, set up poles capped with a turf in certain intervals to terrify the animals; they then with great noise drove the rein deer into the narrow defiles, where the men lay in wait, and killed them with harpoons and darts. But they are now become scarce in Greenland. The rein-deers are found in the neighbourhood of Hudson's bay in amazing numbers. Columns of eight or ten thousand are seen annually passing from north to south in the months of March and April, driven out of the woods by musketoos. They go to rut in September, and the males soon after shed their horns; they are at that season very fat, but so rank and musky as not to be eatable. The females bring forth their young in June, in the most frequented spots they can find, and then they likewise lose their horns. In autumn the deer with their fawns migrate northward. The Indians are very attentive to their motions, for these animals constitute the chief part of their dress, as well as food. They often kill numbers for the sake of their tongue only; at other times they separate the flesh from the bones, and preserve it by drying it in the smoke. The fat which they also save, they sell to the English in bladders, who use it for frying instead of butter. The skins also are an article of extensive commerce with the English. The Indians kill great numbers of them in the winter, and during the migratory seasons, lying in watch in their canoes, and spearing them while swimming over the rivers, or from one island to another. Authors make several varieties of the rein deer; what is called the Greenland Buck, and Greenland deer, has the horns round, and covered with a hairy skin; *Capra groenladica*, Ray, and *var β groenlandicus*, Gmel. Another variety, the Caribou of Hudson's bay, has the horns straight with one branch at the base turned backwards, *γ Caribou*. Gmel.

ELAPHUS. Horns branched, round and recurved. Linn. Fn. Suec. *Cervus*, Pliny. Gefn. Aldr. &c. *Edler Hirsch*, *Wild Oder Thier*, Riding. *Cerv*, *biche* et *faon de cerv*, Buff. *Stag*, Penn. &c.

The stag is a native of almost all the temperate parts of Europe as well as Asia. It also occurs in some few parts of Africa, and pretty generally in North America; in which latter country it occasionally arrives at a larger size than in the whole continent, with the exception of Siberia, where Pennant informs us it is found of a gigantic magnitude. The stag varies in different countries very considerably, so much indeed as to induce us to believe that travellers and other writers have oftentimes confounded animals of very different species under this general title in speaking of the productions of distant countries. Most commonly the stag is about three feet and a half high, and of a reddish brown colour, beneath whitish. Sometimes it is of a very dark or blackish brown; sometimes of a pale or yellow brown; and, lastly, instances occur of stags being entirely white, which last are mentioned both by Aristotle and Pliny, but as rare. The horns also vary as to the size and number of ramifications, according to the age of the animal. Erxleben mentions three distinct varieties of the stag (*Cervus Elaphus*) independent of the common European kind, namely, First, *Hippelaphus β*. Larger, with the hair on the neck longer. *Cervus Germanicus*, &c. Briff. *Ἰππελάφος*, Aristotle. *Τραγέλαφος*, Pliny. *Tragelaphus*, Gefn. *Hippelaphus*, β. Gmel. Second, *Cervicenus*, γ. Gmel. *C. minor fuscus*, Erxl. *Cerv de Cerse*, Buff. This is smaller than the last and has the body fuscous. Third, *C. Canadensis*, δ. Gmel. *C. cornibus amplissimis*, Erxl. with very ample horns. *Cervus Canadensis*, Briff. *Stag of Virginia*, Dale. *Stag of Carolina*, Lawson. *Stag of America*, Catesby.

Catefby. The histories of all these varieties are so intimately blended with each other by writers that they can only be considered under one general head.

The stag, says the ingenious Buffon, is one of those innocent and peaceable animals that seem destined to embellish the forest, and animate the solitudes of nature. The elegance of his form, the lightness of his motions, the strength of his limbs, and the branching horns with which his head is decorated, conspire to give him a high rank among quadrupeds, and to render him worthy the admiration of mankind. The size and stature of these animals differ according to the places they inhabit: those which frequent the vallies, or the hills abounding in grain, are larger and taller than those which feed upon dry and rocky mountains. The latter are low, thick, and short; neither are they equally swift, though they run longer than the former: they are also more vicious, and have longer hair on their heads; their horns are commonly short and black, like a stunted tree, the bark of which is always of a darker colour, but the horns of the stags which feed in the plains are high, and of a clear reddish colour, like the wood and bark of trees that grow in a good soil. These little squat stags never frequent the lofty woods but keep constantly among the coppices, where they can more easily elude the pursuit of the dogs. The Corsican race appears to be the smallest of those mountain stags. This kind is scarcely more than half the height of the ordinary sort, and may be regarded as a terrier among stags. His colour is brown, his body squat, and his legs short. Buffon seems convinced, however, that the size and stature of the Corsican stag, and of stags in general, depend on the quantity and quality of their food, for, having reared one of this breed at his house, and fed him plentifully for four years, he was much taller, thicker, and plumper at that age than the oldest stags in his woods, though those were of a very good size. The stag appears to have a fine eye, an acute smell, and an excellent ear. Like that of the cat and the owl, the eye of the stag contracts in the light and dilates in the dark, but with this difference, that the contraction and dilatation are horizontally, while in the first mentioned animals they are vertically. When the stag listens, he raises his head, erects his ears, and perceives the sound from a great distance. When going into a coppice, or other half-covered place, he stops to look round him on all sides, and scents the wind to discover if any object be near that might disturb him. Though rather simple, he has curiosity and cunning. If any one whistles or calls to him from a distance, he stops short, gazes attentively, and with a kind of admiration; and if those who disturb him have neither dogs nor offensive weapons, he commonly passes along quietly, and without altering his pace. He appears to listen with great tranquillity and delight to the shepherd's pipe, and the hunters sometimes make use of this instrument to embolden and deceive them. They will follow the sounds of music for miles, proceeding while they hear it, halting the moment the players cease, and again advancing when the music recommences. In general the stag is less afraid of men than of dogs, and is never suspicious, or uses any arts of concealment, but in proportion as he is disturbed. He eats slowly, selects his food with care, and, after his stomach is full, seeks a place to lie down and ruminate at leisure. He seems to perform the act of rumination with less facility than the ox, and it appears only by violent efforts he can cause the food to rise from his first stomach. This difficulty arises from the length and direction of the passage through which the aliment must pass: the neck of the ox is short and straight, but that of the stag is long and arched, and therefore greater efforts are required in rumination.

In winter and spring the stag does not drink, the dews with which the tender herbage is surcharged being then sufficient to satisfy his thirst, but during the parching heats of the summer he frequents the brooks, marshes, and fountains, and in autumn is so over-heated that he searches every where for water to bathe and refresh his body. He then swims with more ease than at any other time, on account of his fatness, and has been observed crossing very large rivers. It has been asserted, that in the season of love, stags will throw themselves into the sea, and pass from one island to another at the distance of several leagues in search of the hinds. Pontoppidan tells us that the Norwegian stags, which are only in the dioceses of Bergen and Drontheim, have been seen to swim in numbers across the straits from the continent to the adjacent islands, resting their heads upon each others' cruppers, and that when those who lead are fatigued they retire behind, and the most vigorous take their places. The stag leaps still more nimbly than he swims, and, when pursued, can readily clear a hedge or paling of six feet height. The aliment of the stags differs according to the seasons. In autumn they search for the buds of green shrubs, the flowers of the heath, and leaves of brambles. In the winter, during the snow, they strip the bark off the trees, and feed upon that, and the moss which they find on the trees; and in mild weather they browse in the corn fields. In the beginning of spring they go in quest of the catkins of the trembling poplar, willow, and hazel, and the flowers and buds of cornel. In summer, when they have abundance and variety, they prefer rye to all other grain, and the black berry bearing alder (*rhamnus frangula*) to all other wood.

Stags, in general, cast their horns sooner or later in the spring, in proportion to their ages. It seldom happens that both horns fall off at the same time, the one generally preceding the other by a day or two. The old stags cast their horns first, which takes place about the middle of February, or beginning of March: those in the seventh year or upwards, do not cast their horns before the middle of March: a stag of six years sheds his horns in April: young stags, or those from three to five years old, shed their horns in the beginning, and those which are in the second year not till the middle or end of May. But in all this there is much variety: for the old stags sometimes cast their horns sooner than those which are younger; and besides, the shedding of their horns is advanced by a mild, and retarded by a severe and long winter. As soon as the stags cast their horns, they separate from each other, the young ones only keeping together. They no longer haunt the deep recesses of the forest, but advance into the cultivated country, and remain among brush-wood during the summer, till their horns are renewed. In this season they walk with their heads low, to avoid rubbing their horns against the branches. The horns of the old stags are not half completed in the middle of May, and acquire their full size and hardness before the end of July. Those of the young stags are in proportion later both in shedding and renewing their horns. When full grown, the animals rub them strongly against the boughs of trees, or any other convenient object in order to free them from the skin which covers them, and is then become useless; and by the beginning of August they begin to assume the full strength and confidence which they retain throughout the remainder of the year.

Soon after the stag has cleared off the exuberant skin from the horns, he evinces an inclination for the female. By the end of August, or beginning of September, they leave the coppice, return to the forest, and begin to search out their favourite hinds; they cry with a loud voice, their neck and

throat swell, they grow restless, traverse the fallow grounds and plains in open day, and dart their horns against the trees and hedges. In a word, they seem transported with fury, and range from place to place till they have found their females, whom they have to pursue and overcome, before they submit to their pleasure. If two stags approach the same hind at this time a combat ensues: if their strength be nearly equal, they threaten, plough up the earth with their paws, make a terrible noise, and dart upon each other with the utmost fury. Their battles are carried on to such extremities, that they often inflict mortal wounds with their horns, nor is the combat ever concluded but by the complete defeat or flight of one of them, when the conqueror enjoys the fruit of his victory, unless another male happens to appear, and then a second combat is sure to ensue. The oldest stags are commonly victorious, because they are fiercer, and possessed of greater strength than the young ones. The old stags are the most ardent and inconstant, having commonly several females at the same time, and when they have but one they remain attached to her but a few days before they go in search of a second, with whom they remain a still shorter time, and then wander to others. The rutting season lasts about three weeks, during which period they eat but little, and are strangers to all repose; night and day they are on foot, ranging about, fighting with the males, or enjoying the females, and of course when the rutting season is over are so wasted, meagre, and fatigued, that they require a length of time to recover their strength. They then retire to the borders of the forest, and graze on the best cultivated lands, where they find food in abundance, and where they continue till their strength is restored. The rutting season, among the old stags, commences about the 1st, and concludes about the 20th of September; with those of six or seven years old it begins in the middle of September, and ends the beginning of October; with the young stag it begins about the 20th of September, and lasts to the 15th of October, by the end of which month the rutting is all over, except among the prickets, who, as well as the young hinds, are the latest in coming into season: thus, by the beginning of November, the rutting time is entirely finished, and, at that period, the stags, being in the weakest condition, are most easily hunted down. In those seasons, when acorns are plentiful, they recover in a very short time, and a second rut will take place towards the end of October, but this is always of a much shorter duration than the first. In warmer climates, as the seasons are more forward, the rutting season begins sooner. Aristotle tells us, in Greece it commences the beginning of August, and concludes towards the end of September.

The hinds go with young eight months and a few days, and seldom produce more than one fawn, which they bring forth in May or the beginning of June. They take the greatest care to conceal their fawns, and will even present themselves to be chased in order to draw off the dogs, and afterwards return to take care of their young. All hinds are not prolific, and some of them are even barren; these kinds are more gross and fat than the others, and are sooner in heat. It is also said some hinds have horns like the stags. The young are not called fawns after the sixth month, then the knobs begin to appear, and they take the name of knobbers, which they bear till their horns lengthen into spears, and then they are called brocks and prickets. Though they grow very fast, they do not quit the mother all the first summer. In the winter they all resort together, and their herds are more numerous as the season is more severe. In the spring they divide, the hinds retiring to bring forth; and they are only the prickets and young stags which then keep

together. In general the stags are inclined to associate, and it is only from fear or necessity that they are ever found dispersed. At the age of eighteen months the stags are capable of engendering, for those brought forth in the spring of the preceding year will couple with the hinds in autumn. The stag continues to increase in size till he has completed his eighth year. As the stag is very quick at first in his growth, a year does not pass before this redundancy shews itself. If brought forth in May, the horns begin to appear in May following, and continue to increase till the end of August, by which time they are full grown. The longevity of the stag, which became proverbial among the ancients, is in some degree a vulgar error, for though the animal, compared with many quadrupeds, may be justly considered as long-lived, since it is supposed in some instances to arrive at the age of 35 or 40 years, yet it is by no means possessed of the longevity ascribed to it by some of the ancients. Aristotle discountenances this silly prejudice; but it was, as Buffon observes, again revived in the days of ignorance, and supported by the story of a stag that was taken by Charles VI. in the forest of Senlis, with a collar upon the neck bearing this inscription, "Cæsar hoc me donavit;" the people rather choosing to believe this stag had lived a thousand years, and had received his collar from a Roman emperor, than that he came from Germany, where the emperors assumed the name of Cæsar.

In Britain the stag is become less common than formerly; its excessive viciousness during the rutting season inducing most people to dispense with this species, and rear the fallow deer, which is of a more placid nature, in its stead. Some attempts have indeed been made to render the stag domestic, by treating them with the same gentleness as the Laplanders do their rein-deer: and it appears, in the Isle of France, where the Portuguese had introduced the European breed, they had so far succeeded by degrees as to render them quite domestic, many of the inhabitants keeping large flocks of them. But when the French took possession of that island they destroyed most of those domesticated stags. Valmont de Bromare asserts that he saw in Germany a set, or "attelage," consisting of six stags, that were perfectly obedient to the curb, and active to the stroke of the whip; and in the magnificent stables of Chantilly, in the year 1770, were two stags that were occasionally harnessed to a small chariot, in which they carried two persons. The flesh of the old stags is very bad; that of the female is not amiss, but the flesh of the young fawns is still better. The skin and the horns are the most useful parts of this animal. The skin makes a pliable and durable leather, and the horns, being extremely compact, solid, hard, and weighty, make excellent handles for knives, and other instruments. Stags are still found wild in the Highlands of Scotland, in herds of four or five hundred together, ranging at full liberty over the vast hills of the north, some of which grow to a great size. Pennant says, upon the authority of Mr. Farquharson, that one of those wild stags weighed 314 pounds, exclusive of the entrails, head, and skin. Formerly the great Highland chieftains used to hunt with the magnificence of eastern monarchs, assembling four or five thousand of their clan, who drove the deer into the toils, or to the station their lairds had placed themselves in. But as this pretence was frequently used to collect their vassals for rebellious purposes, an act was passed prohibiting any assembly of this kind. Stags are likewise met with on the moors that border on Cornwall and Devonshire; and in Ireland on the mountains of Kerry, where they add greatly to the magnificence of the romantic scenery of the lake of Killarney. Pennant is persuaded that the stag is not a native of America, and considers the deer known

C E R V U S.

in that country by the name of stag as a distinct species. It has been already mentioned that the American stag is a variety, *C. canadensis* of Erxleben. The Americans hunt and shoot those animals, not so much for the sake of the flesh as of the fat, which serves as tallow in making candles, and the skins, which they dispose of to the Hudson's bay company. They are caught principally in the inland parts, near the vicinity of the lakes.

DAMA. Horns branched, recurved, and compressed, with palmated summits. Linn. Fn. Suec. Schreber, &c. *Cervus palmatus*, *Dama*, & *Dama cervus*. Klein. *Cervus platyceros*, Ray. *Dann hirsch*, Ridinger. *Dain et Daine*, Buff.

The fallow deer is considerably smaller than the stag, and is of a brownish bay colour, varying, in different individuals, to deeper or paler, and is spotted on the back with white; and sometimes, though rarely, the whole of the back is white. Colour beneath, and on the insides of the limbs, whitish. Tail rather longer in proportion than that of the common stag, white beneath, and commonly bounded on each side by a descending streak of black; but the principal mark of distinction between this species and the stag is the form of the horns, which, as in the stag, are peculiar to the male, and are ciliated at the upper part, and palmated or divided into processes which are continued to a considerable distance down the horn. An antler or simple slender process rises from the base of each, and a similar one at some distance above the first, both pointing somewhat forwards. In its general form the animal greatly resembles the stag, but is smaller, and of a more gentle disposition.

The manners of the fallow deer resemble those of the stag, but he is observed to be less delicate in the choice of his food, eating a variety of vegetables which are refused by the other. He also preserves his venison better, and even after the rutting season he does not appear exhausted, but continues in nearly the same state throughout the year. He browses closer than the stag, and is for that reason more prejudicial to young trees. At the second year the fallow buck seeks the female, and like the stag is inconstant in his attachments. The doe goes with young eight months and some days. She commonly produces one fawn, sometimes two, and very rarely three. They are capable of engendering from two years of age till fifteen or sixteen, and seldom live more than twenty.

The horns of the fallow buck, like those of the stag, are shed every year, but at a somewhat later period, happening about fifteen days later. At their first appearance they resemble a pair of soft, tumid knobs, or tubercles, and are covered with a villous skin; they gradually enlarge, lengthen, and widen at the tops, and when full grown, the skin which had served to protect and nourish the young horn becoming useless, is rubbed off by the animal, the impression of the blood vessels still remaining on the complete horn, in the form of so many ramified furrows. During the rutting season they are neither so furious nor so violent in their ardour as the common stag. They never quit their own pastures in search of the females, though they will dispute and fight furiously for the possession of them. It often happens when there is a number in one park, that they will divide into two parties, and engage each other with much resolution; but these contests generally occur from a wish they both have to graze upon some particular spot. Each of these parties has its chief; these lead on the engagement, and the rest follow under their direction. One victory is not sufficient, neither party yielding upon a single defeat; but as the battle is renewed daily, the weakest are at last compelled to retire to some secluded part of the park, and be content with the worst pasturage. This animal is not so universal as the

common stag, and is even rare in some parts of Europe, as in France and Germany. They abound in England, but are chiefly confined to parks. In Spain it is said to arrive at a size nearly equal to that of the common stag. It is found in Greece, Palestine, the north of China, and in Persia. The fallow deer in America have been introduced there from Europe; for the animal called the American fallow deer is of a very different kind, and is peculiar to the new continent.

VIRGINIANUS. Horns ramose, turned forwards, and rather palmated. Penn. quad. *Cervus virginianus*, Gmel. *Dama virginiana*, Ray. *Cervus platyceros*, Sloane. *Cervuul*, Du Pratz. *Fallow deer*, Lawson. *Virginian deer*, Penn.

This animal resembles the fallow deer, but is taller, has a longer tail, and is of a lighter colour; the horns are more slender with numerous branches on the inside, and has no brow antlers. The general colour is a light cinereous brown, the head of a deeper cast, and the belly, sides, shoulders, and thighs whitish, mottled with brown; the tail, which is about ten inches long, is dusky above, and white below. This kind of deer inhabits all the provinces south of Canada, but in greatest abundance in the vast savannas contiguous to the Mississippi, and the great rivers that flow into it, grazing in innumerable herds along with the stags and buffaloes. This species is supposed by some to extend as far as Guiana, and to be the *baieu* of that country, which is said to be about the size of an European buck, with short horns bending forward at their extremities. This opinion is erroneous, the *baieu* being now ascertained to be a very distinct animal (*Cervus mexicanus*, Gmel.) The Virginian deer are sometimes tamed and used by the Indians, after being properly trained, to decoy the wild, especially at the rutting season, within the range of the hunters' muskets. Both bucks and does herd from September to March, after which the does secrete themselves to bring forth, and are found with difficulty. From this time the bucks keep separate till the rutting season in September following. The deer begin to feed about twilight; and sometimes in the day-time, but then only in the rainy season, otherwise they rarely venture to quit their haunts. These animals are very restless and always in motion. Those which live near the shores are lean and bad, and are greatly troubled with worms in their head and throat, the larvæ no doubt of various insects that like the *tobani*, and *oesfri*, or gad-fly, deposit their eggs in the flesh of the animal. Those which frequent the hills and savannas are better, but the venison of these is dry. In hard winters they are observed to feed much on the different species of *usnea* or string-moss, which hangs from the trees. These, in common with the other cloven-footed quadrupeds of America, are very fond of salt, and resort eagerly to the places impregnated with it; they are also always seen in great numbers licking the earth in the spots where the ground has been torn by torrents or other accidents. Such spots are called licking places in America, and the hunters are sure to find plenty of game in those situations; for notwithstanding they are so often disturbed they soon return again in droves, to their favourite haunts.

The deer are of the first importance to the Indians. The skins form the greatest branch of their traffic, by which they procure from the colonists in exchange many of the articles of life. The flesh is their principal food throughout the year, which they prepare by drying it over a clear gentle fire, after cutting it into small pieces, and, in this state, it is not only capable of long preservation, but is very portable in their sudden excursions, especially when reduced to powder.

powder. That the skins form an article of very extensive commerce will not admit of doubt; so long ago as the year 1764, no less than 25,027 skins were imported, according to Mr. Pennant, from New York and Pennsylvania. The trade is at present still more considerable.

Axis. Horns ramose, round, and erect; summit bifid; body spotted with white. Erxleb. Schreber, &c. *Axis*, Plin. Ray, &c.

This animal, which is known by the name of the Ganges stag, is one of the most beautiful species of this genus. Its size is nearly that of the fallow-deer, and its colour an elegant light rufous brown, distinctly and beautifully marked with numerous white spots; the under parts are paler, and a line of white generally separates the colour of the upper from the lower parts; the tail resembles that of the fallow-deer, and is reddish above and white beneath. The species is said to be very common in some parts of India, about the banks of the Ganges, and in the island of Ceylon. It is described by Pliny, among the animals of India, and is said to have been sacred to Bacchus. It has been introduced into Europe, and is occasionally seen in parks and menageries. They are readily tamed and seem to suffer little from a change of climate.

Pennant makes two varieties of the spotted Axis, the middle Axis and great Axis. The middle Axis is described as being of a light rufous colour, but never spotted. Sometimes, however, it is said to vary into white, and in that state is considered as a great rarity. It inhabits dry hilly forests in Ceylon, Borneo, Celebes, and Java, where it is found in very numerous herds. The flesh is much esteemed by the natives, and is dried, and salted for use. The existence of the great Axis is ascertained from a pair of horns in the British Museum, resembling those of the former in shape, but of a larger size. They measure two feet nine inches in length, are of a whitish colour, and strong, thick, and rugged. Pennant conjectures they were brought from Ceylon or Borneo, having been informed by Mr. Loten, who had long resided in the former of those islands, that a very large kind of stag as tall as a horse, and of a reddish colour, with trifurcated horns, existed there as well as in Borneo. In the latter island, where they are said to frequent low marshy tracts, they are called water stags.

Porcinus. Horns slender, trifurcated: body above fuscous, beneath cinereous, Schreber. *Porcine deer*, Penn.

The length of this animal is three feet and a half; height two feet and a half; horns thirteen inches long, and the tail eight inches. The body is thick and clumsy, the legs fine and slender; the colour on the upper part of the neck, body, and sides brown; of the belly and rump lighter. Mr. Pennant's description of this species was taken from a specimen in the possession of the late Lord Clive, and was brought from Bengal. It is also said to be found in Borneo, where it is called the hog-deer from the thickness of its body. Of their feet, Mr. Pennant says, are made tobacco-stoppers in the same manner as of those of the smaller kinds of antelopes and musks.

AFRICANUS. Horns slender and trifurcated; limbs short, thick, and brown; body above fawn-coloured with white spots, beneath whitish. *Cerv Cochon*, Buff. suppl. *Spotted Porcine deer*, Shaw. Gen. Zool.

This animal, which is described by Buffon under the name of *Cerv-cochon* or Hog-deer, is a native of the Cape of Good Hope. Dr. Shaw considers it as a probable variety of *C. Porcinus*, and the French writers of the present day think it only a variety of the common stag. If

the descriptions of this little known animal be correct, we should however rather incline to admit it as a distinct species, and under this idea name it *Africanus*. It is the same size as the last, but the limbs are not fine and slender as in that animal; they are on the contrary short and thick; the legs and hoofs are very small; the fur fawn coloured, darkest on the back, and spotted like the *Axis* with white; the eyes are black; and the upper eyelids furnished with long black hairs; the nose is black; head reddish-white intermixed with grey; ears large with white hairs within; and the tail fawn-coloured above, beneath white.

MEXICANUS. Horns trifurcated at the tip and turned forward; body rufous. Penn. Gmel. *Cervus major, corniculis brevissimis*, *Biche des bois*, Barrer. *Teutlal maçame*, Hernandez. *Baieu*, Bancroft, Gui. *Chevreuil d'Amérique*, Buff.

This species is the size of the common or European Roebuck, and of a reddish colour, but when young, is often spotted with white. The horns are thick, strong, and rugged; they bend forward, are about ten inches long, and trifurcated at the upper part, but vary sometimes in the number of processes. The head is large: eyes large and bright, and the neck thick. The flesh is said to be far inferior to the venison of Europe. This inhabits Mexico, Guiana, and Brasil.

CAPREOLUS. Horns ramose, round, erect, and bifid at the summit; body reddish brown. Linn. Fn. Succ. Schreber. Erxleben, &c.—*Cervus capreolus*, Briff. *Caprea*, Plin. Ald. &c. *Capreolus*, Gefn. Jonst. *Dorcas*, Charlet. *Chevreuil et chevrette*, Buff. *Rehbock*, Gefn. *Ridinger*, &c. *Roe*, Penn. &c.

The stag, says Buffon, as being the noblest inhabitant of the wood, occupies the most secret shades of the forest, and the elevated ridges of mountains, where the spreading branches form a lofty covert, while the roe, as if an inferior species, is content with an humbler residence, and is seldom found but among the thick foliage of the younger trees, and brush-wood. But if he is inferior to the stag in dignity, strength, and stature, he is endowed with more grace, vivacity, and courage. He is superior in gaiety, neatness, and sprightliness. His figure is more elegant and handsome: his eyes more brilliant and animated. His limbs are more supple, his movements quicker, and he bounds seemingly without effort, with equal vigour and agility. His coat or hair is always clean, smooth, and glossy. He never wallows in the mire, like the stag. He delights in dry and elevated places, where the air is purest. He possesses also more cunning and finesse, conceals himself with greater address, is more difficult to trace, and derives superior resources from instinct, for though he has the misfortune to leave behind him a stronger scent than the stag, which redoubles the ardour and appetite of the dogs, he knows how to withdraw himself from their pursuit by the rapidity with which he begins his flight, and by his numerous doublings. He never delays, like the stag, to practise his address till his strength fails him, but as soon as he finds the first efforts of a rapid chase unsuccessful, he repeatedly returns by his former steps, and after confounding by these opposite movements the direction he has taken, after intermixing the last emanations to those of the former course, he rises from the earth by one great bound, retreats to one side, where he lies down flat on his belly, and in this situation allows the whole troop of his deceived pursuers to pass close to him without attempting to move.

The roe differs from the stag and fallow deer, in disposition, temperament, manners, and almost every natural habit.

Instead

Instead of herding together, they live in separate families; the fire, dam, and young form a little community, and never admit a stranger into it. They are constant in their amours, and never unfaithful like the stag. During the period in which they are engaged in the task of nursing a new family, they drive off the former brood, as if to oblige them to yield their place to those which are to succeed, and to form new families for themselves; but when this season is passed, the fawns again return to their mother, and remain with her some time; after which they separate entirely, and remove to a distance from the place which gave them birth.

The female goes with young five months and a half, and brings forth about the end of April or beginning of May. The hinds, or female stags, on the contrary, go with young above eight months, and this difference is alone sufficient to prove that these animals are so remote from each other in species as to prevent their ever intermixing or producing an intermediate race. By this difference, as well as that of figure and size, they approach the goat, as much as they recede from the stag, and go with young nearly the same time. The female, when about to bring forth, retires to the deepest recesses of the forest. In ten or twelve days the fawns acquire sufficient strength to enable them to follow her. When threatened with danger, she hides them in a close thicket, and to preserve them allows herself to be the object of pursuit. But notwithstanding all her care and anxiety, the young are sometimes carried off by men, dogs, or wolves. This is, indeed, the time of their greatest destruction. As the roes love hills, or plains on the tops of mountains, they never stay long in the deep recesses of the forest, nor in the middle of extensive woods, but give the preference to the skirts of woods which are surrounded with cultivated fields, and to open coppices which produce the berry-bearing alder.

About the end of the first year, when the fawns are separated from their parents, the first horns begin to appear, in the form of two knobs, much less than those of the stag. Contrary to those of the stag, which are cast in the spring and renewed in the summer, the horns of the roe fall off at the end of autumn, and are replaced in the winter. When the roe-buck has renewed his horns, he rubs them against the trees, like the stag, in order to free them from the velvety skin with which they are covered, and this commonly happens about the month of March, before the trees begin to shoot. The second horns of the roe have two or three antlers on each side; the third three or four; the fourth four or five, and after this their horns are seldom furnished with a farther number of antlers. The horns of the old ones are distinguished after this by the thickness of their stems, the largeness of the bur, pearlins, &c. As long as the horns continue soft, they are extremely sensible: of this Buffon describes a striking example. The young shoot of a roe-buck's horn was carried off by a ball, the animal was stunned, and fell down as if he had been dead. The shooter, who was near, seized him by the foot; but the roe-buck suddenly recovering his senses and strength dragged the man, though he was strong and alert, thirty paces into the wood. After killing him with a knife, it was discovered that the roe had received no other wound.

As the female roe goes with young only five months and a half, and as the growth of the fawn is more rapid than that of the stag, the duration of her life is much shorter, seldom extending perhaps beyond twelve or fifteen years. They are delicate in their choice of food, and require a great deal of exercise, free air, and much room, which is the reason they are unable, after the first year of their growth, to resist the inconvenience of domestic life. They may be tamed,

but can never be rendered obedient or familiar. They always retain a portion of their natural wildness, are easily terrified, and then run with such violence against the walls that they often break their limbs. However tame they may be apparently, they are not to be trusted, and the males in particular, being subject to dangerous caprices; they take aversions to certain persons, and make furious attacks with their horns, the blows of which are sufficient to throw a man on the ground, after which they continue to trample on him. The roe-buck bellows, but less frequently than the stag, neither is his voice so strong or loud. The young ones utter a short and plaintive cry, *mi mi*, by which they indicate their want of food. This sound is easily imitated, and the mother, deceived by the call, will come up to the very muzzle of the hunter's gun.

In winter the roes frequent the thickest coppices, and feed upon brambles, broom, heath, and the catkins of the hazels and willows. In spring they repair to the more open brush-wood, and eat indiscriminately the buds and young leaves of other trees. They never drink except in the very height of summer, when the weather is hot in the extreme, the moist dews with which the herbage at other times abound being sufficient to allay their thirst. The flesh of the roe is excellent when in good order, but the quality of the venison depends much on the country they inhabit; and even the best countries produce good and bad kinds. The flesh of the brown roe is preferred to that of the red fort. All the males after the age of two years have the flesh hard and ill-tasted, but that of the females though farther advanced in age is more tender. That of the fawns, when very young, is loose and soft, but at the age of eighteen months, it is in the highest state of perfection. Those which live in plains and vallies are not good; those which come from moist countries are still worse: those brought up in parks are insipid; and, lastly, there are no good roes but those of dry elevated countries, interspersed with hills, woods, cultivated and fallow land, where they enjoy plenty of air, food, freedom, and solitude; for those which have been often disturbed are meagre, and the flesh of those which have been often hunted is insipid.

The roe was formerly very common in Wales, in the North of England, and in Scotland, but at present the species exists in no other part of Great Britain beside the Scottish Highlands, and even there are far from common at this period. In France they were more frequent, but for the last fifty years their numbers have been rapidly diminishing. They are found in Italy but very rarely, and they are much scarcer in Sweden and Norway than formerly. According to Pennant, the first that are to be met with in Great Britain are in the woods on the south side of Loch Rannoch, in Perthshire; and the last in those of Langwal, on the southern borders of Caithness, but they are most numerous in the beautiful forests of Invercauld, in the middle of the Grampian hills. In Ireland they are unknown.

The usual size of the roe is three feet nine inches from the nose to the tail; the height before two feet three inches, but behind two feet seven inches. The tail is about an inch long; the horns six or eight inches long; the general colour of the animal reddish brown, with the rump white. Like other quadrupeds it is sometimes found perfectly white, and Buffon mentions, upon the authority of Count Mellin, a race of coal black roes that exists in a very small German district called the forest of Lucia, in the dominions of the king of England as duke of Lunenburg. This variety is said to be constantly the same, resembling the common sort in size, and every other particular except in colour.

МУСТЯС. With trifurcated horns originating from a cylindrical

cylindrical hairy base, and the upper fork hooked; from the horns to the eyes three longitudinal furrows; upper tusk projecting. *Cervus Muntjac*, Gmel. Schreber. *Ribfaced deer*, Penn. *Le Chevreuil des Indes*, Buff.

This species, which is somewhat smaller than the common Roe-buck, and of a thicker form like the porcine deer, is a native of Java and Ceylon. The bony processes upon which the horns are placed, are elevated three inches from the skull, and covered with hair; but what seems principally to distinguish this animal is the appearance of three longitudinal ribs extending from the horns to the eyes. It also differs from most species of the same genus in having a tusk in the upper jaw. The animal was first described by Pennant, who informs us it is called by the Javans Muntjak, whence its specific name, and in the Malay tongue Kidang. Mr. Pennant further adds, that the pedestals or pillars on which the horns stand grow thicker as the animal advances in age, and the margins swell out all round, so that if the horns are forced off the pedestals, the surface of the last has the appearance of a rose. In Allamand's description of this species it is added, that the tongue is so extremely long, the animal can extend it even beyond the eyes. Vide Buff. T. 6. suppl.

GUINEENSIS. Grey, beneath blackish. *Cervus Guineensis*, griseus, *subtus nigricans*, Linn. Mus. Ad. Frid. *Grey deer*, Pennant.

Described by Linnæus as being the size of a cat; the colour grey, with a line of black above the eyes, and on each side of the throat another black line pointing downwards; the middle of the breast black; fore legs and sides of belly as far as the hams marked with black; tail beneath black; ears rather long. As the horns were wanting in the specimen described by Linnæus, it is doubtful whether this obscure animal be of the cervine tribe, or not. It is mentioned as a native of Guinea.

CERVUS volans, in *Entomology*, the name given by certain authors to the insect called in England the stag-beetle, *Lucanus cervus* of Linnæus, *cerf volant* of the French. See *LUCANUS Cervus*.

CERYCIUS Mons, in *Ancient Geography*, a mountain of Greece, in Bœotia, according to Pausanias, who adds, that Mercury was said to be born there. From his description, it appears that this mountain was comprised in the town of Tanagra.—Also, a mountain of Asia Minor, in Ionia, near the town of Ephesus.

CERYNEA, a mountain of Peloponnesus, in Arcadia, according to Pausanias.

CERYNEA, or **CERINÉ**, a town of Achaia, N.W. of Bura, and near the gulf of Corinth. It had its name, says Pausanias, from the small river *Cerynite*, which flowed from a mountain of the same name, and passed near it. The inhabitants of Mycenæ retired to this city, when they were compelled by the fierce jealousy of the Argians to quit their own country. At Ceryne was a temple of the Eumenides, said to have been founded by Oristes.

CERYNIA, a town in the northern part of the island of Cyprus, E. of Lapathus.

CERYX, in *Antiquity*. The *ceryces* were a sort of public ministers appointed to proclaim or publish things aloud in assemblies.

The *ceryx*, among the Greeks, answered to the *PRÆCO* among the Romans.

Our criers have only a small part of their office and authority.

There are two kinds of *ceryces*, *civil* and *sacred*.

CERYCES, *civil*, those appointed to call assemblies, and make silence therein: also to go on messages, and do the office of our heralds, &c.

CERYCES, *sacred*, were a sort of priests, whose office was to proclaim silence in the public games and sacrifices, publish the names of the conquerors, proclaim feasts, and the like. The priesthood of the *ceryces* was annexed to a particular family, and the descendants of Ceryx, son of Eumolpus. To them it also belonged to lead solemn victims to slaughter. Before the ceremonies began, they called silence in the assembly, by the formula, *Εὐφημέωντε σιγήν ὡς ἐσώ λείως*; answering to the *favete linguis* of the Romans. When the service was over they dismissed the people with this formula, *Δάων ἀφ' ὧν, ἴτε μίσση ἐστ*.

CERYX, in *Conchology*, a name by which Pliny and other old authors have called a variety of shells in the *buccinum* and *murex* genus.

CESALPINI. See **CÆSALPINUS**.

CESANO, in *Geography*, a small stream of Italy, in the duchy of Urbino, between which, and the river Misa, which runs through Senegaglia, are some ancient ditches marking the limits of the Roman camp; and on the other side of the Cesano some antiquarians imagine they have discovered the traces of the Carthaginian camp. It is certain, however, that Asdrubal (whose name a neighbouring mountain still bears), brother to Hannibal, lost both his army and his life in a battle fought in these parts.

CESAR. See **CÆSAR**.

CESARE, in *Logic*, a mode of syllogisms in the second figure wherein the major proposition and conclusion are universal negatives, and the minor an universal affirmative. Such is,

CE No man who betrays his country deserves praise.

SA Every virtuous man merits praise.

RE Therefore no man who betrays his country is virtuous.

CESAREA, in *Geography, a town of Asiatic Turkey, in the province of Caramania; 40 miles S.E. of Yurcup.*

CESARI, **GIUSEPPE**, in *Biography*. See **ARPINAS**.

CESARIA. See **COHANZY**.

CESARIAN scction. See **CÆSARIAN scction**.

CESARINI, **JULIAN**, in *Biography*, a cardinal of Rome, was born of an ancient but indigent family in this city towards the latter part of the 14th century; and having studied at Perugia, Padua, and Bologna, he taught canon law for some time at Padua. Accompanying cardinal Branda da Castiglione as secretary upon his legation to Bohemia, he was distinguished by his skill in the conduct of public affairs. — On his return to Rome, he was deputed by pope Martin V. as his nuncio first to France, and then to England, maintaining in both countries, with great firmness, the claims of the holy see, and establishing his character for integrity by refusing all presents. As a recompence he was raised to the purple in 1426; and then sent to Bohemia, in order, by arguments and arms, to oppose the heresy of the Hussites. As his success was not equal to his zeal, he was recalled by Eugenius IV. and deputed to preside at the council of Basil, where he gained singular reputation by his learning and eloquence. He first took part with the synod against the pope in their disputes; but at length he was gained over, and sent to the papal synod at Ferrara. Here he distinguished himself in his controversy with the Greek schismatics. After the termination of this council, he was sent by Eugenius as legate to Hungary, in order to induce Ladislaus, king of Hungary and Poland, to break the treaty of peace which he had made with sultan Amurath. His reasoning prevailed against the arguments of the hero Huniades; and he solemnly absolved Ladislaus from his oath to the Turkish monarch. The consequence was the fatal battle of Varna, in 1444, in which the Christians were defeated with great slaughter, and Ladislaus was killed. Cesarini also fell a victim

victim on this occasion to his own counsel. Of his letters, orations, and disputations, many are published in the acts of the councils to which they belong. Du Pin's E. H. of the 15th century, vol. xiii. p. 87. Moreri.

CESARINI, VIRGINIO, the descendant of a noble family, was born at Rome in 1595, and at an early age perfected himself in almost every kind of literature, so that he was regarded as a universal genius. He was not only learned in the Greek and Latin languages, but profoundly skilled in philosophy, astronomy, history, geography, medicine, jurisprudence, oratory, and poetry. Cardinal Bellarmine compared him to the famous Pico della Mirandola, and he was honoured with a medal which bore the head of Pico and his own united under a crown of laurel. He was a very distinguished member of the academy of Lyncei, and intimate with prince Frederic Cesi, its founder. Urban VIII. made him one of his chamberlains, and designed him for the cardinalate; but his course of honour terminated in 1624, at the early age of 30 years. His admirable intellectual qualities were united with modesty, civility, and private worth. His only publication was a collection of Latin and Italian poems, the former of which display singular elegance and amenity, though the style was not rendered perfect for want of time. Several of them are printed in a collection, entitled "Septem Illustrium Virorum Poemata," Antwerp, 1662, and since reprinted. At the request of cardinal Bellarmine, he had undertaken an ample demonstration of the immortality of the soul, which, with some other works, remained incomplete. His bust, in marble, was placed in the capital with a pompous eulogy. Favoriti, a learned prelate, wrote his life. Moreri. Gen. Biog.

CESARIO, Sr. in *Geography*, a town of Naples, in the province of Otranto; four miles W.S.W. of Lecce.

CESATA, in *Ancient Geography*, a town of Spain, between Arriaca and Seguntia, according to the Itinerary of Antonine. Ptolemy, who calls it *Cefada*, says, that it was a town of Celtiberia, in the Tarragonensis.

CESBEDIUM, a temple of Asia, in Pamphylia. Polybius says, that it was dedicated to Jupiter, and that it served as a citadel to the town of Selga.

CESCUM, a town of Asia, in Cilicia, according to Pliny.

CESENA, in *Geography*, a town of Italy, in the province of Romagna, seated on the road from Rimini to Ravenna, on the river Savio, at the foot of a hill, on which stands a ruined citadel. the see of a bishop suffragan of Ravenna. It has good churches and convents, and the houses are generally well built; 18 miles S. of Ravenna. Near it, on a hill, stands a Benedictine convent, to which belongs the church "Sta. Maria del Monti de Cesena."

CESENA, an ancient town of Gallia Cispadana, situate to the S.E. of *Forum Livii*. It is said to have been founded by the Galli Senones, 391 years B. C. It remained under the power of the Heruli, and was besieged without effect by Theodoric. This prince, however, gained possession of it after the death of Odoacer, when Liberius, the commandant, surrendered it to him, A. D. 493. Having suffered much in different wars, it was partly consumed by a fire.

CESENATICO, a small sea-port of Italy, inhabited chiefly by fishermen, in the Adriatic, in the province of Romagna, which has an excellent harbour and commodious canal, with a bridge, erected in 1716, near which are two fine marble pillars of the Corinthian order; 8 miles N.E. of Cesena.

CESI, a town of Italy, in the province of Umbria; seated on the edge of a lofty mountain, or rock, exposed to the sun during its whole course from its rising to its setting.

CESION, or CEDES, in *Ancient Geography*, a town of Judea, in the tribe of Issachar, according to the book of Joshua. It was given to the Levites of this tribe, who were of the family of Gershon.

CESIS, in *Botany*, a name by which some authors express the common *daucus sylvestris*, wild carrot, or bird's nest.

CESLES, in *Geography*, a town of Hungary; 5 leagues N.N.E. of Stul-Weisenburg.

CESPEDES, PABLO (PAOLO or PAUL) DE, in *Biography*, an eminent historical painter of Spain, was born at Cordova, of which he was afterwards dignitary, between the years 1530 and 1540. He was a man of extensive talents and profound erudition, so that, by the Spanish writers, he has been extolled as an universal genius. He travelled twice to Rome in order to perfect himself in the art of painting, to which he was peculiarly addicted; and he formed his style after that of Michael Angelo, whom he also imitated in uniting architecture and sculpture with painting. During his residence at Rome, he supplied a head to a famous antique trunk of Seneca in white marble; and when the original head was afterwards discovered, that of Céspedes was thought to be superior. He also painted in fresco at the Trinita Monti at Rome and in other places. On his return to Spain he adorned with his performances the churches of Seville and other cities in Andalusia; but his principal pictures are found at Cordova. His Last Supper in the cathedral is singularly famous, both for variety of expression and tone of colouring, in which last quality he is thought to have approached the manner of Corregio. His drawing, anatomy, and perspective, are eminently correct. The esteem in which he was held by federico Zuccari is evinced by the following anecdote. When this artist was applied to by the bishop and chapter of the cathedral of Cordova for an altar piece, he peremptorily declined the commission, alleging that while Paolo de Céspedes was in Spain, there would be no occasion to send into Italy for pictures. As an author, Céspedes wrote a treatise on the antiquities of the church of Cordova, proving it to have been a temple of Janus. Some of his works on painting are lost. His moral character was exemplary. He died at his native place in 1608, and was buried in the cathedral. Pilkington by Fuseli. Cumberland's Anecd. of Spanish Painters, vol. i.

CESPITOSE, in *Botany*, producing several stems from the same root, so intermingled and matted together as to form a turf.

CESSARES, in *Geography*, a territory northward of Patagonia in South America, in the 48th degree of S. lat. inhabited by a mixed tribe of that name, descended from the Spaniards, being the crews of three ships that were wrecked on this coast in 1540.

CESSAT *Executio*, in *Law*. In trespass against two persons, if it be tried and found against one, and the plaintiff takes his execution against him, the writ will abate as to the other; for there ought to be a *cessat executio* till it is tried against the other defendant; 10 Edw. IV. 11.

CESSATION, the act of intermitting, discontinuing, or interrupting the course of any thing, work, action, or the like.

CESSATION *of arms*, in a *Military Sense*, signifies a total discontinuance or suspension of warlike operations or acts of hostility for a limited time during a state of warfare. See CAPITULATION.

CESSATION, *Cessatio à divinis*, in the *Romish Church*, is a penalty inflicted for any notorious injury to the church, by putting a stop to all divine offices, and the administration

of the sacraments, and by depriving Christians of church-burial.

CESSAVIT, in *Law*, a writ, which lies by the statute of Gloucester, 6 Edw. I. c. 4, and of Westm. 2. 13 Edw. I. c. 21 and 41; when a man who holds lands of a lord by rent or other services, neglects or *ceases* to perform his services for two years together; or when a religious house hath lands given it, on condition of performing some certain spiritual service, as reading prayers or giving alms, and neglects it: in either of which cases, if the *cessor* or neglect have continued for two years, the lord or donor and his heirs shall have a writ of *cessavit* to recover the land itself. F. N. B. 208. This, in some instances relating to religious houses, is called *cessavit de cantaria*. By the statute of Gloucester, the *cessavit* does not lie for lands let upon fee-farm rents (*cessavit de feofirma*), unless they have lain waste and uncultivated for two years, and there be not sufficient distress upon the premises; or unless the tenant hath so enclosed the land, that the lord cannot come upon it to distress. F. N. B. 209. 2 Inst. 298. For the law prefers the simple and ordinary remedies, by distress, &c. to this extraordinary one of forfeiture for a *cessavit*; and therefore the same statute has provided further, that upon tender of arrears and damages before judgment, and giving security for the future performance of the services, the process shall be at an end, and the tenant shall retain his land; to which the statute of Westm. 2. conforms, so far as may stand with convenience and reason of law. 2 Inst. 401. 460. The statute 4 Geo. II. c. 28. (which permits landlords who have a right of re-entry for non-payment of rent, to serve an ejectment on their tenants, when half a year's rent is due, and there is not sufficient distress on the premises) is in some measure copied from the ancient writ of *cessavit*; especially as it may be satisfied and terminated in a similar manner, by tender of the rent and costs within six months after. And the same remedy is, in substance, adopted by statute 11 Geo. II. c. 19. § 16. which enacts, that where any tenant at rack-rent shall be one year's rent in arrear, and shall desert the demised premises, leaving the same uncultivated or unoccupied, so that no sufficient distress can be had; two justices of the peace (after notice affixed on the premises for 14 days without effect) may give the landlord possession thereof; and thenceforth the lease shall be void. By stat. Westm. 2. § 2. the heir of the demandant may maintain a *cessavit* against the heir or assignee of the tenant. But in other cases, the heir may not bring this writ for *cessure* in the time of his ancestor; and it only lies for annual service, rent, and such like, and not for homage or fealty. *Termes de la ley*. New Nat. Brev. 463, 464. The lord shall have a writ of *cessavit* against tenant for life, where the remainder is over in fee to another; but the donor of an estate-tail shall not have a *cessavit* against the tenant in tail; though if a man make a gift in tail, the remainder over in fee to another, or to the heirs of the tenant in tail, there the lord of whom the lands are holden *immediate*, shall have a *cessavit* against the tenant in tail, because that he is tenant to him. Ibid. If the lord distrains, pending the writ of *cessavit* against his tenant, the writ shall abate. The writ *cessavit* is directed to the sheriff, "to command A. B. that, &c. he render to C. D. one messuage which he holds by certain services, and which ought to come to the said C. by force of the statute, &c. because the said A. in doing these services had ceased two years, &c." Blackst. Comm. vol. iii. p. 232. Jacob's Dict. by Tomlins.

CESSE, signifies an assessment or tax, and is mentioned in the stat. 22 Hen. VIII. c. 3. *Cesse*, or *Casse*, in Ireland, is an exaction of victuals, at a certain rate, for soldiers in garrison.

CESSENON, in *Geography*, a town of France, in the department of Herault, and district of St. Pons; 3 leagues N. of Beziers.

CESSERO, in *Ancient Geography*, a town of Gallia Narbonensis, on the frontiers of the Tectosages, according to Pliny. This town was built in a valley, near the river Arauris or Erault.

CESSIEUX, in *Geography*, a town of France, in the department of the Iser, and district of La Tour-du-pin; 27 miles E.S.E. of Lyons.

CESSIO BONORUM, in *Scots Law*, the name of that action by which an insolvent debtor may apply for liberation from prison, upon making over his whole real and personal estate to his creditors.

CESSION, in a *Legal Sense*, an act whereby a person surrenders up and transmits to another person, a right which belonged to himself.

Cession is a general term; the species whereof are a *surrender*, *relinquishment*, *transfer*, and *subrogation*; which see.

CESSION is particularly used in the *Civil Law*, for a voluntary and legal surrender of a person's effects to his creditors, to avoid imprisonment.

This practice still obtains in France and other countries; and is done by virtue of letters patent granted in favour of the poor and honest. The cession originally carried with it a mark of infamy, and obliged the person to wear a green cap or bonnet; at Lucca, an orange one: to neglect this, was to forfeit the privileges of the cession. This was originally intended to signify, that the cessionary was become poor through his own folly.

The Italian lawyers describe the ceremony of cession to consist in striking the bare breech three times against a stone, called *lapis vituperii*, in the presence of the judge. Formerly it consisted in giving up the girdles and keys in court, the ancients using to carry at their girdles the chief utensils wherewith they got their living; as the scrivener his *escrittoire*, the merchant his bag, &c.

The form of cession among the ancient Romans and Gauls was as follows. The cessionary gathered up dust in his left hand, from the four corners of the house; and, standing on the threshold, holding the door-post in his right hand, threw the dust back over his shoulders; then stripping to his shirt, and quitting his girdle and bags, he jumped with a pole over a hedge; hereby letting the world know, that he had nothing left, and that when he jumped, all he was worth was in the air with him.

The judicial cession is that which is made by a merchant or trader, who is actually kept in prison by his creditors, and who being absolutely incapable to satisfy them, petitions a court of justice for leave to make cession. This judicial cession is certainly compulsive on the part of the creditors; since the debtor is commonly allowed the benefit of a cession by an order from the judges, notwithstanding the opposition made by the creditors to prevent it; which renders this cession more infamous than that which is voluntary. See **BANKRUPT**.

CESSION, in the *Ecclesiastical Law*, is one manner of vacating or voiding an ecclesiastical benefice.

Cession is an implicit kind of resignation, understood where a person does some act, or takes on himself some charge, which is inconsistent with his holding the benefice of which he was before possessed.

By statute 21 Hen. VIII. c. 13. if a clerk have one benefice of 8l. per annum, or upwards (according to the present valuation in the king's books), and takes another, of what value soever, with cure of souls, and without dispensa-

tion; the former living is, *ipso facto*, void; and this kind of voidance of a living is called cession. See DISPENSATION.

In case of a cession under the statute, the church is so far void upon institution to the second living, that the patron may take notice of it, and present if he pleases; but it seems that a lapse will not incur from the time of institution against the patron, unless notice be given him; but it will from the time of induction. 2 Will. 200. 3 Burr. 1504.

What is called cession in other benefices, is called *consecration* in relation to a bishoprick; for if an incumbent be made a bishop, his benefice is said to be *void by consecration*; and to such benefice or benefices the king shall present for that time, whoever is patron of them; in the other case the patron may present. See COMMENDAM.

CESSIONARY, a bankrupt. Sometimes it denotes an assignee.

CESSITANUS, in *Ancient Geography*, an episcopal town of Africa, in Mauritania Cæsariensis.

CESSOR, in *Law*, one dilatory and delinquent in his duty, or service, and who thereby incurs the danger of the law, and is liable to have the writ *cessavit* brought against them. When it is said *the tenant cesseth*, it is meant, he ceaseth to do his duty, or service, to which he is bound.

CESTAYROLS, in *Geography*, a town of France, in the department of the Tarn; 3 leagues N. of Alby.

CESTI, IL PADRE MARC' ANTONIO, d'Auzzo Minor Conventuale e Cavaliere dell' Imperatore, in *Biography*, an Italian vocal composer of music, of considerable eminence in the 17th century. He set an opera for Venice, in 1649, called *Oronthea*, which was revived at Milan, with the same music, in 1662; at Venice, 1666; at Bologna, 1669; and again at Venice, 1683; always *colla Musica stessa*, during 34 years!

It has been extremely difficult to find any of the music of the early operas that was not printed. Luckily, a scene of Cesti's celebrated opera of *Oronthea*, composed in 1649, and afterwards so frequently revived, was found in the music-book of Salvator Rosa, in that painter's own hand-writing. (See Hist. Mus. vol. iv. p. 67.) This air is supposed to have been the first strain in measured melody that was introduced at the termination of a scene of recitative.

Cesti is said to have been a disciple of Carissimi, which is hardly reconcilable with the date of this opera, as Carissimi did not begin to be known at Rome till after the year 1640. Adami says, that Cesti was admitted as a tenor singer in the Pope's chapel, 1660; and that "the most celebrated of all his operas, of which five were composed for Venice, was *La Dori, il lumi maggiore dello stile Teatrale*." This opera first appeared at Venice, 1663, and was not only revived there in 1667, and 1671, but frequently performed with great applause in the other principal cities of Italy. Songs have, since these times, been so much composed to display the peculiar talents and abilities of singers, that operas can never be successfully revived but where the same performers, who sung in them originally, happen to survive, and to be engaged at the same theatre; which is not likely to happen at the distance of many years. Indeed, if, contrary to the chances against it, such a concurrence of circumstances should take place, twenty or thirty years generally make such havoc with fine voices, fine taste in singing, and fine feelings in judging, that it is by no means certain that they would then please the same critics as much as formerly.

The number of cantatas that Cesti produced, seems incalculable; as in every old library or collection of Italian old vocal music, that we have examined abroad and at home,

we find more of his cantatas than of any other author. At Christ Church, Oxford, in the collection of Dr. Aldrich, in the British Museum, in the d'Arcy collection of the late Earl of Holderness, in that of Lord Keeper North, of Sir Roger l'Estrange, and of all the ancient families who cultivated music in the 17th century, we found innumerable cantatas by Cesti; and it appears in these cantatas, that he was a great improver of recitative. See OPERA, CANTATA, and RECITATIVE.

CESTIÆ, in *Ancient Geography*, a town of Italy, in Liguria, at a small distance E. of Quadrata, and N. of Riomagus.

CESTISSA, a town of Lower Pannonia, according to Ptolemy. The Itinerary of Antonine marks it on the route from Æmona to Sirmium, between Leuconum and Cibale.

CESTRATUM, a work enamelled, or painted with a cestron. The word is also written *cerostratum* and *cerostratum*.

CESTREUS, or rather CESTEUS, in *Ichthyology*, the name of a fish described by old writers as being of the mullet kind, but having a much smaller and narrower head, and its sides variegated with much shorter longitudinal lines. From this description we suspect the Gmelinian *Gobius Gronovii* must be intended, a fish which Ray describes as a mullet (*Mugil Americanus*), and Klein as *Cesleus argenteus*, griseis lineis intertextis, oculis ellipticis, pinnis albicantibus, pinna dorsali maxima. See *Gobius Gronovii*.

CESTRI, in *Ancient Geography*, an episcopal town of Asia, in Iauria.

CESTRINA, a small country of Epirus.

CESTRON, in *Antiquity*, the instrument wherewith they painted or enamelled, in horn, or ivory.

CESTROPHENDONUS, or rather CESTROSPHENONE, from *κείρω*, or *κείρω*, *tragula*, and *σφενδα*, *funda*, a sort of military engine with a sling, for throwing barbed darts or javelins. Also, the dart or javelin itself, which took its name from the sling with which it was thrown, and is said to have been balanced with feathers like an arrow, and pointed at both extremities. It was made use of by the Macedonians, under Perseus, against the Romans.

CESTROS, or CESTRUS, in *Ancient Geography*, a river of Pamphylia.

CESTRUM, in *Botany*, (*Κεστρον*, Diosc. and Gal. a name supposed to be given by those writers to Bctony.) Linn. gen. 302. Schreb. 431. Willd. 387. Juss. p. 126. Vent. vol. 2. p. 376. Gært. 493. Class and Order, *pentandria monogynia*. Nat. Order, *Luride*, Linn. *Solanea*, Juss. Vent. Bastard jasmine. *Cestreau*, Fr.

Gen. Ch. *Cal.* one-leaved, tubular, very short, five-toothed, erect. *Cor.* monopetalous, funnel-shaped; tube cylindrical, very long, slender, orifice roundish; border five-cleft, spreading, short; segments equal. *Stam.* filaments five, filiform, attached longitudinally to the tube of the corolla, in some species furnished with a little tooth in the middle or towards the base; anthers roundish, within the tube. *Pist.* germ superior, cylindrical, egg-shaped, the length of the calyx; style filiform, the length of the stamens or longer; stigma thickish, obtuse. *Peric.* berry egg-shaped, one celled. Linn. Gært. two-celled, Adanson, Lam. *Seeds* several, angular, affixed to a thick receptacle in the middle of the berry.

Eff. Ch. Calyx short, five-toothed. Corolla tubular. Berry one-celled. Seeds affixed to a thick receptacle in the middle of the berry.

Obs. Gartner observes, that though there may possibly be two cells in the germ, there are no traces of a partition in

in the ripe berry. It appears to us that La Marck considers the receptacle as a partition, which he ought not to have done, unless that receptacle had been so extended through the middle of the berry, as to cut off all communication between its sides.

Sp. 1. *C. nocturnum*, Linn. Sp. Pl. 1. Lam. Encyc. and Ill. 1. Pl. 112. fig. 1. Mart. 1. Willd. 2. Gært. tab. 77. fig. 9. (*Jasminoides*, Dill. Elth. tab. 153. fig. 185.) "Flowers peduncled, somewhat racemed, greenish; filaments toothed; berries white." A shrub from six to nine feet high, branched in its upper part. Branches cylindrical, smooth, dotted, generally inclining to one side. Leaves near four inches long, one and a half broad, alternate, petioled, ovate-lanceolate, smooth, green, sometimes spotted with yellowish-white. Flowers in axillary bunches. Berries a little smaller than a pea. A native of the island of Cuba, flowering in August and September, where, on account of its yielding a pleasant smell in the evening, it is called the Lady of the Night. Cultivated long since by the Dukes of Beaufort at Badminton and thence known by the name of Badminton Jasmine. It does not ripen its berries in England. 2. *C. Parqui*, Mart. 7. Lam. Ill. 2. Willd. 3. L'Herit. Stirp. 4. tab. 36. (*C. Jamaicense*, β. Lam. Encyc. Parqui, Feuille. obs. 3. tab. 32.) "Leaves narrow-lanceolate, stipuled; flowers somewhat racemed, fascicled, yellowish green; berries violet." A fetid shrub, about six feet high. Stems several, upright, round; branches alternate, spreading, round, with a few tubercles. Leaves alternate, lanceolate, very acuminate at each end, entire, somewhat waved, smooth, bright green on both surfaces, spreading; petioles very short; stipules linear. Flowers sessile or nearly so, smelling sweet in the night; bract linear, acute, spreading; calyx two lines long, smooth, permanent; corolla inserted into the receptacle, almost naked; tube eight lines long, club-shaped at the top; segments of the border lanceolate, acuminate, spreading and finally turned back; filaments closing the tube with their teeth, pubescent at the base, the length of the tube; anthers two-celled, yellow; stigma oblate-spheroidal, excavated, large. Berry small, egg-shaped. Seeds three or four, angular. A native of Chili. Introduced at Paris from seeds sent by Dombey. 3. *C. auriculatum*, Mart. 6. Lam. Ill. 3. Willd. 4. L'Herit. Stirp. tab. 35. (*C. hediunda*, Lam. Encyc. 2. Hediunda, Feuille. obs. tab. 20. fig. 3.) "Flowers peduncled, somewhat panicled; stipules eared, surrounding the branch." A fetid shrub, about fifteen feet high. Branches round, olive green or ash-colour, almost smooth. Leaves alternate, four inches long, one inch and a half broad, petioled, oblong-lanceolate, acute, smooth, entire, green, but paler underneath; stipules axillary, of the same form with the leaves. Flowers greenish, with a tinge of dull red, nearly sessile, in terminal and axillary clusters; bractes few, linear; calyx somewhat hairy, pressed close; corolla somewhat hairy on the outside; tube swelling at the top; divisions of the border linear-lanceolate, very sharp, two-furrowed, spreading; filaments very short, without teeth. Berry with about five seeds. A native of Peru, where it is used externally to cleanse foul ulcers, and internally in the venereal disease. It is also regarded as a pectoral. According to Father Feuillé, it yields, during the night, a pleasant smell, resembling that of musk, which, as soon as the sun rises, is changed into a highly offensive odour, and so continues during the whole day. Dombey observed it in wet places about Lima. It was introduced into this country about 1774, but has rarely flowered, and never borne fruit. It flowers in winter. 4. *C. vespertinum*, Linn. Mant. 206. Mart. 2. Lam. Ill. 4.

Willd. 6. (*C. Jamaicense*, Lam. Encyc. 2. *Jasminum*, Burm. Amer. tab. 157. fig. 1. *Ixora alternifolia*, Jacq. Amer. tab. 177. fig. 8.) "Flowers fascicled, nearly sessile; border acute; berries olive-shaped, dark violet." A tree, twelve feet high. Stem not very strong. Leaves alternate, on short petioles, length double the breadth, acute, quite entire, green on both sides, concave, with the edges raised and waved. Flowers crowded, in nearly sessile fascicles, greenish-white, often tinged with purple or violet, alternate, diverging, separated by ovate-oblong bractes; tube very slender; border with five acute expanding segments; filaments without a tooth. Berries resembling an olive, but only half the size, nearly black. Seeds four, oblong. A native of the West Indies. Cultivated by Miller in 1759. 5. *C. pallidum*, Lam. Encyc. 4. Ill. 5. (*Jasminum laurinis foliis*, Sloan. Hist. jam. 2. p. 96. tab. 204. fig. 2. *Syringa laurifolia Jamaicensis*, Pluk. Alm. 359. tab. 64. fig. 3.) "Racemes compound, axillary; flowers small, pale; berries inversely egg-shaped, dark blue." The synonyms are referred by Linnæus to *C. nocturnum*, but La Marck asserts, that it is a perfectly distinct species resembling *C. laurifolium* in the form of its leaves, and *C. vespertinum* in the colour of its fruit, and clearly distinguished from all the three by the smallness of its flowers. A shrub, seven or eight feet high. Branches smooth, thick set with leaves near the summit. Leaves alternate, petioled, oval-acute, an inch and half broad, smooth, dark green. Flowers scarcely six lines long, pale or yellowish, smooth; border expanded; segments short, rather acute. A native of Jamaica, described by La Marck from a dried specimen in the herbarium of Jussieu. 6. *C. scandens*, Willd. 5. Vahl Eclog. 1. p. 24. "Filaments toothless; leaves egg-shaped, attenuated, smooth; racemes axillary, somewhat compound; branches climbing." A native of St. Martha. 7. *C. birtum*, Willd. 10. Mart. 8. Swartz prod. 49. Flor. ind. occid. 1. p. 478. "Flowers somewhat spiked, axillary; leaves somewhat heart-shaped, acute, hairy underneath; branches hairy." Nearly allied to *C. nocturnum*, but distinguished from it by its leaves, which are broader, larger, wrinkled, and hairy underneath; and by its flowers, which are somewhat spiked and crowded. 8. *C. latifolium*, Lam. Ill. 6. Willd. 11. Vahl eclog. 1. p. 25. "Racemes very short, axillary; leaves egg-shaped, smooth; branchlets and petioles somewhat downy." It differs from the preceding in having its leaves not at all heart-shaped, and not hairy underneath; the segments of the corolla acute, not obtuse; and its stigma capitate, not bifid, Swartz and Willd. 9. *C. laurifolium*, Mart. 5. Lam. Ill. 7. Willd. 1. L'Herit. Stirp. nov. 69. tab. 34. Smith spicil. tab. 2. (*C. venenatum*, Lam. Ill. 5. *Laureola*, Pluk. alm. 209. tab. 95. fig. 1.) "Flowers nearly sessile, axillary, fascicled; border obtuse; leaves elliptical, coriaceous, quite smooth." A shrub, from six to nine feet high. Stem erect, round, with a rugged ash-coloured bark. Branches alternate, stiff, in the upper part somewhat angular, leafy, many-flowered. Leaves alternate, an inch and half broad, elliptic-oblong, a little pointed, entire, obscurely veined, very smooth and shining, paler beneath, evergreen; petioles short, smooth, flat above, dark purple; stipules none. Flowers pale yellow, or marked with a gold-coloured streak, rather short; bractes solitary, egg-shaped, obtuse, hairy, small, deciduous; calyx bell-shaped, minutely ciliated on the margin, permanent; corolla four times longer than the calyx; segments of the border, obtuse, spreading; filaments nearly as long as the tube, attached to it by more than half their length, and jointed where they separate from it, frequently furnished with a tooth-like protuberance; anthers roundish, two-

lobed, incumbent, half within the tube; germ superior, egg-shaped, five-channelled, smooth, on a rather large five-cornered receptacle; style somewhat thickened at the top, rather shorter than the stamens; stigma obtuse, impressed. Dr. Smith and La Marck. 10. *C. venenatum*, Willd. 8. Thunb. prod. 36. "Leaves lanceolate oblong, coriaceous; flowers sessile." It seems nearly allied to the preceding, but distinct. Willd. 11. *C. tomentosum*, Linn. jun. supp. 150. Mart. 4. Lam. Enc. 7. Ill. 8. Willd. 9. "Flowers crowded, terminal, sessile; branches, leaves, and calyxes downy." The form of the flowers and leaves the same as in *C. diurnum*, but, in addition to the difference expressed in the specific character, the calyxes are larger, the corollas coloured, the tube shorter, and the border more ample. 12. *C. diurnum*, Linn. Sp. Pl. 2. Mart. 3. Lam. Encyc. 8. Ill. 9. Willd. 7. L'Herit. stirp. nov. 74. (Jasminoides, Dill. elth. 186. tab. 154. fig. 186.) "Fascicles peduncled; corollas white; border obtuse, reflexed; leaves ovate-lanceolate." Stem from ten to twelve feet high, slender, with a cinereous bark, dividing at the top into many smaller branches. Leaves alternate, petioled, near three inches long, one and a half broad, oval-oblong, acute, smooth, deep green above, pale underneath, shining, evergreen, in consistence resembling those of spurge laurel. Flowers small, white, smelling sweet in the day-time, and thence called Lady of the Day, growing almost in umbels; common peduncles axillary, from one to three inches long; corolla five lines long; segments short, oval, reflexed, waved, and almost crisped at their edges; filaments toothless. A native of Chili and the West Indies. 13. *C. oppositifolium*, Lam. Ill. 10. Pl. 112. fig. 2. flowers ill-drawn. "Leaves opposite, lanceolate, nerved, somewhat coriaceous; flowers fascicled, sessile, axillary." A native of Africa, observed by Sonnerat. 14. *C. nervosum*, Mart. 9. Müller 3. "Leaves opposite, lanceolate, with transverse nerves; peduncles branched." Stem shrubby, five or six feet high, covered with a brown bark, and dividing at top into very small branches. Leaves about four inches long, little more than one broad, smooth, light green. Flowers white, axillary, towards the ends of the branches, four or five on each peduncle, without scent; tube of the corolla swelling at the base just above the calyx, contracting towards the mouth; segments of the border broad, flat. Sent to Mr. Miller from Carthage, in New Spain. Nearly allied to the preceding, if not the same.

CESTRUM, in Gardening, affords plants of the shrubby exotic flowering kind: of which the species are, the night-smelling Cestrum, (*C. nocturnum*;) and the day smelling Cestrum, or Bastard Jasmine, (*C. diurnum*); and other more tender species may be cultivated for variety.

The first of these rises with an upright stalk, about six or seven feet high, covered with a greyish bark, and divides upward into many slender branches, which generally incline to one side, and are garnished with leaves placed alternate, near four inches long, and one and a half broad, smooth on their upper side, of a pale green, and, on their under side, they have several transverse veins, and are of a sea-green colour, having short foot-stalks; the flowers are produced at the wings of the leaves, in small clusters standing upon short peduncles, each sustaining four or five flowers, of an herbaceous colour, appearing in August, but which are not succeeded by berries in this climate. It is a native of the island of Cuba, &c.

And the second species rises with an upright stalk to the height of ten or twelve feet, being covered with a smooth light green bark, dividing at top into many smaller branches, with smooth leaves near three inches long, and one and a

half broad, of a lively green colour, and the consistence of those of the spurge laurel; these are ranged alternately on the branches. Towards the upper part of the shoots come out the flowers from the wings of the leaves, standing in clusters close to the branches, which are very white, shaped like those of the first sort, and smell sweet in the day-time, whence it had the appellation of *Lady of the Day*. The berries are smaller than in the first sort. It flowers in the autumn, and is a native of the Havannah, &c.

Method of culture. In these plants the mode of increase is either by seeds or cuttings; but as the former cannot be easily procured, the latter is the more common method of practice. The seeds should be sown in pots filled with light friable fresh earth in the early spring season, and plunged in a gentle hot-bed. After the plants are sufficiently strong, they should be removed into separate pots, shade and a little water being given occasionally, till they are well rooted again, and become perfectly established.

The cuttings must be made from the side shoots, to the length of five or six inches, and be planted in pots of fresh earth in the summer season, plunging them in a bark hot-bed, a little water and shade being given till they have stricken firm root; and in both methods the plants require to be kept afterwards in pots filled with light earth in the stove of the hot-house.

The evergreen flowery nature and fragrance of these plants afford a fine effect, when placed in assemblage with other stove exotics.

CESTUI, a French term, literally signifying *he or him*; frequently used in our law writings. Thus,

CESTUI QUE TRUST is he in trust for whom, or to whose use or benefit, another person is enfeoffed or seized of lands or tenements. By stat. 29 Car. II. c. 3. lands of *cestui que trust* may be delivered in execution.

CESTUI QUE VIE, one for whose life any lands or tenements are granted.

CESTUI QUE USE, he to whose use another man is enfeoffed of land or tenements. 1 Rep. 133.

Feoffers to uses were formerly deemed owners of the lands; but now the possession is adjudged in *cestui que use*, and without any entry he may bring assise, &c. Stat. 27 Hen. VIII. c. 10. Cro. Eliz. 46. See **USE**.

CESTUS, among *Ancient Poets*, a fine embroidered girdle worn by Venus, endowed with a faculty of charming, and conciliating love. The abbé Winckelmann observes, that this goddess, when dressed, has always two cinctures; one immediately beneath the breast, and the other round the lower part of the body, above the hips. In proof of this observation, he refers to the Venus of the Capitol, and the statue of the goddess in the possession of lord Egremont. It is the lower cincture which is properly the cestus of Venus. When Juno, wishing to inflame the heart of Jupiter, solicited and obtained the loan of this mysterious girdle, she put it, according to Homer, not upon the ordinary cincture, immediately under her breast, but where Venus wore it, *below*: for that such is the true sense of *τὴν δ' ἐγκαλθεὶ καλπῶν*, (Il. l. 14. v. 219.) is evident from the context, which informs us, that Juno was already encompassed with a zone, profusely adorned with fringe. (v. 181.) Of this mystic cestus Homer has given the following description, (l. 14. v. 215—218.) which we shall here subjoin, in the words of his translator:

"In it was ev'ry art, and ev'ry charm,
To win the wisest, and the coldest warm:
Fond love, the gentle vow, the gay desire,
The kind deceit, the still-reviving fire,

Perfusive

Perfuaſive ſpeech, and more perfuaſive ſighs,
Silence that ſpoke, and eloquence of eyes."

Pope.

This fiction, which is extremely beautiful, has been happily imitated by Taſſo, in his magic cincture of Armida.

The cincture of virginity, *zona virginea*, or *cingulum virginæum*, which was worn at Rome by females newly married, before they ſurrendered themſelves to their huſbands, was alſo called *ceſtus*. It was formed of wool, and ſerved as the ſymbol and defence of the modeſty of the married female; and it was reſerved for the bridegroom to untie this myſterious cincture. Whence *zonam ſolvere* was uſed to denote being married. Thus Catullus (67. 14.);

"Quod poſſit zonam ſolvere virgineam."

The expreſſion of untying the cincture ſignified, among the Greeks, the firſt mutual acceſs of the married pair. Accordingly, the ſcholiſt of Apollonius, (Argon. i. 281.) ſays, that the females of Athens conſecrated at this period their cinctures to Diana, who had in this city a temple, where ſhe was honoured under the title of *Λυσίζωνη*, or the deity who untied the cincture.

The word is alſo written *ceſtum*, and *ceſſon*: it comes from *κετος*, a girdle, or other thing embroidered, or wrought with a needle; derived, according to Servius, from *κεντιν*, *pungere*: whence alſo *inceſtus*; a term uſed at firſt for any indecency by undoing the girdle. &c. but now reſtrained to that between perſons near ſkin. See INCEST.

CESTUS, CÆSTUS, CESTE, in *Antiquity*, a large leathern gantlet loaded with lead or other metal, which the ancient Athletæ uſed in their exerciſes for diſputing the prize of pugiliſm. The Greeks had four kinds of ceſtus. The firſt was of an ox hide not dreſſed, and dried, and was called *ἱμας*, or *ἱμακντινος*. The ſecond was loaded with metal and called *Μυρμηξ*. The third was made of ſine and ſoft thongs, leaving the fiſt and fingers uncovered. And the fourth was the large globular gantlet firſt mentioned, and called *Σφαῖρα*. See CÆSTUS.

CESURE, or CÆSURA, in *Poetry*. See CÆSURA.

CETACEOUS Animals, in *Zoology*. See CETE.

CETÆUM, in *Ancient Geography*, a promontory of India, in that part which was S.E. of the iſland of Taprobana, according to Ptolemy.

CETARIA, a town placed by Ptolemy on the weſtern coaſt of Sicily.

CETE, in *Zoology*, the ſeventh order of mammalia, in the Linnæan System of Animals, including the four genera, MONODON, or narwal; BALÆNA, whale; PHYSETER, cachalot; and DELPHINUS, dolphin. The cetaceous tribe has one or more ſpiracles placed on the fore part of the ſkull; no feet; pectoral fins without nails, and tail horizontal.

It is well obſerved by the late Mr. Hunter, in one of his papers on the whale (Phil. Tranſ.), that the cetaceous order of animals has nothing peculiar to fiſh, except living in the ſame element, and being endowed with the ſame powers of progreſſive motion as thoſe fiſhes which are intended to move with conſiderable velocity. The popular idea of cetaceous animals being fiſhes is ſo ſtrongly impreſſed on the public mind, that it can never, perhaps, be entirely removed, for the critical obſervations of naturaliſts appear too abſtruſe to be generally examined, and of conſequence to be commonly underſtood. The cetaceous tribes live in the ſame element as fiſhes, and, partaking ſomewhat of their external figure, will ever be conſidered as appertaining to that claſs of animals by the leſs informed portion of mankind. Ray and Willughby, and, after their example, Pennant, are the only writers of any moment who acquieſce in this popular preju-

dice, with the exception of the earlier authors. The writings of Ray and Willughby appeared before the time of Linnæus, or it is likely they would have been reconciled to the arrangement of the latter: it was through the obſervations of Linnæus chiefly that the world became acquainted with the true diſtinction between the animals of the cetaceous tribe, and fiſhes, as founded on anatomical inveſtigation. Pennant was acquainted with the circumſtances that induced Linnæus to place them with the mammalia, but notwithstanding conſidered it more natural to follow Ray, and place them in the rank of fiſhes, becauſe, as Ray obſerves, "the form of their bodies agrees with that of fiſh: they are entirely naked, or covered only with a thin ſkin; and they live entirely in water, and have all the actions of fiſh." Much as we reſpect the talents of our illuſtrious countryman, Ray, it is difficult to perceive, in the preſent inſtance, ſufficient reaſons for preferring his arrangement to that of Linnæus. The firſt is founded on a vague reſemblance in external figure between cetaceous animals and fiſhes, without regard to their internal organization, while the latter reſts on an unſhaken baſis; it was the reſult of much anatomical inveſtigation, and a due conſideration of the nature, habits, and affinities of theſe two tribes of animals. We need only add, on this point, that the recent obſervations of that great comparative anatomist, Mr. Hunter, have perfectly evinced the accuracy of the Linnæan diſtribution of theſe animals, and that it has obtained the further countenance of Pallas, Schreber, Fabricius, Muller, Bonnaterre, and moſt other, naturaliſts of diſtinguiſhed celebrity in Europe at the preſent day.

Cetaceous animals, or, as Dr. Shaw expreſſes them, "fiſh-formed mammalia," have lungs, inteſtines, and other internal organs formed on the ſame principle as in quadrupeds; and, indeed, on ſtrict compariſon, the principal differences that exiſt between them will not be found very conſiderable; one of the moſt material ſeems to conſiſt in their want of poſterior legs, the peculiar ſtructure of the tail ſupplying that defect, this being extremely ſtrong and tendinous, and divided into two horizontal lobes, but which has no internal bones. Like quadrupeds, they have a heart furniſhed with two auricles, and two ventricles, and their blood is warm and red: they breathe by their lungs, and not by means of gills, as in true fiſhes. In their amours they agree with quadrupeds; the female produces her young alive, which rarely happens among fiſhes, and ſhe ſuckles them with her teats, as in the true mammalia. The ſtructure of their brain, their ſexual organs, ſtomach, and liver reſemble thoſe of mammiferous animals. Their ſkin is ſmooth, or not covered with ſcales; and their tail is placed in a poſition the very reverſe of fiſhes, in being always flat and horizontal, inſtead of vertical. The cetaceous animals of the cachalot and dolphin genera have the mouth armed with conic teeth; the whales with horny laminæ in the upper jaw; and the narwal with teeth, or tuſks of enormous length. They are neither ſanguinary nor ferocious. Their ſtomachs are large, and divided into chambers to the number of five, as in the whale and porpoſſe, or even ſeven, as in the narwal. In the laſt particular they ſeem to conſtitute an intermediate link between carnivorous and herbivorous animals, approaching nearly to ruminating quadrupeds; but differ in ſuſtiſting on animal food, as they live chiefly on actinæ, meduſæ, and other zoophytes, on cruſtaceous animals, and on ſnail fiſh. See the articles MONODON, BALÆNA, PHYSETER, and DELPHINUS.

CETERACH, in *Botany*, Bauh. Pin. See ASPLENIUM, *Ceterach*.

CETERACH,

CETERACH, in the *Materia Medica*, an officinal, agglutinant plant; the same with what is otherwise denominated *asplenium* and *scelopendrium*. See **ASPENIUM**.

This plant stands recommended as an excellent diuretic, and a promoter of the *menfes*. The whole plant is to be used, and should be gathered in the month of September. It is given by some in jaundices, in quartan agues, and in obstructions of the spleen; but it is much neglected in the present practice. In some parts of Essex, where it is common on the walls of their churches, and on the tombs in the church-yards, the common people tell us wonders of its effects in the stone.

CETERIS paribus. See **CATERIS paribus**.

CETHIS, in *Ancient Geography*, a river of Asia, in Carmania.

CETII, a people of Asia Minor, in Mysia; mentioned by Homer, and Strabo. The latter says, that Eurypylus, their king, had his territories about the Caicus, near Cilicia. They probably took their name from the river Cetium, which traversed their country, and discharged itself into the Caicus.

CETINA, in *Geography*, a town of European Turkey, in Dalmatia; 50 miles W.N.W. of Mostar.

CETIS, or **CITIS**, in *Ancient Geography*, a country of Asia Minor, in Cilicia-Trachea. It was the seat of a priesthood founded by Ajax, son of Teucer, and of which the pontiff was also the sovereign.

CETIUM, a place of Norica, between Comagènes and Arlape, according to the Itinerary of Antonine.

CETIUS, a mountain of Norica, according to Ptolemy; and in the Itinerary of Antonine marked between Vindebona and Arlape. Busching supposes that the ancient Cetius is a ridge extending from near the source of the river Save, towards the Danube, about 9 British miles on the west of Vienna, where it is called Leopoldsborg. The general name is the *Kalenberg*; which see.

CETOBRIGA, **SETUVAL**, denoting the town of fishes, and inhabited by fishermen, belonged to Lusitania. Without tracing the origin of this city, with some fanciful antiquaries, to Tubal, who say that he came into Spain in the year from the creation, 1801, we may affirm, with greater probability, that it had suffered much about 33 years B. C. by an African pirate or sovereign (Bogud), who, having landed at Portus Annibalis, and pillaged the adjacent dwellings, doubled the Promontorium Sacrum (Cape St. Vincent), and took possession of the town by surprise. The inhabitants were put to the sword, without distinction of age or sex; and the town was then sacked, its walls destroyed, and its buildings set on fire. Other Portuguese authors say, that Marcus Portius Cato, after having conquered the Spaniards, destroyed Cetobriga. Another opinion has prevailed, which ascribes the destruction of this ancient city to an earthquake. In its vicinity, to the extent of more than a league, there have been found the ruins of many buildings, and abundance of antiquities; and as no medals have been found belonging to the period immediately subsequent to that of Heraclius, it is probable that Cetobriga was destroyed either in his time or soon after.

CETON, in *Geography*, a town of France, in the department of the Orne, and district of Mortagne; 10 miles S.E. of Belleme.

CETRA, in *Ancient Military Language*, a short buckler or short square target, which was very light, and used by the Africans and Spaniards, and was made, as some say, of the buffalo-hide; and as others, of elephant's skin, but occasionally, it is probable, of both. From the great resemblance

of the cetra to the pelta Livy gave the name of cetati to the Macedonian peltastæ.

CETRIBONI, in *Ancient Geography*, a people of India, who, together with the *Cessi*, occupied the territory between the river Joman and the isle of Paralé, according to Pliny.

CETRON, a town of Palestine, which appears, from the book of Judges, to have been assigned in part to the tribe of Zabulon; but they were unable to take possession of it from the Canaanites, to whom it belonged.

CETPÆ, a burgh of Greece, in Attica; which pertained to the Leontide tribe, according to Suidas.

CETTE, in *Geography*, a sea-port town of France, in the department of Herault, and chief place of a canton, in the district of Montpellier, where the canal of Languedoc commences; 14 miles S.W. of Montpellier. The place contains 7500, and the canton the same number of inhabitants: the territory includes $47\frac{1}{2}$ kilometres, and one commune. N. lat. $43^{\circ} 23' 51''$. E. long. $3^{\circ} 42' 7''$.

CETUMA, in *Ancient Geography*, a town placed by Pliny in Ethiopia, near Egypt.

CETUS, in *Astronomy*, the *Whale*; a large constellation of the southern hemisphere (being one of the 48 old asterisms) under Pisces, and next the water of Aquarius. The Greeks pretend that it was the sea-monster, sent by Neptune to devour Andromeda, but was killed by Perseus.

The stars in the constellation *Cetus*, in Ptolemy's Catalogue, are twenty-two; in Tycho's, twenty one; in Hevelius's, forty-five; in the Britannic Catalogue, ninety-seven.

The star α Ceti, in the neck of the Whale, is subject to great variations in its lustre and apparent magnitude; appearing and disappearing periodically, or rather appearing brighter and fainter by turns, which changes may be owing to the alternate revolution of its bright and dark sides towards us, as it turns on its axis, or else to the star's having a flattish figure. The period assigned by Bouillaud to these changes is 333 days; but Dr. Herschel, who has shewn from various observations the great range of its lustre, remarks that the above period does not agree with present observations compared with those of Fabricius made on the 13th of August, 1596, when this star was in its greatest lustre. M. Cassini also found, that his observations, in the beginning of August, 1703, when the star was brightest, did not agree with the interval of 333 days; and therefore, supposing the star to have changed 117 times since the epoch of Fabricius, he gave it a period of 334 days. This, however, says Dr. Herschel, will not agree with the present time of the changes; and it appears now that M. Cassini ought to have assumed 118 instead of 117 variations, which would have pointed out a period of 331 days and some hours. That this is probably very near the real time of the star's variation will be perceived, when we admit it to have undergone 214 changes between the 13th of August, 1596, and the 21st of October, 1790; by which long interval we obtain the period of 331 days, 10 hours, 19 minutes. The different determinations of the length of this period assigned by different authors, may be accounted for by admitting the star to be subject to considerable alterations in the emission of light from some parts of its surface, which being more copious sometimes in one place, and sometimes in another at some small distance, will give a different result to the observations of the time of its maximum; while, notwithstanding, the general period of its changes will not be considerably affected by it. We have a similar instance in the rotation of Jupiter, which seems to vary on account of the little stability of its spots. See Phil. Trans. 1781. pt. 1. p. 123 to 126.

Hevel.

Hevel. in Phil. Transf. N° 66. p. 2028. Marald. in Mem. Acad. Scienc. Ann. 1719. p. 122. seq. Phil. Transf. for 1792. vol. lxxxii. p. 24. &c. Id. for 1796. pt. ii. p. 464. p. 479.

CEVA, in *Geography*, a city and fortress of Italy, in the principality of Piedmont, and comté of Asti, the capital of a marquisate, situated on the Tanaro; in a plain surrounded by hills, at the extremity of the country, which extends from the Appenines to the Tanaro, and from thence to the northern part of the maritime Alps. It was anciently celebrated for its cheese, made of ewe's milk. This cheese, called by the Italians "Rubiola," is much esteemed, even at present, and sold not only into Piedmont and the Milanese, but other more distant parts. The hills about Ceva also produce excellent wine; great quantities of chestnut grow at the foot of the mountains, and excellent truffles are found on the neighbouring plains. It was formerly an independent state; but in 1295 a great part of the domain was sold to the town of Asti, whence, in 1531, it came to the house of Savoy. In 1543, it was besieged unsuccessfully by the French: and in 1584, a sudden inundation beat down a great part of the walls, destroyed the bridges, houses, and churches, and drowned many of its inhabitants; and in 1625, and the five following years, a pestilential disease carried off the greater number of the survivors. Ceva was taken by the French, in the month of April, 1796. It has one collegiate church, and three convents. It is distant 40 miles W. from Genoa, and 25 S.S.E. from Turin. N. lat. $44^{\circ} 20'$. E. long. $7^{\circ} 51'$.

CEVADILLA, SEBADILLA, or SABADELLA, i. e. *Hordeolum*, little barley, in *Botany*, the South American name of the *Hordeum exoticum causticum* of Caspar Bauhin, taken up by him, Ray, and Parkinson, on the authority of Nicholas Monardes, who attributes to it the habit of the European barley, with a seed not larger than that of the common flax, but possessed of highly acrid qualities, of which the inhabitants of New Spain avail themselves in the cure of gangrenes and other foul ulcers. He says they have the same effects as corrosive sublimate, or the actual cautery; and that the mode of using them is to sprinkle a little of the powdered seed upon the part, or for the greater safety, to dilute it with watery liquors, and apply lint dipped in the mixture. In Linnæus's "*Amœnitates Academicæ*," they are said to be the most effectual of all medicines for destroying cutaneous insects in children. In our country they are very rarely met with, but in France they have been ranked among the officinals and obtained the name of the Capuchin powder. They have been administered internally for the expulsion of worms; but caution is necessary in the use of them. See Murray's *Apparatus Medicaminum*, vol. v. p. 166, &c.

CEUDUM, or CEVELUM, in *Ancient Geography*, a place of Belgic Gaul, marked in the table of Peutinger on the route from Noviomagus to Atuaca or Atuataca, and supposed by M. D'Anville to be the present *Cul*.

CEVENNES, in *Geography*, the principal center of the primitive mountains of France, arising to the west of the Rhone, seeming to run from north to south, and sending out various branches towards the east and west. The principal branch runs along the river Ardeche towards Ales. Another traverses the Rhone, on the side of Tournon and Vienne, towards the plains of Dauphiné. Another branch forms the mountains of Beaujolais, passing by Tarare, Autun, &c. till it be lost at Avalon. This is about 70 leagues in length, but in breadth sometimes not more than a league; it contains the copper mines of Chess and St. Bel, and some lead mines. Coal is also found in the declivities. A fourth branch separates the basin of the Loire from that of the

Allier, and forms the mountains of Forez. It passes Roanne on the one side and Thiers on the other, and is lost towards St. Pierre le Moutier. The plain of Montbrison is bounded by this and the last granitic branches. A fifth branch separates the basin of the Allier from that of the Cher, and passes by Clermont to Montluçon. A sixth stretches towards Limoges; another from the Dordogne towards the Charente; and an eighth branch divides Dordogne from the Garonne. These mountains are naturally dry and barren, and are almost entirely formed of steep rocks; and yet skill and industry have converted them into fertile lands, so that a soil which in past ages would not have afforded subsistence for one family of savages, does at this moment support two or three hundred thousand inhabitants. M. Chaptal has described two processes, which are practised for this purpose. It is a well known fact that the waters which flow down the sides of a mountain carry the earth along with them, and wear furrows or ravines of a greater or less depth, according to the hardness of the rock and steepness of the descent. By a series of these progressive degradations the hardest rock is laid bare, deep ravines are cut in the face of it, and every resource of which the cultivator might avail himself is utterly destroyed. The inhabitants of the Cevennes have found means to correct this double effect of the waters. In order to fill up a ravin, they begin by raising at the foot of the mountain a wall consisting of loose stones quite across the ravin, and of a height corresponding to its depth. This wall forms a kind of dyke, opposing its flank to the current of the waters, and suffering them to pass through while they are clear; but when, after a storm or sudden shower, they become turbid, and bring down earth and stones, these substances are deposited against the wall, while the waters escape through the stones nearly pure. By the continuance of this process, the triangular space above the wall at length is filled. At the other extremity of this plat of new formed ground, another such wall as the first is built, and this in the same manner detains the earth and vegetable mould, thus forming a second piece of ground. By a succession of similar operations, other platforms are produced; till at length the whole ravin is converted, even to the summit of the mountains, into a number of platforms of good ground, forming steps one above the other. Under these circumstances, the waters no longer run in destructive torrents down the sides of the mountains, but flow gently along the level ground, or are filtered through the porous earth deposited against the walls that detain and support it. Thus the mountain, which formerly presented to view a scene of desolation, is made to exhibit amphitheatres of vegetable ground capable of the richest cultivation. When these natural difficulties are overcome, the husbandman plants the vine against the upper part of the wall; on the small platforms above described he plants mulberry-trees, and cultivates potatoes, Indian corn, and every kind of grain; varying his culture to the greatest advantage on this virgin soil, which is well watered, and in general of the highest fertility. The vines, trees, and other vegetable products render the ground firm, and defy the floods of subsequent times.

By another process the inhabitants of the Cevennes give fertility to the slope of a calcareous mountain. Most of these mountains are formed by beds of stone about half a yard in thickness; and the different strata constitute shelves one above another, corresponding to the inclination of the mountain. The cultivator, in order to render all these stages of equal breadth, breaks away the rock, and employs the fragments in constructing a low wall on the edge of the platform itself. He then fills the cavity with a bed of vegetable earth, taken out of the clefts of the rock, or conveyed

veyed on his back from the foot of the mountain, where it has been gradually deposited by the waters. In this manner, after unremitted labour, the side of the mountain becomes covered with low walls parallel to each other, which confine beds of vegetable earth from one to three yards in width. When these beds of earth are removed, and the walls overset by a violent storm of wind or rain, the inhabitant of the Cevennes exerts himself in preventing or repairing the destructive ravages of the elements. At the first indications of an approaching storm, he clothes himself in a long garment of oil cloth, with an enormous hat of tinned iron, firmly fixed by means of straps. Thus defended, with a mattock in his hand, he directs the water to the feet of his trees, and collects the surplus in cavities, which he had previously formed in the rock itself. By these laborious exertions he constantly prevents inundations, and procures water for his grounds at times when the burning heats rendered them necessary. Such instances of agricultural exertion are not unfrequent in the Cevennes; and by such methods one of these mountains is converted, from a state of absolute barrenness to a high degree of fertility, and covered from its base to the summit with trees, fruits, grain, and other useful productions. This practice of converting the sides of mountains into platforms for the purposes of agriculture is common in China, and gives a singular aspect to the country around Canton: but by the inhabitants of the Cevennes the barren mountains themselves, instead of being left in a state of nature, are rendered fertile.

CEVERTA, a town of Naples in the province of Calabria Ultra; 10 miles N.N.E. of Bova.

CEURAWATH, the name of a particular sect of Banians in the East Indies, who hold the metempsychosis with so much superstition, that they will not kill the least insect; their priests carry a piece of linen over their mouth, that no flies may enter. All the other sects of Banians have an aversion for this; and continually exhort their auditors to shun all discourse and conversation with them. See **BANIAN**s.

CEUTA, in *Geography*, a sea-port town of Africa, in the kingdom of Fez, and province of Garb, on the south coast of the Mediterranean, belonging to the Spaniards, and serving as a harbour for small vessels. It is the see of a bishop, suffragan of Lisbon. This place corresponds with the Exilissa of Ptolemy, and probably with the Septa and Arx Septensis of Procopius, who intimates, as others have done, that this latter name was derived from the seven hills in its neighbourhood, called by Mela Septem Fratres. It has been conjectured, that it was built by the Carthaginians, and afterwards belonged to the Romans, by whom it was colonized. In the time of the Goths, it was a station of great eminence; being the metropolis of the places which they held in Hispania Transfretana. It was afterwards abandoned to the Arabs and the Moors by Count Julian; and taken from the Moors in 1409 by John, king of Portugal, and continued annexed to that crown till the revolution in 1640, when it fell to Spain, and was finally ceded to that country by the treaty of Lisbon in 1688. It has been no less considerable for its advantageous situation at the entrance of the Mediterranean on a rising ground, which is the nearest point to the Spanish coast, than for the beauty of its public buildings and the strength of its walls and bulwarks; and it has still a good palace and noble cathedral. The Moors laid siege to it in 1697, and have occasionally kept it in a state of blockade since that time. It is distant from Gibraltar about 5 leagues. N. lat. 35° 48'. W. long. 5° 25'.

CEYLON, an island of the East Indian ocean, that lies between 5° 51' and 9° 52' N. lat.; and between 79° 43' and 81° 56' E. long. It is situated at the entrance of the bay

of Bengal, by which it is bounded on the north. On the north-west it is separated from the Coromandel coast by the gulf of Manaar, a narrow strait, full of shoals, and impassable by large ships. It is distant about 60 leagues from cape Comorin, the southern point of the peninsula of India, which divides the Coromandel and Malabar coasts. Its circumference is computed to be about 900 miles; and its length from point Pedro at the northern extremity (9° 52' N. lat.) to Donderhead or Dundra Hend at the southern (5° 51' N. lat.) is about three hundred miles. Its breadth is very unequal, being in some parts only from 40 to 50 miles, while in others it extends to 60, 70, and even 100. Towards the southern parts it is much broader than in the northern, and nearly resembles a ham in shape; and the peninsula of Jafnapatam has received from the Dutch the name of "Hamsheel," and point Pedro they call "Hamsheel" point. Major Rennell (See Memoir, p. 449.) has collected a variety of observations, tending to ascertain the true figure of this island.

Ceylon is the Taprobana of the ancients; though they very much differed in fixing its position. Prior to the age of Alexander the Great, the name of Taprobane was unknown in Europe. In consequence of the active curiosity with which he explored every country that he subdued or visited, some information concerning it seems to have been obtained. From his time almost every writer on Geography has mentioned it; but their accounts of it are so various, and often so contradictory, that we can scarcely believe that they are describing the same island. Strabo, the earliest writer now extant, who has given any particular account of it, affirms that it was as large as Britain, and situated at the distance of 7 days according to some reports, and according to others, of 20 days sailing from the southern extremity of the Indian peninsula; from which, contrary to what is known to be its real position, he describes it as stretching towards the coast above 500 stadia. (Geog. l. ii. 124. 180. 192. l. xv. 1012.) Pomponius Mela, the author next in order of time, (De Situ Orbis l. iii. c. 7.) is uncertain, whether he should consider Taprobane as an island, or as the beginning of another world; but as no person, he says, had ever failed round it, he seems to incline toward the latter opinion. Pliny (Nat. Hist. l. 6. c. 22.) though his description of this island is more ample, involves every thing relating to it in additional obscurity. After enumerating various and discordant opinions of Greek writers, he informs us, that ambassadors were sent by a king of that island to the emperor Claudius, from whom the Romans acquired the knowledge of several particulars, which were formerly unknown; particularly that there were 500 towns in the island, and that in the center of it there was a lake 375 miles in circumference. These ambassadors were astonished at the sight of the Great Bear and Pleiades, which were constellations that did not appear in their sky; and they were still more amazed when they beheld their shadows pointing towards the north, and the sun rising on their left hand and setting on their right. They also affirmed, that in their country the moon was never seen until the eighth day after the change, and continued to be visible only to the sixteenth. Such are the particulars, some of which are totally groundless, which Pliny relates, and in which he acquiesces without animadversion. Ptolemy, though living near the age of Pliny, seems to have been altogether unacquainted with his description of Taprobana, or with the embassy to the emperor Claudius. He places that island opposite to Cape Comorin, at no great distance from the continent, and delineates it as stretching from N. to S. no less than 15 degrees, two of which he supposes to be S. of the equator; and if his representation of its dimensions had been just, it was well entitled

from its magnitude to be compared with Britain. (Ptol. l. vii. c. 4.) Agathemerus (lib. ii. c. 8. apud Hudson. Geogr. Minor. vol. ii.) who wrote after Ptolemy, and was well acquainted with his geography, considers Taprobana as the largest of all islands, and assigns to Britain only the second place. Misled by these accounts of the ancient geographers, the moderns have entertained very different sentiments concerning the island in the Indian ocean, which was to be considered as the same with the Taprobana of the Greeks and Romans; and therefore some learned men have erroneously maintained that Sumatra was the island corresponding to the description of Pliny and Ptolemy. The opinion more generally received is, that the Taprobana of the ancients is the island of Ceylon; and not only its vicinity to the continent of India, but the general form of the island, as delineated by Ptolemy, as well as the position of several places in it, mentioned by him, establish this opinion with a great degree of certainty. Under the emperor Justinian, Cosmas, an Egyptian merchant, in the course of his traffic, made some voyages to India, whence he acquired the surname of Indicopleustes; and from him we learn, that the island of Taprobana, which he supposes to lie at an equal distance from the Persian gulf in the west, and the country of the Sinæ on the east, had become, in consequence of this commodious situation, a great staple of trade; that into it were imported the silk of the Sinæ and the precious spices of the Eastern countries, which were conveyed thence to all parts of India, to Persia, and to the Arabian gulf. To this island he gives the name of "Sickediba" (lib. xi. 336.) nearly the same with that of "Selendib" or "Serendib," by which it is still known all over the east. Cosmas further informs us, that in most of the cities in India he found christian churches established, in which the functions of religion were performed by priests ordained by the archbishop of Seleucia, the capital of the Persian empire, and who continued subject to his jurisdiction. According to his account, however, none of these strangers settled in India, were accustomed to visit the eastern regions of Asia, but were satisfied with receiving their silk, their spices, and other valuable productions as they were imported into Ceylon, and conveyed thence to the various parts of India. These churches were established by the Nestorians, who sent missionaries from Persia into India, and particularly into Ceylon. Our knowledge of this island, and other parts of India, was further extended by means of the commercial spirit and successive voyages of Marco Paolo, a Venetian of noble family, who, about the middle of the 13th century, explored many regions of the east, which no European had ever visited. He also visited in person Java, Sumatra, and several islands contiguous to them, the island of Ceylon, and the coast of Malabar as far as the gulf of Cambay; to all which he gives the names they now bear.

In the traditional accounts which are current among the Ceylonefe, nothing occurs besides a mere catalogue of some of their princes, accompanied by a long list of high-sounding titles, and some uninteresting details of their petty wars and commotions. From some of these accounts, which have been recorded in MS. we learn, that Lankaw Petti Mahadafyn, or the much beloved offspring of the always moving sun, who lived at a distant period, was sovereign of the whole island. His two grandsons, however, quarrelled about the possessions which had been left them, and at last compromised their disputes by dividing the island between them: to the one were allotted the interior parts which form the present kingdom of Candy (see CANDY), and to the other the whole of the low country bordering on the sea-coasts. This division gave rise to a long series of civil wars, and set the exam-

ple of partitioning the kingdom among the children of the sovereign; and hence we find that there were not less than six or seven princes who reigned at the same time over separate divisions of Ceylon. After a variety and succession of quarrels between its princes, Zinac Darma Seria Adafeyn subdued all his competitors, and firmly established himself as its sole monarch. He married his cousin, who was so famed for her personal charms, as to acquire the name of "Roke Wandiggie," or the beautiful queen. From this union sprung the princes who ruled over Ceylon, when it was first visited by the Portuguese.

The earliest period at which we can look for any authentic or interesting information, is that of the arrival of the Portuguese under Almeyda, in the year 1505 or 1506. Being accidentally forced by storms of weather into one of the harbours of Ceylon, he was hospitably received by the inhabitants; and perceiving the advantages that might result from the situation of the island, and its valuable productions, he thought it an object worthy of his attention to cultivate a closer connection with the natives, to which they were also inclined, with the view of defending themselves against the attacks of the Arabs. Almeyda, upon being introduced to the king of Ceylon, found no difficulty in persuading him to pay an annual tribute to the Portuguese, on condition of their protecting his coasts from external invasion, with which he was then threatened by the Zamarin of Cochín on the Malabar coast, and a rajah who reigned on that part of the Coromandel coast opposite to Ceylon. At this time the inhabitants consisted of two distinct races of people. The savage Bedas (see BEDAS) then occupied, as they do now, the large forests, particularly in the northern parts; and the rest of the island was in the possession of the Cinglese. The towns of the sea-coast were not ravished from the latter people by foreign invaders; and their king held his court at Columbo (see COLUMBO), which is now the European capital of Ceylon. Cinnamon was even then the principal product, and the staple commodity of the island, as appears by the tribute paid by the king to the Portuguese, which consisted of 250,000 pounds weight of cinnamon. Almeyda, whose attention was attracted by the rich harvest which the cinnamon of Ceylon presented to commerce, soon endeavoured to secure these advantages by forming a Portuguese settlement on the island; but this conduct roused the jealousy and indignation of the native princes. The reigning sovereign was a Brahmin, and encouraged a trade which his subjects then carried on with the Moors and Malabars of the continent; and they, fearing lest their traffic would be cut off by these strangers, began to foment jealousies between the king and the Europeans. Although Almeyda had obtained the monarch's permission to traffic with the natives, and to build a fort at Columbo, the Moors contrived to induce the king to repent of his grants, and to revoke them. After a vigorous contest, and in consequence of some internal troubles which then distracted Ceylon, the king was obliged, in 1522, to renew the original treaty, and to grant full permission to build a fortress at Columbo. A contest, however, ensued, in which the Ceylonefe were completely defeated; and the Europeans acquired such superiority, that the king, despairing of recovering Columbo, only thought of preventing the Portuguese from extending their possessions. With this view he erected a strong fortress at Sittavacca, 35 miles from Columbo, and secured the passes of Cuddavelli and Garawaddi, which led into the interior of his dominions. The Portuguese, on the other hand, began to foment internal dissensions among the natives. The king was weak and irresolute; and as the encroachments of the Portuguese increased, and they began to treat the natives with great cruelty, an

ambitious person of low birth, named Raja Singa, seized the advantage of the moment, and by his talents and intrepidity rose to the highest rank and power. Such was his ascendancy over the king, that most of the nobles were massacred in order to satisfy his jealousy and ambition; and he terminated his career by murdering the king himself, and usurping the throne. Raja Singa gratified the people by a long course of implacable hostilities against the Portuguese; but the natives themselves soon found that the tyranny and cruelty of this usurper knew no bounds. At length his subjects of the low lands, exasperated by his barbarities, sought relief from the Portuguese, who readily availed themselves of the occasion. It was at this time they had at first an opportunity of exploring the N.W. parts of the island. Among those who sought the protection of the Portuguese, were two sons of Vinna, who, in consequence of an insurrection excited by him against Raja Singa, had made himself master of several of the internal provinces. These young men, having escaped the usurper, were kindly treated by the Portuguese, converted to their own religion, and baptised under the names of Don Juan and Don John. One of them was to be appointed king, and the other generalissimo; and in return for these promised benefits, they were to marry Portuguese ladies, and to own subjection to the crown of Portugal. In the mean while it was publicly announced, that Don Juan was to marry Donna Catherina, the daughter of the late king Adaseyn, who had been murdered by Raja Singa. As this princess was the lawful heir of the whole empire, the Portuguese, who were her ostensible and avowed protectors, were enabled to form a powerful party among the natives against the usurper, and to obtain over him a decisive victory. Upon this, they immediately crowned Don Juan king, and put him in possession of Candy. Don John, however, offended by this preference of his brother, contrived to poison him, and to seize the royal authority. The Portuguese auxiliaries were now summoned to quit the dominions of Candy; and Raja Singa taking the field, threatened Don John and his adherents with the most cruel death. A desperate battle was fought between the two usurpers, and the issue was the complete overthrow of Singa, who soon after died. After his death, Don John found another competitor in his minister Janiere Wandaar, who, having taken possession of his master's treasures, proclaimed himself king, and applied to the Portuguese for succours, which were readily granted him. The Portuguese, who had received a reinforcement from Goa, marched against Don John, gave him a complete overthrow, and obliged him to take refuge in the woods. In consequence of this advantage, they began to tamper with the inferior princes, and attempted to persuade the Ceylones to acknowledge the sovereignty of the king of Portugal; but the natives were unanimous and urgent in their request, that Donna Catherina, the daughter of their beloved emperor, should be placed on the throne. The Portuguese consented to this proposal, hoping that her youth would allow them to exercise an uncontrolled government under the mask of her authority. During the festivities that took place on her return from Manaar to Candy, Don John, in the disguise of a beggar, attempted to set fire to Candy; but frustrated in his object, a reward was offered for apprehending him, and he escaped with difficulty. The Portuguese thinking their power secure, renewed the exercise of their wonted perfidy and cruelty. The natives, incensed by the injuries they suffered, formed a league against their oppressors, at the head of which was Janiere, who had been deluded by the Portuguese with the promise of marrying Donna Catherina, after she had been quietly seated on the throne; and who repented the delusion by opening a

negociation with Don John, to whom he offered the dominion of the low lands, provided he was allowed to retain undisturbed possession of the interior. The Portuguese, on discovering their correspondence, caused Janiere and his attendants to be murdered in the palace of Candy, where he then resided; upon which all the other princes, with their troops, immediately fled from the Portuguese camp, and the young queen herself loudly declared her abhorrence of the murder, threatening the Portuguese with the effects of their treachery. Accordingly the Portuguese, against whom the natives combined, were obliged to leave Candy, and to retreat towards the coast. They were pursued, however, by the Ceylones, and in the end overpowered. Don John, availing himself of the victory, made himself master of the forts of the interior; compelled the princes, who had joined the Portuguese, to sue on their knees for mercy; and completed his career by marrying Donna Catherina, then 12 years of age. After many fruitless conquests, the Portuguese were overpowered by the natives; but they had contrived at an early period to secure the most important part of the island, viz. the sea coasts, where the valuable spices were produced. Under Albuquerque, the successor of Almeida, the rich low lands around Columbo and to the southward of it already formed a part of their dominions, and the natives from that time forward only obtained possession of them during some accidental incursions. Albuquerque extended his views to other parts of India; and Ceylon, instead of being made the centre and guardian of the Portuguese possessions in that part of the globe, continued to be cultivated by them chiefly on account of its own natural productions. The Portuguese conducted their government in a manner that alienated instead of conciliating the attachment of the natives; and beside other acts of insult and oppression, they treated their religious opinions with contempt, and persecuted those who held them with the most wanton cruelty. At length the religious bigotry of the Portuguese completely triumphed over their real interests; and the Cinglese regarded with horror strange gods, who seemed to delight in blood, and chose rather to leave the sea-coasts to their enemies, and to seek refuge for themselves and their grotesque idols in the mountains of the interior. Thither they were pursued by their tyrannical invaders; and in return the Cinglese made frequent incursions on the sea-coasts, and often destroyed the richest plantations of the Portuguese. This desultory warfare continued for almost a century, with much bloodshed, and no real advantage to either party. As the jurisdiction of the interior was at this time parcelled out among a variety of petty princes, each of whom was the sovereign of his particular tribe, or separate valley, the policy of the Portuguese led them to stir up animosities among them, and to prevent their making a common cause for the deliverance of their country. By acts of this kind they gradually extended their dominions into the interior of the island; and wherever they became masters, their avarice and bigotry prompted them to perpetrate such cruelties as have ever since rendered the name of an European hateful to the ears of a Cinglese. In this state of distress, the Cinglese were offered powerful assistance by the Dutch, whose admiral, Spilbergen, in the year 1602, ventured to approach the coasts of Ceylon; and the natives, from their hatred of the Portuguese, gave him a very favourable reception. At the time of their arrival, Don John was looked upon as emperor of the island; and to him Spilbergen was introduced, with the assurance that he and his countrymen were the inveterate foes of the Portuguese, and that they would effectually aid the Ceylones in expelling the Portuguese from their island. The king of Candy received this proposal with great joy: "Tell your countrymen," said

said he, "that if they will only be willing to build a fort in this island, myself, my wife, and my children will be the first to supply them with the necessary materials." The Dutch lost no time in availing themselves of the advantages that were offered; and next year Sebald de Wert and Van Warweck arrived with seven ships, and in a conference with the king, proposed to conclude a treaty. A serious dispute, however, occurred, and Don John, under the sudden impulse of resentment, caused the Dutch commander, De Wert, and his attendants, to be instantly murdered. The king soon repented of this rash act; and it is said that to the day of his death, which happened soon after, he lamented the murder of the Dutch. After the death of Don John, the inferior princes, hitherto awed by his authority, began to assert their independence; and the prince of Ouvé, the most powerful among them, openly aspired to the supreme dominion. The empress Donna Catherina, however, soon succeeded, by her activity and address, in reducing these disturbances. She refused an alliance with the Portuguese, and afterwards married Coniveirat, a kinsman of the late king, and sent a deputation to the Dutch, requesting their assistance against the Portuguese. The Dutch speedily complied; and in 1612 Marvellus de Bouchever arrived at Candy as ambassador from the States of Holland, and was received with every possible mark of distinction; a chair of gold being prepared for him, and also robes of white, which is the royal colour. He concluded with the king a treaty, consisting of 33 articles. Among other stipulations, it was agreed that a permanent peace should be established between the Dutch and Candians; and in case of an attack by the Portuguese, the Dutch agreed to resist them with all their forces. In return, the king allowed the Dutch to build a fort at Cottiarum. They were also allowed to erect at Candy warehouses for goods. The king likewise engaged to convey all the merchandise of the Dutch to Candy, and whatever they purchased in his dominions to Cottiarum at his own charge. All his subjects were to be at liberty to traffic with the Dutch, who were allowed to export all sorts of merchandise free of duty. He also engaged to deliver to them all the cinnamon grown in his country, to be paid for in goods at the usual exchange rate. The king stipulated further not to grant free commerce to any European nation, without the express consent of the Dutch. The customs agreed upon by both parties were to be shared equally by the contracting powers. The king agreed to furnish the Dutch with timber, and other materials for ship-building, at a moderate rate, and he obliged himself to dispose of all his precious stones and pearls to the Dutch, at a fair rate; and they, on their part, stipulated to supply him with set jewels and other valuable ornaments. The king alone was to have the power of coining money, or to fix its value; and any subjects of either power who were convicted of coining base money were to be put to death. All the officers of the Dutch company were to be exempt from his majesty's jurisdiction, and to be tried for any offence by their own countrymen; and the same privilege was reciprocally extended to the subjects of the king. All prizes taken on the coast of Ceylon were to be shared equally between the contracting parties, provided the prisoners be ransomed and not put to death. Passes were to be granted by the Dutch officers to such of his majesty's subjects as intended to trade in the parts possessed by the company, and the same from the king to the Dutch subjects intending to traffic in his dominions; and all who traded without such passes were liable to be seized, and to have their goods confiscated. The contracting parties engaged to do their utmost to preserve inviolate the stipulations of this treaty, the principal of which have been above recited,

and to give full satisfaction for any damages incurred by the violation of them, as well as to inflict severe punishments on those who were guilty of infringing them. This treaty, which was concluded in the name of the king of Candy and the prince of Orange, displayed much seeming moderation on the part of the Dutch; and it would have been happy even for their own interests if they had maintained the same moderation in their transactions with the natives, after having gained a firm footing in the island, as while they were attempting to obtain a settlement by the arts of insinuation. The Portuguese were alarmed at this alliance, and attempted to prevent its effect; but their efforts, though renewed with vigour for several successive years, proved ultimately unsuccessful. In 1656 the Portuguese were reduced to the necessity of surrendering Columbo to the Dutch, after a siege of seven months, and a loss to the combatants of not fewer than 3000 lives. By the fall of this place, an end in fact was put to the dominion of the Portuguese, about a century and a half after their first arrival. In 1658 the Dutch, under Vander Goens, took Manaar, and the Portuguese were shut up in Jafnapatam, the only fort remaining in their possession. At length, after an obstinate defence, a Portuguese fleet, which attempted to relieve the place, being defeated, and no hope of succour being left, the garrison surrendered, and the Portuguese were thus totally driven from the island.

The joy of the Ceylonefe, on being rescued from the yoke of these tyrannical invaders, and their gratitude to their deliverers, at first knew no bounds. The king of Candy voluntarily paid the expences of their armaments in cinnamon; and conferred upon his new allies the principal possessions, from which he had by their assistance expelled the Portuguese. Among these were the port of Trincomalee, and the fortress of Columbo. The former of these, which lies on the N.E. part of the island, is that harbour which renders Ceylon the most valuable station in the Indian Ocean. Columbo was originally built by the Portuguese in the S.W. of the island, in the heart of that tract most celebrated for the production of cinnamon, as the most commodious for collecting that staple production of the country. Along with this port, the king of Candy also bestowed on the Dutch the towns of Nigumbo and Point de Galle in the same quarter, together with a large tract of rich land adjoining to them. The Dutch appeared exceedingly grateful to the Candian monarch for all these concessions; they assumed only the humble appellation of "Guardians of his coasts;" and began to fortify the different stations put into their hands, merely, as they said, for his security; and the Candians were so well convinced of the good intentions of their new allies, that they assisted them to the utmost of their power in completing their operations. The Dutch took this opportunity of increasing the strength of their principal port at Columbo; enlarging the town and rendering the fortifications as complete as possible. Their port of Trincomalee they also endeavoured to secure against any attack either from an external or a domestic enemy. Their numbers in the mean while were daily increasing by the access of new adventurers from Europe. The parts assigned to them were the best fitted for cultivation in the island; and they lost no time in turning them to the best account. By means of these prudent measures, and persevering industry, the colony was soon brought into a flourishing state, and was able to depend upon its own internal resources. During this period, they maintained the most friendly intercourse with the natives, and this conduct, besides favouring the uninterrupted prosecution of their plans of improvement, was also of very considerable benefit to their commerce. If the

Dutch had persisted in the same wise and moderate policy, it is probable that Ceylon would, in process of time, have become as profitable to them from their intercourse with the natives, as it had been wholly possessed by Dutch settlers. But the ruling passion of the Dutch, their avarice, soon began to over-reach itself; and by rapaciously seizing every opportunity of gain, they quickly disgusted and alienated the natives. By pushing their posts farther and farther into the interior, and fixing upon every spot that seemed to be fit for cultivation; and at the same time by increasing their demands on the king for the protection they afforded him; the king soon found that all the cinnamon which grew in his dominions was insufficient to gratify the "Guardians of his coasts." At length, enraged by their repeated extortions, he fell suddenly upon their settlements, and committed the greatest devastations. This breach between the Candians and the Dutch was succeeded by a long course of hostilities, which occasioned the shedding of much blood, and afforded no permanent advantage to either party. The Dutch, however, were the greatest losers. Their successes in the interior, amidst woods and defiles, were dearly purchased; whilst the incursions of the natives into their cultivated possessions on the coasts, though in general easily repulsed, often destroyed the labour of years. Several of the Dutch governors were induced by these considerations to attempt the restoration of tranquillity, rather by conciliating the natives than by ineffectual struggles with them. Accordingly they sent ambassadors to the Candian king, with rich presents, and with various expressions of respect. They wrapped their letters to him in silk embroidered with gold and silver, and their ambassador carried them all the way on his head, the highest token of respect known in that country; and in these letters, they dignified the king with the high-sounding titles usually conferred upon an eastern monarch. Such conciliating measures, though not often adopted, produced effect. The renewed oppressions of the Dutch were the constant signal for the renewal of hostilities between them and the natives, in which the Dutch were frequently great sufferers; though European discipline and Dutch perseverance generally surmounted all difficulties, occasioned by the woods and fortresses to which the natives retired. The Dutch, however, suffered much from the climate, which, in the interior parts, is exceedingly unwholesome to Europeans. See CANDY. Indeed, the behaviour of the foreign nations, which have successively invaded Ceylon, has tended greatly to nourish sentiments of independence and of allegiance and attachment to their native kings among the inhabitants; and the cruelties of the Portuguese and Dutch have so exasperated them against all Europeans, that it will require much pains to reconcile their minds so far as that any confidence can be reposed in them. These and similar causes combined to frustrate the attempts of the Dutch at forming a settlement in the interior of the island; whilst the difficulties which they encountered made them affect to despise the advantages which they could not attain. But notwithstanding they seem to have been convinced that it was impracticable to retain possession of the interior, yet their own misconduct had sown so many seeds of jealousy between them and the Candians, that they were often obliged to have recourse to arms. The last great war which they carried on with the natives was about the middle of the last century. In 1764 they penetrated into the heart of the king's dominions, and made themselves masters of Candy. But after experiencing great hardships from the climate, and from the activity of the natives, they were at last obliged to evacuate the capital. Notwithstanding the disasters which they suffered, they continued to harass the king of Candy;

and, particularly, by depriving him of salt at pleasure, they compelled him to comply with all their demands. In 1766, he was under a necessity of acceding to a treaty which greatly curtailed his dominions, and reduced him almost to the condition of a prisoner at large in those that remained to him. All those parts of the sea-coast, which had not formerly belonged to the Dutch, were now ceded to them, with the addition of several other advantageous tracts. They insisted that the king should have no intercourse with any other power, and that he should deliver up all foreigners or subjects of other princes, who should happen to come into his dominions. All cinnamon which grew on the coasts was deemed as exclusively Dutch property; and the natives, by way of special privilege, were allowed quietly to cut and carry it to the several Dutch factories in the island. The cinnamon that grew in the woods was allowed to be, in some degree, the property of the natives; they were obliged to peel and sell it to the Dutch at a six-dollar per pound; that is, a coin of nominal value, which exchanges for about the worth of two shillings sterling of their copper-money. Independently of cinnamon, the other productions of the island were not over-looked; but the king of Candy was also obliged to stipulate, that his subjects should gather the pepper, cardamoms, coffee, and cotton growing in the interior, and sell them to the Dutch at certain very low prices. A certain proportion of elephant's teeth, araka nut, and betel-leaf, together with a share of the precious stones found in the country, formed part of the tribute imposed on the natives. The number of elephants to be delivered up was 50 in the two seasons; which the Dutch transported to the opposite coast of the continent, and sold to the native princes there at very high prices, as the elephants of Ceylon are accounted superior to all others. The pearl-fisheries on the west and north-west shores, where the pearl-banks are situated, formed another acquisition to the Dutch by this treaty. Several persons from the Malabar coast, and other parts of the continent, had established cotton manufactories in the northern towns of the island, particularly at Jafnapatam: all of which were now given up to the Dutch. In return for all these valuable acquisitions, the Dutch acknowledged the king of Candy to be the emperor of Ceylon, with a long string of other sounding titles, which served only by their mockery to aggravate his mortification; and under which magnificent appellations, they engaged, as his dutiful subjects, to pay him a tribute, and to send ambassadors yearly to his court. The most important stipulation, on the part of the Dutch, was that of supplying his people with salt, free of expence, and in such quantity as to equal their consumption. The article of tribute was soon infringed; and, indeed, scarcely one stipulation of the treaty was fulfilled with good faith. By this treaty the Dutch obtained a monopoly of all the valuable productions of the island, and left to the king and his subjects only the hard condition of aiding them in availing themselves of their acquisitions. Such degrading and harsh terms naturally exasperated the Candians and cherished in their breasts the most rooted and inveterate hatred to their oppressors. The consequence was a renewal of hostilities; and about 20 years ago the Dutch again penetrated into the king's country; but they were so vigorously attacked by the natives that general de Meuron, then a colonel in the Dutch service, narrowly escaped being cut off with a large detachment near Sittivacca, and got safe to Columbo. At length hostilities, which were unavailing, were discontinued by mutual consent. The Dutch were chiefly anxious to prevent any connection from being formed between the natives and foreigners; and the king of Candy was resolved to prevent any intercourse between his subjects and a nation,

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which he found ready on every occasion to deprive him of his rights in order to gratify their own avarice. A few articles of no great value, such as betel-leaf, areka, and cocoanuts, were occasionally smuggled by the natives down to the Dutch provinces; but these practices, when discovered, were severely punished by the king.

Such was the situation in which affairs stood between the Dutch and the native Ceylonefe, towards the commencement of the late war. It was now about 140 years since the Portuguese had been finally expelled, and no other European power had since that time been able to acquire a permanent footing on the island. Soon after the expulsion of the Portuguese, about the year 1672, the French seemed inclined to dispute the possession of Ceylon. Accordingly they appeared off the island with a large fleet, entered into a treaty with the native prince, and avowed their determination to expel the Dutch. But their enterprise planned without wisdom was executed without spirit, and imaginary obstacles prevented the French from even attempting to gain a settlement on the island. Towards the conclusion of the American war the English made a more formidable attempt against the power of the Dutch in Ceylon. A fleet, under the command of Sir Edward Hughes, having on board a detachment of land-forces, commanded by Sir Hector Munro, was dispatched about the beginning of the year 1782, to attempt the reduction of this island. This enterprise, which commenced prosperously, by gaining possession of fort Ottenburg, a strong fort in the vicinity of the bay of Trincomalee, afforded an encouraging prospect of speedily reducing the whole island; and lord Macartney, then governor of Madras, determined to lose no time in securing and improving this valuable acquisition. But dilatory measures, always incompatible with success in military operations, afforded to the French admiral Suffrein an opportunity of taking possession of Trincomalee, and of mooring in the bay a fleet of thirty sail of the line. Although the British fleet, after being refitted in the roads of Madras, arrived off Trincomalee, and notwithstanding its inferiority in number, attacked and routed the French; the latter found a secure retreat under the cannon of those forts, which their activity, and the want of precaution on the part of their enemies, in not leaving a garrison and stores sufficient to undergo a siege, had suffered to fall into their hands. Thus, the attempts of the English to attain possession of Ceylon were, for this time, frustrated. As the harbour of Trincomalee, which is equally secure at all seasons, offered to the English the means of obviating disadvantages to which the coast of Coromandel is subject, it must be evident that, on the first rupture with the Dutch, our countrymen would again attempt to gain possession of it. Accordingly, the junction of the Dutch with the French republic in the late war was the signal for the commencement of our operations against their colonies in the East. In 1795, a body of troops was detached for the conquest of Ceylon; and this enterprise was crowned with success, after a course of military operations which will be detailed in describing the several places where they were carried on.

After this abstract of the history of Ceylon, we shall now proceed to give a particular account of the island itself; which is become of peculiar importance to this country, since, by the fifth article of the treaty of Amiens in 1802, the Batavian republic has ceded and guaranteed, in full property and sovereignty, to his Britannic majesty, all the possessions and establishments in the island of Ceylon, which, previous to the war, belonged to the republic of the United Provinces, or to the Dutch East India Company.

In approaching this island from the sea, it presents to

view a fresher green, and more fertile appearance than most parts of the Malabar and Coromandel coasts. All the flat tracts on the sea-shore are bounded by beautiful *topes*, or groves of cocoa nut trees, while the intermediate plain is covered with rich fields of rice; and the prospect commonly terminates in woods, which cover the sides of the mountains, and display a verdant foliage through every season of the year. The eastern coast appears bold and rocky, and a few reefs of rocks run out into the sea on the S.E. between Point de Galle and Batacolo. The deep water on the eastern shore admits the access of the largest vessels in safety; and if that side of the island be the least fertile, its other defects are amply compensated by the harbours of Trincomalee and Batacolo. The north and north-west coast from point Pedro to Columbo is flat, and indented with considerable inlets of the sea; the largest of which extends almost quite across the island from Mullipatti to Jafnapatam, on the N.W. point of the island, forming the peninsula of Jafnapatam. Several of these inlets form small harbours, accessible to vessels of small size. The interior of the island abounds with steep and lofty mountains, covered with forests and full of almost impenetrable jungles. The woods and mountains completely surround the dominions of the king of Candy: and the island is divided by the most lofty range of mountains nearly into two parts, so completely separated from each other, that both the climate and seasons on either side are essentially different. These mountains also terminate the effect of the monsoons, which set in periodically from their opposite sides; so that not only the opposite sea-coast, but the whole country in the interior, suffers very little from these storms. The monsoons set in much sooner on the western than on the eastern side of the island. On the west side, the rains prevail in the months of May, June, and July, and this is the season when they are felt on the Malabar coast. This monsoon is very violent, being accompanied with dreadful storms of thunder and lightning, together with vast torrents of rain, and violent south-west winds. In the meanwhile, the northern parts of the island are very little affected, and are even generally dry. In the months of October and November, when the opposite monsoon sets in on the Coromandel coast, the north of Ceylon is affected, and scarcely any impression is felt in the southern parts, with the exception of some partial rains. These monsoons pass slightly over the interior of the country, which nevertheless experiences dreadful storms. During its own periodical season, in March and April, the rain descends in torrents, and the thunder and lightning are extremely awful. The days and nights in this island, lying near the equator, are of nearly equal length: the variation, during the two seasons, not exceeding fifteen minutes. The seasons are more regulated by the monsoons than by the course of the sun; the coolest season being at the summer solstice, while the western monsoon prevails. The spring commences in October, and the hottest season is from January to the beginning of April. The heat, in the day, is much the same throughout the whole year; but in the rainy season, the nights are much cooler. Upon the whole, the climate is much more temperate than on the continent of India; as the heat is fanned by the constant sea-breezes, and it is not annoyed by the hot and suffocating land-winds. The shade of the houses furnishes a tolerably cool retreat. In the interior of the country, however, where thick and close woods and the hills crowd upon each other, the heat is greater by many degrees than on the sea-coast, and the climate is often very sultry and insalubrious.

The principal harbours in the island for large ships are Trincomalee and Point de Galle; and they also anchor, and from

from the beginning of December to the latter end of March moor securely, in the roads of Columbo. Smaller coasting vessels find shelter in several other inferior ports; such as Batacolo, Matura, Barbareen, and Caltura, on the S.E.; and on the N. and W., Nigumbo, Chilou, Calpenteen, Manaar, and Point Pedro. At all these places are rivers of greater or less magnitude, that empty themselves into the sea; and these rivers, which are generally broad, deep, and navigable to some distance for small craft, are very beneficial to the inhabitants of the parts that are adjacent to the sea-coast, as they furnish a cheap and easy conveyance of their produce and merchandize to places where the European vessels wait to receive them. See CANDY. Besides the rivers with which Ceylon abounds, it has many lakes and canals of considerable extent communicating with them, particularly in the neighbourhood of Columbo and Nigumbo. Along the coasts there are roads and stations for travellers; but they are, in many places, rugged and steep, and incommoded with large tracts of heavy sand; and, besides, they are rendered dangerous by the multitude of wild hogs, buffaloes, and elephants, which infest them. These animals are met with particularly from Chilou to Manaar on the west side of the island, and from Matura to Batacolo on the east. Since the English have had possession of the island, the roads have been greatly improved. The soil of Ceylon is, in general, sandy, with a small mixture of clay. In the S.W. parts, however, particularly about Columbo, there is much marshy ground, very rich and productive; which is chiefly occupied with cinnamon plantations. The island does not produce rice enough for the use of its inhabitants, but requires annual supplies from Bengal, and other places on the continent. The culture of rice, however, has increased since March 1800; and many tracts on the west coasts, hitherto wild, marshy, and uncultivated, have been applied to this purpose.

The island of Ceylon was originally divided into a number of distinct petty kingdoms, separated by rivers and mountains, and subject each to its own independent sovereign. In process of time it was reduced under the dominion of the king of Candy, who divided it into a few large provinces, from which were derived several of the numerous titles which he still retains. These provinces were Candy, Coitou, Matura, Dambadar, and Sittivacca, which included the rich districts on the west coast. The chief of these was *Candy*, which see. These provinces were subdivided into districts, known by the name of "Corles," and corresponding to our shires or counties. These subdivisions are still continued in the parts wrested from the natives by the Dutch; and the government of each is given to the civil and military officers, who hold posts in their vicinity. The great divisions of the island are now reduced to two: the one comprehending those parts that are under the dominion of Europeans, and the other those which still remain in the possession of the natives. The European dominions, it is observed, like a ring, completely encircle the territories of the king of Candy. The capital of the European dominions is *Columbo*; which see; though Trincomalee (see *TRINCOMALEE*), is of much superior importance, on account of its excellent harbour. The next port to Trincomalee on the N.W. is *Malativoe*; which see; and beyond, in the northern direction, the extremity of the island is stretched out into an oblong peninsula, by a branch of the sea, which penetrates across the island, except that a small strip of land remains, which is nearly inundated at high water. This district is named *Jafnapatam*; which see. Dependent upon the district of Jaffna, and at a small distance in the sea to the N.W. of Point Pedro, are several small islands, which the Dutch have named Delft, Haarlem,

Leyden, and Amsterdam. These islands they employed in breeding horses and cattle, as from their excellent pasturage they are better adapted to this purpose than any part of Ceylon; and the English government has adopted the same system. The woods, towards the interior, separating this district and others from the king of Candy's dominions, are inhabited by a race of savages, supposed to be the aboriginal inhabitants of the island, and denominated *Bedahs*; which see. The narrow sea which lies betwixt this side of the island and the continent is called the gulf of *Manaar*; which see. Between Manaar and Ramiferam (which see), on the Coromandel coast, is a line of sand-banks, called "Adam's bridge," (which see), and Ramas bridge, from a tradition that the god of this name came by this way into Ceylon. This tradition is connected with a variety of others that subsist among the natives, who universally believe that Ceylon was either the paradise in which the ancestor of the human race resided, or the spot on which he first touched on being expelled the celestial paradise. Accordingly, Adam's bridge is, in their opinion, the way by which he passed over to the continent; and some imagine, that the gulf of Manaar, like the Red Sea, in scripture-history, closed after him to prevent his return. But waving these traditionary tales, it is an almost universally received opinion, that Ceylon at some distant period formed a part of the continent, and was separated from it by some great convulsion of nature. Nor is this improbable, if we consider the narrowness of the intervening space, and the numberless shallows with which it abounds. Besides, the appearance of the soil and the surface of the country, on the west coasts of Ceylon, and the opposite continent, very much resemble one another. A stratum of flat calcareous rocks seems to run quite across Adam's bridge; and it is found to the water's edge on both shores, and in the low islands that lie on the passage. In proceeding along the coast of Ceylon from Manaar, the country is sandy, wild, and barren; equally destitute of accommodation and provisions. The woods are so much infested with wild animals, that it is very dangerous to travel this way without a proper guard. Here are none of those lofty eminences which diversify the N.W. and S.E. parts of the island. The sea is skirted by a tract of low flat land; but farther inland there are rice and paddy fields, with some scattered houses. This appearance continues about 30 miles to the southward of Manaar, when the wood and jungle again begin to approach the shore, and to cover the whole surface of the country, till at Chilou the cinnamon woods shew the commencement of the district of Nigumbo. About twelve miles onward from Manaar is the village of Arippe, where the civil and military officers who attend the pearl-fishery reside during the season. For their accommodation they have built here a "Choultry," or stone-barracks, which also serves for the reception of occasional travellers. Arippe is the only place in this quarter where good water can be procured. Here is also a chapel for persons of the Roman Catholic persuasion, consisting chiefly of the Parawas and Malabars, who resort hither during the season of the pearl fishery. It is their constant practice devoutly to offer up their vows and offerings before they commence diving for the oysters. In the neighbourhood of Arippe the woods are full of deer and wild hogs, which are brought by the Cinglese-peasants to the officers stationed here during the season of the fishery. About twelve miles from Manaar lies the bay of *Conidatchy*; which see. In passing along from Manaar to Columbo, a distance of about 150 miles, the coast presents in general nothing but the most desert and barren appearance, except where it is covered by almost impenetrable jungles. Detachments are posted in some

some few places for the protection of travellers; but the road is for the greatest part extremely bad, and the country is much infested with buffaloes and elephants. At Pomparipo is a broad lake, which cannot be passed during the rainy season; and besides, there occur in the way two or three broad rivers, as the Mofulec and Madragar, which issue from the mountains in the interior. The first post at which you arrive is *Calpenteen*; which see. For an account of *Putallom*, *Chilou*, and *Nigumbo*; see these articles. From Nigumbo southward the road is extremely pleasant; being shaded the whole way, and provided with a number of resting places for travellers. About half-way to Columbo is a very large "Choultry," or barrack, to which the officers of the garrison frequently resort on shooting parties. It is situated on a very delightful spot in the midst of a picturesque country, abounding with snipe and several species of game. For an account of Columbo, the capital of the Dutch dominions in Ceylon; see COLUMBO. The country round this capital is, for several miles, flat and very rich; diversified with fields of rice and pasture, and a variety of groves, in which the cocoa-tree is most conspicuous; and embellished with gentle eminences, together with a number of small rivers, lakes, and canals. Shady roads every where intersect the country, which presents to view country seats and gardens; and on the banks of the river Mutwal is an elegant building, in which the governor resides; and there are also on the same banks and in the adjoining groves several temples of the natives. Cinnamon-trees abound, both wild in the woods and cultivated in the gardens. The road from Columbo lies by the sea-side for six miles, as far as Galkieft, a small village, in which is a church for the accommodation both of the Dutch and Cinglese; and from hence to Pantura, a distance of 12 miles, the road is well shaded, and agreeably diversified by a part of the cinnamon gardens, which crosses this tract. From Pantura to *Caltura*, (which see), an interval of 10 miles, the whole country seems to be one delightful grove; and the road appears like a broad walk through a shady garden. In tracing the eastern coast, we find Barbareen and Bentot, (see *CALTURA*), and at length arrive at *Point de Galle*, for an account of which, see that article. About 20 miles to the south is Billigamme or Bolligam, seated on a bay formed by an indenture of the coast, and inhabited by fishermen; and at the distance of 30 miles from Point de Galle lies *Matura*; and about four miles from Matura is the most southern point of Ceylon, called *Dondre-head*. See *MATURA* and *DONDRE-HEAD*. For an account of the principal places in the European dominions on the eastern side of the island; see *BATACOLO* and *TRINCOMALEE*.

It appears, from the survey of this island, made by captain R. Percival, and delineated in a manner no less entertaining than instructive in his "Account of the Island of Ceylon," which has enabled us to enrich this article with interesting information, that the internal wealth, as well as the population of "the European dominions," lies on the west and south-west coasts; while that secure station for shipping, which renders Ceylon of so much importance to our other East Indian dominions, lies at the opposite side, and in the most barren quarter of the island. The present state of the roads is such as almost entirely to preclude all intercourse by land between the opposite sides of the island, which are thus prevented from imparting their advantages to each other. In time, however, these defects may in a great measure be remedied; and many beneficial plans have already begun to be executed by the intelligent officers who at present command in the island. It is probable also, that in time the poorer lands in the north

and east parts may be employed to raise the necessaries of life, while the rich plains around Columbo are entirely devoted to its valuable spices.

The inhabitants of the sea-coasts of Ceylon are composed of a variety of different races. At Columbo, in particular, the natives of every country in India appear to have their representatives; and the manners and customs of these distinct tribes are such as belong to their native countries. Besides the native Ceylonese, who live under the dominion of the Europeans, and who are denominated Cinglese, the coasts are chiefly inhabited by Dutch, Portuguese, and Malays. The *Dutch*, who are born and reside in India, are very different in their habits and modes of life from those of Europe. The chief trait that distinguishes their original Dutch character is their fondness for gin, and tobacco. In other respects they adopt the customs and little habits of the country. A Ceylonese Dutchman rises about six, and begins the day either with a walk, or with sitting down by his door in a loose robe and night-cap to smoke a pipe. This, with a glass of gin, fills up the first hour. At 7, a dish of coffee is handed to him by his slaves, and his lounging posture and pipe are again resumed. He afterwards dresses, and either goes to business or to pay visits, in which he usually takes a pipe and glass at every house where he calls; and in his salutations on these occasions he is very ceremonious. If he prolongs his visit, he throws aside part of his dress, and puts on a night-cap, and then he and his companions smoke and talk till noon. At 12 he sits down to dinner, regaling himself with very gross and heavy food. After dinner he resumes his smoking in an undress, and then sleeps for an hour. As soon as he is again dressed, he pays visits abroad or receives company at home; and this, with another pipe, occupies the interval till the hour of nine announces supper. Capt. Percival represents them as proverbially indolent and lazy, ignorant and stupid, without capacity, and without desire of acquiring excellence by exertion. Their children are commonly neglected, and committed to the care of slaves. Their own minds become selfish and contracted, callous to the feelings of humanity, and prone to treat their slaves with severity upon the slightest provocation, and often from mere caprice. Their women are generally treated with neglect; nor can it be expected that, in such circumstances, they should much study the art of pleasing. In the forenoon their dress is slovenly; but at their evening parties they appear decked out in abundance of finery. The culture of their minds occupies as little of their attention as the adorning of their persons; their education is disregarded; and from their infancy they imbibe manners and superstitious notions from the female slaves to whose management they are entrusted, of which they can never afterwards divest themselves. Neglected by the men they associate with their slaves; and thus their morals are as destitute of dignity or virtue, as their manners are of politeness. After marriage, much as they are disregarded by the men, they treat their husbands with great veneration and affection; consider their caresses as a high honour, and are therefore extremely jealous of their favour. The Dutch ladies, while young and unmarried, dress well, and are tolerable in their persons, and many among them are pretty, and even handsome; but afterwards they contract such indolent habits that they become coarse, corpulent, and dirty in their persons; and their dress during the day is slovenly and negligent to excess. In such a climate as that of Ceylon, and with such habits, we must not look for the bloom of health and the red and white of European complexions. Theirs are for the most part of a pale deadly white, with some exceptions. Those who have a mixture of the native

blood, are easily distinguished by a tinge in the colour of the skin, and their strong thick black hair; marks which are not removed in the course of many generations. The women of this mixed race, of whom there are many in the Dutch settlements, sooner begin to look old than those who are wholly of European extraction. The Dutch ladies have a custom of cracking their joints, and rubbing them over with oil, which renders them uncommonly supple. The principal amusement of the younger females is dancing; and that of the married and elderly ladies consists in paying formal and ceremonious visits; on which occasions they are attended by a number of slave girls, dressed for the purpose, and walking after them, with their betel boxes, or bearing umbrellas over their heads. Their chief finery consists in these female attendants, and their splendour is estimated by the number of them which they can afford to keep. Neither the persons nor the apartments of the women are in general very cleanly. Many of the elderly ladies, and most of the lower orders, chew the betel-leaf and areka nut, with a mixture of "chinam" or lime made of burnt shells, in order to render it hotter and more pungent to the taste. In every house, therefore, they have a number of brass vases which are used as spitting pots for the women who chew these substances, and for the men when they smoke. The women are generally very neat and exact in the arrangement of their sitting-rooms, and when they receive company; these are kept remarkably clean, and the tiled floors are highly polished: but their inner apartments, and other parts of their house, are quite the reverse.

Another class of the inhabitants of Ceylon consists of a race known by the name of *Portuguese*. They are not the descendants of the European nation whose appellation they bear; but they derive their name from the spurious descendants of that people by native women, who were scattered in great numbers over this island and all their other settlements in India. But both the manners and colour of these original Indian Portuguese are now equally lost among that race which now bears their name. The present Portuguese of Ceylon are a mixture of the spurious descendants of the several European possessors of that island, by native women; joined to a number of Moors and Malabars. A colour more approaching to black than white, with a particular mode of dress, half Indian and half European, is sufficient to procure the appellation of a Portuguese. These people are found in all the European settlements in India, particularly in those belonging to the Dutch, who often form intermarriages with them. The manners of the Portuguese inhabitants differ from those of the Moors, Malabars, and other Mahometans. They affect to adopt those of the Europeans. Although the black Portuguese universally profess the Christian religion, and are commonly Roman Catholics, they nevertheless retain many Pagan customs, and their religion may be considered as a compound of both. The Dutch have allowed priests and other missionaries to go among them; and many of them profess the Protestant religion and frequent the churches of the Dutch. They are in general somewhat fairer than the Moors and Malabars; but complexions of all sorts are found among this mongrel race, from a jetty black to sickly yellow, or tawny hue. Their hair, which is black or dark brown, is worn long, and usually bid, contrary to the custom of the Mahometans. Some of their women are pretty, and much admired for their figure. The men are about the middle size, slender, lank, and ill-made. They are fond to excess of shew and finery in their dress, and never stir out without putting on their best clothes. They are lazy, treacherous, effeminate, and passionate to excess; and retain so much of the character of their boasted

progenitors, as to be distinguished for a ridiculous pride. They have no regular cast, and are usually esteemed the worst race of people in India. Originally a spurious and outcast brood, they retain only the blemishes which tarnished the characters of their ancestors; and they combine all the vices of the Europeans and Indians, without any of their virtues. From these black Portuguese were derived the troops, now known by the name of "Topasses;" so called from their wearing hats instead of turbans; the word *topce* or *chaupce*, seeming to be a corruption of the French *chapeau*, being used in their language for a hat. They were never reckoned good soldiers, being neither so hardy nor so brave as the Seapoys, and therefore they were seldom employed in the English service: the French, however, had very generally corps of them at Pondicherry, and in their other settlements.

The *Malays* are another race, who form a considerable proportion of the inhabitants of Ceylon. This ferocious race is widely scattered over the eastern parts of India. Their original empire lies in the peninsula of *Malacca* (which see); and they have extended themselves from thence over Java, Sumatra, the Moluccas, and Philippines, and a great number of other islands in the Archipelago of India. The æra of their first introduction into Ceylon is not easily ascertained; but the Dutch have been accustomed for many years to introduce them to this and their other settlements in Asia and Africa, for the purpose of carrying on various branches of trade and manufactures, and also to employ them as soldiers and servants. The religion, laws, manners, and customs of the Malays, as well as their dress, colour, and persons, differ very much from those of all the other inhabitants of Asia. Those of the various islands or settlements differ also among themselves, according to the habits and appearance of the nations among which they are dispersed. For, although they intermarry with the Moors and other casts, particularly in Ceylon, and thus acquire a much darker colour than that which is natural to a Malay, their characteristic features are still so strikingly predominant, that they cannot be mistaken. Those who are born and brought up in the European colonies naturally contract more of the habits of civilized society; but they never entirely get rid of their natural ferocity, though they become much less cruel and vindictive than those of their race who reside in the peninsula of the Malacca and their other native possessions. The men are of a middling stature, remarkably well proportioned, and of a strong and muscular constitution. Their legs and arms are particularly well-shaped and very slender at the wrists and ankles. They are of a light brown or yellow colour, approaching, in old age, or when much exposed to the sun, to a copper hue. Their forehead is broad and flat; their eyes are small, black, and very deep sunk in their orbits: their nose is flattish, broad towards the nostrils, with a sort of curve at the extremity approaching the lip. Their hair is long, coarse, and black, and always moistened with a quantity of cocoa-nut oil; some of the poorer sort bind it up with a coloured handkerchief. The Malays of a higher rank wear a wide Moorish coat or gown, called *badjour*, resembling our dressing-gowns, and composed of rich flowered silk, or party-coloured cotton; and their under dress is a vest of silk or calico, called *badjou*, worn close to the body, with loose wide drawers of the same stuff. The dress of their head is of a singular shape, and is often elegantly ornamented. Their shoes or sandals are like those of the Moors. The dress of the poorer sort consists of a piece of cotton wrapped round their waists, with one end drawn between their legs, and tucked up at the lower part of the back: the arms are left completely bare. Some wear

wear a kind of vest or jacket without sleeves; but most of the slaves in the service of Europeans, instead of the piece of cloth, wear breeches of coarse stuff. None of the Malays suffer their beards to grow, but, in conformity to their religion, pluck out the hairs as soon as they appear. The dress of the poorer classes of the women consists merely of a large piece of coarse calico, or cotton, called a *Sarow*; which is folded and wound round the body above the bosom, and reaches down to the ankle, or middle of the leg; the upper part is tucked up and fastened under the arm-pits. Their hair is twisted up like that of the men, and fastened with a fillet or with pins or skewers, called *condés*. The dress of women of a superior station is selected with taste, and is very splendid. Instead of the upper garment, called *badjou*, resembling that of the men, some use the *salendang*, which is a piece of silk or muslin about five feet long, thrown loosely around the neck and shoulders, falling down before, and brought across the waist backwards. On the crown and back part of the head are stuck three or four tortoise-shell combs with plates of gold. About their necks and arms they wear chains or filigree, and are all provided with earrings. The Malays make very beautiful filigree work in gold, which they use as ornaments for their persons.

The faces of the Malays are generally very ugly; and their features indicate their ferocious, treacherous, and revengeful dispositions. Some, however, have comely countenances; and many of the women might be considered as beautiful, if they were not much exposed to the sun, and had not their noses compressed. It is a common practice among them to break by compression the grille of the upper part of their noses in infancy; a flat nose being regarded as a symbol of beauty. The men are extremely jealous, particularly of the decided preference which the women give to Europeans; nor do they ever pardon infidelity in a wife. The passions of the women are no less violent than those of the men, and they are equally capable of taking the most terrible revenge; either by stabbing the objects of their resentment, or dispatching them by poison. The Malays go naked till about 12 years of age, and are soon after married. As they are of the Mahometan religion, those of the higher casts marry as many wives as they can maintain, while the poverty of those of the lower classes restricts them to one wife. Their usual food consists of fowl, fish, rice, and vegetables. The better sort eat also beef and mutton, when killed by one of their own race, and prepared in their own manner. They hold swine in such abhorrence, agreeably to the prejudices of their religion, that they will not so much as touch their flesh; nor will several of the Malay casts carry a plate which has ham or bacon on it. Their common drink is water, or the juice of the *palmyra*; though some will not scruple to drink arrack when they can procure it. They are constantly chewing betel, or penang, and they smoke *bang*, from which herb they extract a kind of opium, that is used by them in great quantities for exhilarating their spirits.

The amusements of the Malays are suited to their dispositions, and are either bold, vigorous, or ferocious. Both men and women are much addicted to bathing, which they use several times in a day. Their select amusements are gaming and cock-fighting; and they are so inordinately fond of gaming, that the poorer sort will sell themselves and their families to procure the means of gratifying their passion for play; and after having lost their last stake, they often sacrifice themselves and their lucky antagonist to their despair.

The Malays have a great variety of musical instruments, which are usually employed in a band or concert, at their religious ceremonies, their marriages, and their feasts. One

of their principal instruments is the *gong-gong*, which consists of a hollow plate of a compound metal, so contrived as to emit a very loud noise when struck. The *tom tom* is a drum of a peculiar form; and they have other instruments, made of bamboos bound together with iron wire, somewhat in the shape of a dulcimer.

The Malays universally profess the Mahometan religion; though with regard to some inferior points and duties, the several classes differ among themselves. They have temples and mosques dedicated to their saints and their dead, where they attend with great devotion. They value themselves much on their skill in medicinal herbs, and the application of them in the cure of diseases; and they are fond of gardening, to which they are addicted from their infancy, and in which they excel. In all sorts of cane-work, and in rattanning couches and chairs, they are singularly ingenious; and they are accounted capital builders of *bungaloes*, or houses of the cocoa-tree. In other respects, such as the manner of eating their victuals, and their modes of salutation, they much resemble the natives of the Malabar and Coromandel coasts; though they are sufficiently distinguished from the other natives of India, by the difference of their constitutions, and the peculiar ferocity of their dispositions.

The government, under which the Malays live in their own country, resembles in some degree the ancient feudal institutions of Europe; and, consequently, war is the business of the nation. Their arms are all suited to their savage and sanguinary dispositions. These consist of a kind of dagger, called a *kreesé*, or *CRISSE* (which see), in the use of which they are particularly dextrous. Before they enter upon any desperate enterprise, or act of revenge, the Malays take a quantity of opium, or, as they express it, *bang* themselves. (See *BANGUE*.) Having thus previously prepared themselves, and poisoned their crissés, they rush headlong into the street, stabbing every one indiscriminately that comes in their way, and at the same time vociferating *amok*, *amok*, or kill, kill, whence this horrid mode of revenge is termed by Europeans "running a muck." (See *АМОК*.) This ferocious practice was repressed by the Dutch government at Ceylon, by the severest punishments; a reward of one or two hundred rix-dollars having been offered for the destruction or capture of those who ran a muck, and those who were taken alive having been put to death with the most excruciating torments. Since the arrival of the English at Ceylon, this barbarous practice has been almost unknown; and a few private murders committed on the Sepoys and black people in the Pettah, were the only crimes of this nature attributed to the Malays during Capt. Percival's stay at Colombo. The Malays, however, in their present state are, from their ideas of morality, almost incapable of being admitted into social life; they have no idea of revenge being a crime, and they triumph in shedding blood on such an occasion. It is hoped that the introduction of Christianity among these people will meliorate their disposition; and it is consequently of great moment that the Malays in our settlements should embrace this religion. It would serve, not only to soften their temper, but to unite them by the firmest bond with this country. The Dutch government of Ceylon had always a regiment of Malays in their service; and this corps constituted the strength of their garrisons, as they were the only troops which maintained discipline, or displayed any sort of bravery in the field. They seemed, however, to have imbibed, by the ungenerous policy of the Dutch, such a rooted aversion from the English, that there was at first little appearance of their ever becoming our friends. Soon after the arrival of governor North on the island, he new-modelled this corps, and put it on a larger and more respectable establishment;

and it has now obtained a place among our other regiments of the line. The Malay troops are armed and clothed much in the same manner as the European, with the exception of shoes, the wearing of which is contrary to their religion; instead of these they use a particular sort of sandal. Along with their other arms they always wear their kreeses by their sides; and in the heat of an engagement they often throw down their musket and bayonet, and, rushing upon the enemy with these kreeses, carry terror and destruction wherever they come. The patience with which the Malays submit to the sentence of their courts martial, composed, by the new regulations introduced among them, of their own native officers, who are acquainted with their language and customs, and their refraining from revenge when they are assured that justice is intended them, afford reason for concluding, that mild and generous treatment will in the end have the effect of subduing their natural ferocity.

The far greater proportion of the inhabitants of Ceylon consists of the native *Ceylonefe*, who have submitted to the dominion of the Europeans. These retain their original appellation of "Cinglese," while those who live in other parts which acknowledge only the authority of their native princes, are distinguished by the name of "Candians," from the country they inhabit. In most points these two classes continue to resemble each other, though they are respectively distinguished by some peculiar characteristics. Whether the Cinglese were the original inhabitants of the island, or from what other country they came, and at what period they settled there, are points of which we have no distinct account, either from them or from other persons. The distance is so small between Ceylon and the continent, that it is the most probable, and the most generally received opinion, that it was peopled either from the Coromandel or Malabar coasts. Some circumstances, however, are suggested by Capt. Percival, which seem to indicate that they have migrated from a greater distance. Their complexion, features, language, and manners are so similar to those of the Maldivians, as to afford reason for concluding that both were of the same stock. The Maldivian islands are only two or three days' sail from Ceylon; and from the dissimilarity of the habits found among them to those of the Indians on the continent, it might be argued that the natives of these islands have not directly originated from those of Hindoostan.

The Ceylonefe are of a middling stature, about five feet eight inches, and fairer in complexion than the Moors and Malabars on the continent; but they are neither so well made nor so strong, and in appearance much resemble the Maldivians. The Candians are fairer, better formed, and less effeminate than the Cinglese in our service. The women are proportionably less tall than the men, are much fairer, and approach to a yellow or mulatto colour. They continually anoint their bodies with cocoa-nut oil, with which also they moisten their hair. Both sexes are remarkably clean and neat in their persons and their houses; and in dressing their victuals they are scrupulously nice. In order to avoid touching the vessel from which they drink with their lips, they hold it at some distance over their heads, and pour the liquor down their throats. In their diet, they are very abstemious; fruits and rice constituting the chief articles of their food. They use some fish when it is abundant, but flesh is scarcely any where eaten. They are courteous and polite in their demeanour, and in many qualities much superior to other Indians. They neither steal nor lie; their disposition is generally mild; but when their anger is roused, it is proportionably furious and lasting. Their hatred is excessive and invincible, inasmuch

that they will frequently destroy themselves in order to obtain the destruction of the object they detest. If a Ceylonefe cannot obtain money due to him by another, he goes to his debtor, and threatens to kill himself, if he is not instantly paid. This threat, sometimes executed, obliges the debtor to comply immediately, if it be in his power, with the demand; as by their law, if any man causes the loss of another's life, his own is the forfeit. "An eye for an eye, and a tooth for a tooth," is a proverbial expression which is continually in their mouths. This dreadful spirit of revenge is still cherished among the Candians; but it is mitigated, in a great degree, among the Cinglese by their intercourse with Europeans. Among the Ceylonefe the distinction of ranks is maintained with scrupulous exactness; and extends to the dimensions and appearance of their houses; so that the Candians are not allowed to whiten their houses, nor to cover them with tiles, which is a royal privilege, and reserved solely for the great king. The Ceylonefe never employ nails in their houses, either from the remains of a tyrannical prohibition, or a superstition arising from the danger of the electrical fire in their climate. Their huts are small and low, consisting of one story, and fastened with withes of rattan or coya rope. They are constructed of slender pieces of wood or bamboo, daubed over with clay, or covered with rice-straw, or leaves of the cocoa-tree. Round the walls are banks or trenches of clay, on which they sit and sleep; and these benches, as well as the floors of their houses, are covered with cow-dung for keeping away vermin and preserving the surface smooth and clean. Their furniture is of the most simple kind; consisting of a few earthen pots for cooking their rice, and one or two brass basins out of which they eat it; a wooden mortar and pestle for grinding it, with a flat stone on which to pound pepper, turmeric, and chillies for their curries; a *bomeny*, or kind of grater, being an iron instrument like the rowel of a spur fixed on a piece of wood like a boot-jack, and used in rasping their cocoa-nuts. They use neither tables, chairs, nor spoons; but placing themselves on the ground, eat their food with their hands. The houses of the Candians are neater and better constructed than those of the Cinglese, whose minds have been reduced to an abject state, by the successive tyranny of the Portuguese and Dutch. Their villages and towns appear like a number of distinct huts scattered in the midst of a thick wood or forest. When they are in danger of being infested with reptiles, or overwhelmed by inundations, they erect their huts on the summits of high rocks, or on the tops of high trees. Some of them fix posts in the ground, and place upon them a sort of hurdle, which serves for their nightly habitation. In order to preserve themselves from the extreme heat of the sun, they have universally the large leaf of the talipot-tree carried over their heads.

The Ceylonefe are extremely polite and ceremonious: and as a token of respect and friendship, present each other with the betel-leaf, which is chewed by persons of all ranks, and supplies the desert in all their entertainments. They mix with it tobacco, areka-nut, and the lime of burnt shells. The black stain occasioned by this mixture, which is indelible on the mouth, lips, and teeth, is considered as an addition to their beauty; but it renders them toothless at an early age. The Ceylonefe manifest a surprising degree of gravity in conversation, even among relations and intimate friends; sitting for a long time mute and chewing betel-leaf. In their salutations they are very punctilious, using the form common among the Indians of bringing the palms of the hands to the forehead, and then making a *salem*, or low bow. The natives of Ceylon are more continent with
regard

regard to women than the other Asiatic people, and they treat their females with greater attention. Mr. Knox has drawn a picture of their total disregard to chastity, or any bounds to sexual intercourse, which is extremely abhorrent to the ideas not only of an Asiatic, but even to the inhabitants of the most dissolute metropolis in Europe: and Captain Percival is convinced, from his own observations among the Cinglese, and from all the accounts which he could obtain of the Candians, that he has not in many instances exaggerated their licentiousness. A Cinglese husband is neither jealous of his wife, nor particularly offended at her infidelity, unless she be caught in the fact; in which case he thinks himself warranted in executing the rights of an Asiatic husband. Many of the men have only one wife, while others have as many as they can maintain. The ease with which promiscuous intercourse is carried on, and with which marriages are dissolved, is, together with their poverty, the true cause why polygamy is not more general among them. The marriage ceremony is better regarded among the Ceylonese, and marriages are often contracted by the parent, while the parties are in a state of childhood, for the purpose of matching them according to their rank; and they are often dissolved by consent almost as soon as consummated. It is also customary for those who intend to marry, previously to cohabit and try each other's temper; and if they find they cannot agree, they break off without the interference of the priest or any further ceremony. When they have agreed to marry, the man presents his bride with the wedding clothes, consisting of a piece of cloth, 6 or 7 yards long, for the use of the bride, and another piece to be laid on the bed. Presents are delivered by the bridegroom in person, and the following night he is intitled to cohabit with the bride. On this occasion a day is appointed for bringing her home, and celebrating the wedding with festivities. On this day he and his relatives repair to the bride's house, and carry with them what they are able to contribute to the marriage feast. The bride and bridegroom, in the presence of this assembly, eat out of the same dish, to denote that they are of the same rank. Their thumbs are then tied together, and the ceremony is closed by the nearest relations, or the priest, when he is present, cutting them asunder. For a more firm and indissoluble union, the parties are joined together with a long piece of cloth, folded several times round both their bodies; and water is then poured upon them by the priest, who always officiates at this ceremony, although rarely at the former. After the ceremony is performed, the parties pass the night at the bride's house; and in the morning the husband brings her home, accompanied by her friends, who carry with them provisions for another feast.

The Cinglese women are much more pleasant in their manners, and more elegant in their persons, than those of the other Indian nations.

The Ceylonese are fond of bathing, like other inhabitants of warm climates, and plunge into the water several times a day. Gravity is their characteristic quality: they imbibe from their infancy superstitious fears, that haunt or torment them through life; and sports and diversions are almost totally unknown among them.

During the wet season, they are subject to a variety of diseases; leprosy appears to be very prevalent; but their apprehensions are chiefly excited by the small-pox, and if any one dies of it, he is looked upon as accursed, and his body is denied the rites of burial. Every man in Ceylon is his own physician; and a plaster of herbs, or cow-dung, is universally applied to the part affected.

The language of the Ceylonese seems to be almost wholly peculiar to this island, and, as Captain Percival says,

is most nearly allied to the Maldivian. Of this language there are two dialects, which differ considerably from each other and have each a separate grammar. The poetic or court language, called the "Candian Sanserit," or more properly the "Paullee" or "Mangada," is retained in those parts, where the language may be supposed to be preserved in its greatest purity; it contains a considerable mixture of Arabic, and is accounted the most elegant as well as the most smooth and sonorous. Among the natives it is a current opinion, that Arabic is their original language, and that some mixture of the Sanserit was introduced by a colony who came over by Adam's bridge from the continent of India. Among the Cinglese on the coasts, the vulgar dialect, denominated "Cinglese," is spoken; and it appears to have been greatly corrupted by the introduction of foreign words, so that it has lost in a great degree that melody and force, which are attributed to the language of the interior. In the pronunciation of the Ceylonese there is something peculiar, as they hurry out the first part of a sentence without commanding any attention, and dwell with a loud and long accent on the concluding syllables. *Te* or *ab* forms the last syllable of a great number of their words, and with this they are fond of closing. The language universally spoken among the Cinglese who have any intercourse or connection with Europeans is the low Portuguese; and this is also spoken by the Moor and Malabar servants.

The Ceylonese divide their time nearly as we do: except that their year commences on the 28th of March: and they allow for leap-year or any odd portions of time by beginning this year a day sooner or later, or by adding a day to the former year. Their months, like ours, are divided into weeks of 7 days: Wednesday and Saturday are the days on which they perform their religious ceremonies. The day, which is reckoned from sun-rise to sun-set, is divided into 15 hours, and the night also into as many; and in this latitude the length of the day and night is subject to little variation. Before the arrival of the Europeans on the island, it does not appear that the Ceylonese had contrived even the rudest species of dial. On any particular occasion, they employed a vessel with a hole in the bottom, that let out the water with which it was filled in one hour according to their division; but this rude instrument was seldom employed except at court ceremonials. The learning of the Ceylonese consists chiefly in some pretended skill in astrology; although it appears from certain inscriptions on the ruins of some of their temples, that they formerly possessed some literature, as well as some refinement in the arts. Reading and writing are no ordinary accomplishments among the natives of Ceylon. Among the Candians they are chiefly confined to the learned men of the sect called "Gonies," who are retained by the king to execute all the writings of state, and those which respect religious affairs: and the Arabic is the character employed on these occasions. For writing, as they do not understand the manufacture of paper, they use the leaf of the talipot tree; and from these leaves, which are very large, they cut out slips, about a foot to a foot and a half long, and about two inches broad. These slips are smoothed; and the letters or characters are marked on them with a fine-pointed steel pencil, like a bodkin, set in a wooden or ivory handle; and in order to render the characters more visible and distinct, they are rubbed over with oil mixed with charcoal powder. Several of these slips are strung together by a piece of twine passed through them, and they are attached to a board as we file our news-papers. Palm-leaves are sometimes employed for the same purpose; and they occasionally use a sort of paper made of the bark of a tree. Some of the talipot-books or files, called by the natives "Olioés," are richly ornamented, and bound in thin lacquered boards of ivory, or

even silver and gold. Letters or dispatches sent by the king formerly to the Dutch, and now to the English governor, are enclosed in leaves of beaten gold like those of the cocoa-leaf, rolled up in a cover richly ornamented, and almost hid in a profusion of pearls and other precious stones. The whole is enclosed in a box of silver or ivory, which is sealed with the Emperor's great seal.

The progress of the Ceylonefe in the other arts of life bears proportion to their literature. Their agriculture remains in the rudeft state; and the Ceylonefe are naturally indolent in the extreme. Their foil, where it can be watered, yields, with little cultivation, a fufficient quantity of rice for their fubfiftence, and with this they are fatisfied. Their plough confifts merely of a crooked piece of wood, fhaped fo that one end ferves for a handle, while the other, fhod with iron, ploughs, or rather tears up the ground. After a firft ploughing, the fields are flooded, and fome time after they are again ploughed. The other tools employed in their agriculture are a board for fmoothing their fields, which is dragged over them edgewife with their oxen; and a piece of board faftened to the end of a long pole, which ferves inftead of rakes. At the feafon of ploughing, each village makes it a common concern; every one attending with his plough and his oxen till the whole of the field belonging to that fociety is finifhed. The fame method is purfued in reaping the corn. Seed-time and harvelt are feafons of general induftry and good fellowfhip. The women are not employed in either of thefe laborious operations; their bufinefs being to gather the corn after the reapers, and to affift in faving it. Oxen are employed both in ploughing and in treading out the corn. For unhusking their rice, they beat it in a mortar, or more frequently on a hard floor; and if it be of a brittle fort, they boil it before they beat it. The only manure they think requifite is water. Although the labour required for the cultivation of their rice is inconfiderable, many of them let their ground to their neighbours, lefs indolent than themfelves, for a certain proportion of grain, which is commonly about one-third of the produce. A confiderable proportion of grain is carried off by the priefts for the fervice of their temples, or is offered up for protektion and thankfgiving, both on account of the bleffings they have received, and in the hope of farther affiftance.

The religion of the Ceylonefe forms a very prominent and diftinguifhing feature of their character; and there are few people, if any, that are more under the influence of fuperftitious fears. Omens regulate their whole conduct, and even determine their deftiny from their birth. When a child is born, they immediately call the aftrologer, who pronounces whether it is deftined to be fortunate or unfortunate. If he declares that it was born to misfortune, they often anticipate its future evils by deftroying it. By various omens they determine whether the bufinefs they undertake will be prosperous or unfuccefsful. A white man, or a woman with child, when they prefent themfelves in the morning, are very favourable omens; but a beggar or deformed perfon is accounted a grievous mifchance, and the fight of him will prevent their proceeding on that day with any bufinefs propofed, if it be in their power to avoid it. Under the impreffion of fuperftitious fears, the poor Ceylonefe confiders ftorms of thunder and lightning, which frequently occur, as a judgment from heaven, and as directed by the fouls of bad men who are fent to torment and punifh him for his fins; and the frequency of their occurrence is regarded as a proof that the ifland is abandoned to the dominion of devils. The Ceylonefe conceive fiends without number to be hovering round them, and they afcribe every difeafe or trouble

that afflicts them to the immediate agency of the demons that are fent to punifh them; while, on the other hand, they regard every bleffing and every inftance of fuccefs, as coming direftly from the hands of the beneficent and fupreme God. In order to guard themfelves againft the power of inferior deities, whom they confider as wicked fpirits, they wear various amulets, and employ charms and fpells, imagining that they may thus ward off the influence of witchcraft and enchantments by which they think themfelves befet on all fides. Many even of thofe who have been converted to Chriftianity, ftill labour under their original terrors; though they believe them to be delufions. Some of the Cinglefe, when their defires are difappointed and their prayers difregarded, quarrel with their deities, revile them, and even trample their images under foot. The inhabitants of the more mountainous parts of the country are diftreffed by their fuperftitious terrors to fuch a degree, as to be driven to madnefs by their difturbed imaginations. The progress of civilization, and the removal of thefe fuperftitious fears, are greatly oppofed by the interefted arts of their priefts, who contrive to direct their operation to their own emolument. The devotion of the Ceylonefe towards fupernatural beings derives its peculiar character from their fuperftitious fears, and confifts of various ceremonies created by them. With regard to what may be properly termed their religion, a difference of opinion has prevailed. Some have faid that with a flight variation of names and forms, it is the fame with that of the Hindops; but there is little reafon to queftion its being founded on a different fyftem of idolatry from that praftifed among the Hindoos. Many of their notions feem to be borrowed from the latter, and with thefe they have blended a confiderable mixture of Mahometanifm. In one point, it is faid, they agree with both, as well as with Chriftians; viz. in acknowledging one Supreme Being who made and governs all things; but they differ from the Mahometans and rigid Hindoos in another refpect; for though they are unable to conquer their original fuperftitions, they entertain the higheft reverence for the Chriftian religion, and fome of the Cinglefe have been converted without incurring fcarcely any cenfure from others for their apoftacy. Nevertheless, whilst thefe people adore one Supreme Being, more powerful than all others, they offer up their devotions to devils, animals, and the very productions of the earth. Befides the one Supreme Being, who is worfhipped as the creator and ruler of heaven and earth, the Ceylonefe acknowledge a number of inferior deities, as well as tormenting demons: the former, who watch over them for their good, are fuppofed to be the fouls of good men, and the demons the fpirits of the wicked; but both are regarded as acting by the permiffion of the Supreme Being. The object of their immediate worfhip is Buddou, or БУДУ (which fee), who is reprefented under a variety of different forms and images. Some have fuppofed that the worfhip of Buddou was introduced into Ceylon about 40 years after the Chriftian æra; at which time, as it is faid, a violent quarrel took place between the Bralmins and the votaries of Buddou, who then formed one of the religious fefts on the continent. The Bralmins, as they fay, prevailed, and the Buddites were compelled to take refuge in Ceylon. The Buddites are faid to have been originally a clafs of hermits, who led a wandering folitary life, remarkable for chaftity, renouncing all the purfuits of the world and all attention to property, and contented with the praftice of devotion amidft the extremeft poverty. Others, however, have traced the religion of Buddou to a much higher original; and pretend that it was introduced in the reign of Vegirajah, who came with his people to Ceylon in the 6th century before Chrift; and that

Goutama

Goutama Buddou, the same that is now worshipped, was supposed to have made his appearance 542 years before the birth of Christ. Accordingly it has been supposed, that the worship of Buddou originated in Ceylon, and that it spread from thence to ancient Hindoostan, to exterior India, Tibet, and even to China and Japan. See BOODH. Between the priests of Boodh and the Brahmins, three principal distinctions have been noted: the former may lay down the priesthood; they eat flesh, but will not kill the animal; and they form no cast or tribe, but are selected from the mass of the people.

The priests of Boodh or Buddou are in Ceylon accounted superior to all others. They are called "Tirinanxes," and are held in high estimation at the court of Candy, where they are entrusted with the chief management of affairs. The king has no authority over them, but endeavours to gain their good will by respecting their immunities, and conferring upon them numerous distinctions. The followers of Buddou believe in the immortality of the soul, and its transmigration into various bodies before it reaches Nimban or the region of eternity. The persons of the Tirinanxes are held sacred; and the king of Candy, although his power be absolute, cannot take away their lives, or in any way punish them even for conspiring against his own life. They chuse their own superiors; and their chief priest is invested with the prerogative of settling all religious disputes. They are exempted from all taxes; but they are totally debarred from wine or women. They never eat meat, or any thing that has had life. To their girdles they suspend strings of beads made of a brownish or black wood, and mutter prayers as they go along. Their dress consists of a large loose piece of yellow cloth thrown over their left shoulder, and fastened round the waist by a girdle of the same. The right shoulder, the arms, the head, and the feet, are completely bare. In one hand they carry a painted cane, and in the other an umbrella of the broad end of the talipot leaf. The temples of Buddou are superior to those of all the other deities; for they never dedicate temples to the Supreme Being, nor represent him by any image. In the temples of Buddou, are figures of men habited like his priests, and placed in various postures: some of them are seen sitting cross-legged on the ground with long bushy heads of hair like their women, while others recline at full length on the ground. In various parts of the island a number of images of the god Buddou are found, which by their extraordinary size indicate the great reverence in which he is held. It would be endless to describe these images, and the various temples in which they are found. He has a temple at Calane, 6 miles N.E. of Columbo; another at Oogulbodda, 6 miles from Calura, which is much frequented; and in Biligamme Corle is an immense figure of a man 6 yards high, which stands about 10 miles N. from Matura, and is said to represent the Cotta Raja, an ancient prince who taught them the planting and use of the cocoa-nut, and instructed them in its various salutary qualities. In the interior of Ceylon, there are many ruins of pagodas and temples, of hewn stone, and of much superior workmanship to those in the lower parts of the country. Several of them are in a state of perfect preservation; and when compared with those that have been erected in later times, they afford the strongest proof either that the Ceylonefe had formerly attained a much higher state of civilization, or that the island had anciently been inhabited by a different race from its present possessors. But many of them have suffered much from the ravages of the Portuguese.

The temples dedicated to the inferior gods are poor, mean, and contemptible, being usually constructed of clay and wood; and mere huts, one story high, without windows, and

covered with cocoa-tree leaves. Without are elephants' heads of earthen ware, little pots, &c. in which passengers deposit their oblations; and at the doors is a pole or flag, near which sits a priest who remains there the whole day; and within are "swammies" or sacred images of different construction, such as gigantic figures of men with boars' heads, representations of beasts, birds, and pieces of consecrated armour, and some very indecent figures of men and women. The priests of the inferior deities, called "Gonies," are easily distinguished from the Tirinanxes by the little respect that is paid to them. They are continually met with in their wandering excursions over the island, and are a set of lazy, impudent vagabonds, who live well on the extortions which they practise on the people.

The superstition of the Ceylonefe supplies ample provision for the support of their religious establishments. The Candians allow certain portions of land and particular taxes to maintain their priests and religious houses; whilst the inferior priests support the temples and themselves by their own dexterity. As all diseases are accounted immediate indications of the divine wrath, a time of sickness is the season when the temples are thronged, and when the priests expect their principal harvest. There are several particular festivals which are held by the Ceylonefe in honour of their gods, and for the purpose of conciliating their favour. In the month of June or July at the new moon, called "perah," a solemn and general concourse takes place to the various religious resorts on the island. At Candy this festival is celebrated with great pomp, and is attended by the king with his whole court. In November, at the time of full moon, there is another festival, which is celebrated in the night. These festivals, which are more solemn and splendid in the dominions of Candy than among the Cinglese of the coast, are very numerous, amounting in the whole to 48. Those in honour of Buddou are not held in the temples, where he is usually worshipped, but on a high hill, called "Hammalleel," or Adam's peak, one of the highest in Ceylon, and at the distance of about 50 miles to the N.E. of Columbo, and at a consecrated tree, denominated the "Bogaha," which see. Notwithstanding the many religious ceremonies and superstitions that prevail among the Ceylonefe, they are far from being such devotees and zealots as any of the sects on the continent. They are firm believers in the doctrines of the immortality of the soul, and the resurrection of the body. It is their opinion, that the souls of the just are immediately after death admitted into the rank of gods, and that their ancient prophets and good kings are long since employed in exercising the powers of this station; while, on the other hand, the souls of the wicked, particularly of unjust tyrants and impious priests, are supposed to have passed into wild beasts and reptiles. The Ceylonefe are rigid predestinarians, and believe that people are born to their peculiar destinies, whether good or bad, which they are incapable of avoiding or altering. They imagine, however, that their calamities may be alleviated by spells and charms, and they place considerable reliance on giving alms; and hence the Ceylonefe are very liberal in the distribution of charity. Presents to their priests and alms to their beggars are considered by them as essential acts of goodness. The Cinglese in our service, whose natural ferocity is in a great measure subdued, reserve a certain proportion of their food for the poor; nor do they withhold relief from the Malabar or Moor who asks it. They extend their compassion even to the brute creation, so that during certain festivals or seasons of devotion, they refrain from killing any living creature, and subsist wholly on herbs and fruits. The Cinglese, who are naturally abstemious, frugal, and free from covetousness, are

are never tempted by indigence to purloin the property of their neighbours; but the Candians, though endued with much more pride and spirit, are by no means so conscientious or honest. The burials among the Ceylonefe are not attended with any particular religious solemnity. Mr. Knox states, that in his time it was customary to burn the dead, particularly the bodies of persons of distinction. But this practice, if it still continues in any part of Ceylon, has escaped the researches of captain Percival: and it must therefore be rare, and confined to the remotest parts of the interior. The ceremonial of burial is very simple; the body being wrapped in a mat or piece of cloth, and carried to some unfrequented spot, where it is deposited.

Captain Percival has pointed out, with his accurate discrimination, some particular shades of difference which arise between the Candians and Cinglese, both from the nature of the country they respectively inhabit, and from the more frequent intercourse of the latter with foreigners. These chiefly relate to their political situation, and their forms of administering justice, which, among the Cinglese, are of course considerably assimilated to those of the people who hold them in subjection. The Cinglese, he says, are a quiet inoffensive people; exceedingly grave, temperate, and frugal. In their application to labour, though their bodies partake of the indolence of their minds, they are capable, when roused, of considerable active exertion; but being less robust than the Moor or the Malabar race, they never make good palankeen bearers, or coolies to carry burdens. They are gentle, charitable, and friendly, and have scarcely any of the false, treacherous, and designing arts, which are often found among the Candians. The countenance of the Candian is erect, his look haughty, his mien lofty, and his whole carriage marked by the pride of independence. The humble yielding deportment of the Cinglese, on the other hand, with the patient or rather abject endurance which is depicted in their faces, plainly denotes the dependent and helpless state to which they are reduced. A mild and equitable government, with a strict administration of justice, cannot fail to conciliate the minds of these people who have already been trained to submission, and an unbounded reverence for Europeans. As the natural dispositions of the Cinglese are mild and humane; their morals, except in the promiscuous intercourse of the sexes, are far from being depraved. The Candians, who have acquired warlike habits, are thus induced to look with contempt on the Cinglese, who are almost entirely unacquainted with the use of arms.

The dress of the poorer sorts of the Cinglese indicates their indolence and wretchedness; and the women of this class are employed in performing all kinds of servile work, and in bringing the fruits and vegetables to market. Persons of superior rank pay particular attention to their dress. They wear a piece of calico wrapped round their waists, which either hangs loose down to their ankles, or is drawn together between the legs, in the form of wide trowsers. The body is covered by a jacket with sleeves, having the appearance of a shirt and waistcoat, and is buttoned at the neck and wrists. The buttons are numerous, and they are either of silver, gold, or precious stones. To their ears they fix enormous ear-rings, which are adapted for receiving them by applying pieces of wood to the orifices in their infancy. The shoulders and body are left completely bare. On their heads they wear caps of various shapes, and others of them coloured handkerchiefs, as fancy suggests, or the rules of their cast prescribe. The dress of the higher rank of women is similar to that worn by the black Portuguese ladies; and that of the young Cinglese females is not inelegant, nor are their appearance and manners disagreeable.

The Cinglese are ingenious and expert artificers, and display their dexterity in gold, silver, and carpenters' work. The number of persons employed in all sorts of handicraft work renders furniture, and other similar articles, both good and cheap. The Cinglese supply the English garrisons with beef, fowls, eggs, and other such articles, at a very moderate rate, as they seldom use them for their own consumption; beef, in particular, they never taste, as the cow is an object of their worship. Some of them drink arrack, and all ranks use toddy, both as a medicine, and for the sake of the liquor itself. The vessels which they use for holding the juice of the palmyra and cocoa-tree is a rind of the betel-tree, resembling in colour and texture bleached sheep-skin, and being as strong and better adapted for retaining liquor. Fowls are plentiful, and sold at from 4d. to 8d. each; eggs at 2d. a dozen; and a good dish of fish may be bought at from 1d. to 2d.

As the Cinglese live under the protection of the British government, they are subject to our laws and forms of administering justice, except in very few points, with regard to which they are permitted to retain their ancient customs. The same laws of inheritance remain among all the Ceylonefe: the lands descend to the eldest son, if the father makes no will; but a certain proportion of the property must always be appropriated to the maintenance of the widow and the younger children. The Cinglese under the British dominion are governed by the native magistrates, the controuling power residing always in the servants of the British government. All our possessions in the island are divided into corles and districts, the subordinate superintendence of which is assigned to the "Moodeliers," or native magistrates, who are always chosen from among the class of the nobles styled "Hondrews," and "Mahondrews." The nobles, or "Mahondrews," from whom the Moodeliers are chosen, form a particular cast completely distinct from the others, and their appearance, dress, and manners indicate superiority to the rest of the natives. These Mahondrews are fairer than the other Cinglese, from their being less exposed to the sun; when they go abroad, they are entitled, by their rank and wealth, to be carried in coolies or palankeens; or when they go on foot, their attendants hold over their heads the leaf of the talipot. In public their servants carry their umbrellas and betel-boxes, which latter are usually made of ivory, tortoise-shell, silver, or calamander wood inlaid. In their own hands, they carry a small silver box, like a watch, to hold their chinam. In their manners they are very affable, and much more polite and engaging than the natives of the continent of India. They are partial to the Europeans, who have been accustomed to treat them with confidence and gentleness; and on all occasions they have manifested a desire of copying the manners of the Europeans. Their dress is very rich, and combines the ancient European with the Asiatic. They are fond of magnificence, and particularly at their wedding-feasts they are anxious to exhibit their splendour.

Many of the Cinglese have been converted to the Christian faith; and whilst some profess to be Roman Catholics, others attend the Calvinist and Lutheran worship; but the fundamental principles of Christianity are understood by scarcely any one of them. The natives of Ceylon, says Capt. Percival, belonging to our settlements, are already become much attached to the English; and there is every reason to expect that their prejudices against foreigners will soon be done away by our liberal conduct towards them. For an account of the Candians, see CANDY. Of another class of the inhabitants of Ceylon, a brief account has already been given under the article Bedahs. These Bedans, or Vaddahs, are scattered

over

over the woods in different parts of the island; but they are most numerous in the province of Bintan, which lies to the N.E. of Candy in the direction of Trincomalee and Batacolo. Here they are completely savage, and have never entered into any intercourse with the other natives, or have scarcely ever been seen by them. They acknowledge no authority beside that of their own chiefs and religious men. Those that border on the district of Jafnapatam, and the tribes that inhabit the W. and S.W. quarters of the island, between Adam's peak and the Raygam and Pasdam corles, are the only Bedahs who have been seen by Europeans; and they are much less wild and ferocious than those who live in the forests of Bintan. The Bedahs, as they acknowledge no power but that of their own chiefs, adhere, from generation to generation, to their own laws and customs, without the slightest variation. They subsist entirely by hunting deer and other animals, with which their forests supply them. The flesh of these animals, and the fruits that grow spontaneously, compose their whole food. They sleep either in trees, or at the foot of them; and in the latter case secure themselves from wild beasts by placing thorns and bushes all round them. As soon as the least noise rouses the apprehension of a Bedah, he climbs up the tree with the utmost expertness and celerity. The dogs of the Bedahs are remarkable for their sagacity, and not only readily trace out game, but also distinguish one species of animals from another. These faithful animals constitute their chief riches. When their daughters are married, hunting-dogs form their portion; and a Bedah is as unwilling to part with his dog as an Arabian with his horse. Those Bedahs who converse with the other natives are represented to be courteous, and in address far beyond their state of civilization. Their religion is little known; they have their inferior deities, corresponding to the demons of the Cinglese, and observe certain festivals. On these occasions victuals of various sorts are placed at the root of a tree, and the ceremonies of the festival consist in dancing around them. Their origin has never been traced; but they are supposed to have been the aboriginal inhabitants of the island, who, upon being overwhelmed by their Cinglese invaders, preferred the independence of savages to a tame submission. For another account of them, see BEDAHS.

At the head of the class of quadrupeds in this island, and superior to those of the same species found in any other part of the world, are its elephants. See ELEPHANT. Of the animals applied to domestic purposes Ceylon produces but few. The horse and sheep are not natives of this island, and can scarcely be made to thrive when imported. The horses, which are bred on the small islands beyond Jafnapatam are a mixture of the Arab and the common horse of the Carnatic. They are chiefly used for drawing gigs and other light vehicles for pleasure: the Manilla, Pegu, and Atcheen horses are also used for these purposes. Sheep, as well as horses, are much dearer here than in any other part of India. Sheep, in particular, sometimes fetch 10 and even 20 times the price they bear on the opposite coast of Coromandel. In Ceylon horses are never employed in servile work, or for drawing burthens. As they are scarcely ever castrated, they are so spirited and vicious as in some degree to be unfit for these purposes. The oxen of Ceylon are remarkably small, generally of a black colour, and scarcely exceed in size our calves of a year old; the beef, however, is fat, and tolerably good. The price of an ox is about 11. 5s. sterling. These bullocks, though small, are very useful, and are employed in drawing artillery, and conveying burthens which are too large for the coolies to carry, and which they draw in carts, known in the island by the name of "bandies." These are long, narrow clumsy vehicles, with the body

resting on a beam, which projects like the pole of a carriage, to the end of which is attached cross-wise a piece of wood, very thick, and about six feet long. Under it are hoops for the necks of the oxen, which are kept fast by pegs; so that the whole weight of the load rests on the neck and shoulders of the cattle, while they drag the cart along. The sides of the cart are composed of thin boards, the skins of buffaloes, or split bamboes; while a strong post of wood is placed at each of the four corners to give it shape or hold it firm. The bottom is formed of boards, or interwoven bamboes: the axle-tree and wheels resemble those of the Irish truckles, or cars, being blocks of wood rounded. Buffaloes, which are much larger and stronger than the oxen, are much more frequently employed in drawing burthens. These animals are found in great numbers on the island, both wild and in a tame state, and are all of the same species and appearance. See BUFFALO. The markets of Ceylon are well supplied with pigs, which may be always had at a moderate price from 5s. to 10s. The forests of this island are rendered dangerous by beasts of prey and noxious reptiles of various kinds. Varieties of deer and elks are every where met with in the woods and jungles. Hares, like the common ones of Europe, abound in every quarter of the island. The wild hog is more esteemed than the tame; and the wild bears, which are large and fierce, add much to the dangers of the Ceylonese forests. The smaller species of tiger infests the woods; but the larger kind, called the royal tiger, is not an inhabitant of the island. Ceylon has also the tiger-cat, the leopard, jackals, the hyæna, and bear, great number of monkeys of different species, and a variety of porcupines, racoons, armadilloes, squirrels and mungooses; the ichneumon, scorpion, or flying-fox, several species of rats, and the ant-eater are also animals found in this island. The birds of Ceylon form a very numerous class. All sorts of our domestic poultry, turkeys excepted, are natives of this island; and there are few birds found in our marshes that do not abound here. Ducks, geese, pheasants, parrots, and parroquets, are found in great numbers, both wild and tame, and usually in flocks. Snipes are also plentiful in the wet season, which is the best time for shooting them. The florican, which is a species of the crane kind, about the size and weight of a large capon, lives among the woods, and is esteemed excellent for food. The banks of the rivers and lakes abound with storks, cranes, herons, and water-fowl of various descriptions. Wood-peckers are also found with beautiful top-knots of a golden colour. Pigeons, both wild and tame, form a principal part of the birds of Ceylon, and the cinnamon pigeon, in particular, which is of a beautiful green colour, and as large as our common fowl, swarms in Ceylon at all seasons of the year. There are a few partridges of the small red-legged kind, which are found on the west coasts between Nigumbo and Manaar. Among a great variety of smaller birds, the honey bird and tailor bird attract particular notice. The crows are here, as in every other part of India, exceedingly impudent and troublesome, and are with difficulty excluded from the houses. Here are also kites and vultures, the Indian roller, the yellow-crowned species of peacock, and the jungle-fowl, which resembles in size our common fowl, but presents a much more beautiful plumage and is distinguished by its double spurs. The reptiles and insects of Ceylon are very numerous, and there are several species very little known. Serpents also abound to the great annoyance of the inhabitants; among which we may reckon the covra capello or hooded snake, from 6 to 15 feet long, the covra manilla, the most dreadful of all snakes, about two feet long, whose bite proves instantly fatal; the whip-snake and grass-

snakes,

snakes, both poisonous, the water-snake, wood-snake, and a few other species among old ruins that are perfectly harmless. The rock-snake extends to 30 feet in length, and inhabits chiefly the rocky banks of rivers. Alligators of an immense size infest all the rivers of Ceylon, and render them every where very dangerous. The guana resembles the alligator, but is perfectly harmless. It lives in holes in the ground, is esteemed good food by the natives, and makes excellent curry, or rich soup. An immense number of toads, lizards, blood-suckers, chameleons, and a variety of others of the same class, abound every where throughout the island. Besides the leeches which are employed in the materia medica, there is another species which infests the woods and swampy grounds of Ceylon, particularly in the rainy season, to the great annoyance of passengers. The insects of Ceylon are very numerous; but the most mischievous is a species of ant, called the white ant, which is equally destructive in the fields and the dwelling houses. Land tortoises abound in many parts of the island. The black scorpion of Ceylon is a very dangerous insect, and its sting is frequently mortal. The centipedes, or common large spider, and an overgrown beetle, called the carpenter, from its boring large holes in timber, are met with in Ceylon. Fish of every sort, in great abundance, are found in the lakes and rivers of Ceylon, as well as in the surrounding seas. Many excellent kinds of fish are caught all round the coasts of this island, and form a principal article of the food and traffic of the natives.

Ceylon is particularly prolific in plants. Except in one or two species, the mangoes of Mallegon, and the manderine orange of China, this island maintains an undeniable superiority over all our settlements on the continent of India. Among the fruits which grow spontaneously are found pine-apples, oranges, pomegranates, citrons, limes, melons, plums, pumpkins, water-melons, squashes, figs, almonds, mulberries, raisins, bilberries, bog-berries, &c. We might also mention Mangoe, Shaddock, Malacca rose-apple or Malacca apple, the cushoo apple, the katapa resembling our walnut, the paupa or papaya of the size of a melon, and resembling it in taste and smell, the custard apple, the tamarind, the plantain, two species of the bread-fruit tree, the cocoa tree, the betel-tree, several sorts of pepper, cardamoms, coffee, the palm or palmyra tree, the sugar-tree, the tea-plant, the talipot-tree, the banyan-tree, the cotton-tree, the tickwood tree, or oak of Ceylon, nando wood, satin-wood, calamander, manjapumeram, morinda, findric-mal, used by the natives to supply the want of clocks, as it continues open from four in the evening till four in the morning, and remains shut during the other twelve hours, limes, the manghas tree, the true ebony, gamboge, ambergis and coral, gum-lac, the sugar-cane, the nepenthes, known among the Cinglese by the name of Badura, the champaca, rice, corocan, which is a small seed, like our mustard, beat in a mortar and formed into cakes, and tanna, a prolific grain that requires hardly any cultivation. But the most valuable and important of all the vegetable productions of Ceylon is its cinnamon. See CINNAMON.

Ceylon has long been famous for its precious stones, of which it furnishes no less than 20 different sorts. The ruby, topaz, and diamond of Ceylon or Matura, are not so valuable as those of Golconda or the Brazils: but the sapphire, amethyst, aquamarine, and tourmalin are equal to those of any other country. To the class of minerals we may refer the diamond, the ruby, the hyacinth, garnet, cinnamon-stone, agate, amethysts, sardonyx, emerald, jasper, tourmalin, red, green, blue, and yellow, topaz, blue and green sapphire, blood stone, nephrytus, or kidney stone, white, yellow, brown, and black crystals, cat's eye, and cornelians. For the pearls of

this island; see PEARL. Lead, tin, and iron ores are found in the interior, but they are never wrought or applied to any purpose. Several mines of quicksilver were wrought by the Dutch in Ceylon. Mineral waters of various kinds are supplied by springs and wells in this island.

The revenue of Ceylon is an article of great importance to the British government. In 1795, the expence of Ceylon to Holland was 57,934*l.* sterling. But this deficiency was easily made up by the cinnamon, cardamoms, coffee, and other articles sent from the island to Europe, as well as by the profits of the pearl-fishery, and the imposts laid on the several articles imported into Ceylon from other parts of India. As to the sources of the revenue of the island, Capt. Percival observes, that the cinnamon and pearl fishery together produce an annual revenue of about 350,000*l.* sterling. All calicoes, cottons, and other Indian manufactures, must be stamped on importation into the island, and pay a duty of 5 per cent. The fisheries, the betel-nut, and the manufacture of arrack are annually farmed out to the black merchants, and the revenue derived from them amounts to at least 50,000*l.* per annum. From pepper, cardamoms, elephants, ivory, precious stones, and a few other articles of native produce, such as cocoa-nut oil, coya-rope, &c. government derives an annual revenue of about 800,000*l.* Something is also derived from a tax imposed on the rice imported for the use of the troops. Out of this revenue the salaries of the civil officers and the pay of the troops are defrayed, as well as the other incidental expences of the island, such as the erection and repair of public works.

The natural strength of the island of Ceylon, and the few points at which it can be safely approached, seem to promise it a great degree of security; nevertheless a considerable military establishment is necessary to protect it completely against a powerful or an enterprising enemy. The force formerly maintained by the Dutch on the island consisted of about 3000 Europeans, and 2000 Malays, Topasses, and native Cinglese. This military establishment, rarely exceeding 5000 men, was found sufficient to repel the attacks of the native princes, and from the nature of the country, of baffling the attempts of any European force that did not much exceed in number the troops stationed at any particular point. But it is not merely the defence of the island itself, that renders it necessary to maintain a powerful force here. Its situation is such, that it affords the best points for stationing those troops that are destined to protect our several establishments in India, and to act as a constant check on the native princes. Troops may be sent to any of our possessions in the peninsula of India from Ceylon at a less expence, and in much shorter time, than from either of the presidencies of Bombay or Madras. The smallest establishment, as Captain Percival apprehends, which can be appointed to this island, must consist of at least three European regiments, and seven or eight battalions of native troops for the garrisons of Trincomalee, Columbo, and the Point de Galle alone; without including the fort of Jafnapatam, Manaar, and the other subordinate posts round the island, which will require garrisons proportioned to their importance. The tranquillity and prosperity of the island, after it has been sufficiently secured by a proper military establishment, must depend upon the arrangement of the civil department, and the due administration of justice. Whilst it remained in subjection to the Dutch, its governor was absolute with regard to the affairs of the island, but subordinate to the governor of Batavia, who was considered as the governor-general of all the Dutch settlements in India. The governor of Ceylon was assisted by a council, composed of the most respectable Dutch gentlemen residing at Co-

lumbo.

Columbo. The members of this council were nominated by the governor, and confirmed in their appointments by the government of Holland. For the administration of justice, a high court was established at Columbo, to which the ultimate decision in all capital cases belonged. At Trincomalee, Jafnapatam, and Point de Galle, there were subordinate civil magistrates. And in all the inferior forts and stations through the island, there were petty courts called "landraeds," for the more speedy administration of justice, and matters of less importance. In these the military commanders of the district usually presided. An appeal lay from all these inferior courts to the high court of justice at Columbo. The whole Dutch civil establishment, independent of the military who acted as civil magistrates, was computed to amount to 450 persons, comprehending all who were anywise attached to it. According to the estimate of the Dutch, Ceylon ranked only as their eighth Indian government. For some time after the English took possession of Ceylon, the government was necessarily a military one, till the arrival of governor North, when the civil establishment took place. He abolished the office of provost-marshal, and the jurisdiction of the military courts, and restored the civil establishment nearly to the same form which it bore under the dominion of the Dutch. He re-established the supreme court of justice at Columbo, with a civil magistrate to superintend the police of the fort, and another in the Black Town. The various officers necessary for these departments were also appointed at the same time; and similar regulations were adopted through the other parts of the island. The petty courts in the distant parts of the country still continue to be presided over by the commanding officer of the nearest post. The government of Ceylon was for some time dependent on that of Madras, but is now only subject to that of the mother country, and entirely unconnected with the East India Company. For the conduct of military affairs, there is a military board established at Columbo, consisting of six members selected from the commanding officers of the several corps stationed in Ceylon. The commander in chief of the forces in the island is president of this board, and the commandant of Columbo for the time being, vice-president. To it are attached a secretary, clerks, &c. with suitable salaries. Robertson's Hist. Disquisition concerning India, 8vo. 1799. Percival's Account of the Island of Ceylon, 4to. 1805. Asiatic Researches, vol. vi.

CEYRAS, a town of France, in the department of Herault; 7 miles E. of Lodeve.

CEYSERLAT. See CEIZERLAT.

CEYSERIEU, a town of France, in the department of the Ain, and district of Bellay; 5 miles N. of Bellay.

CEYSSAC, a town of France, in the department of the Gironde, and district of Blaye; ten miles S. E. of Blaye.

CEZE, a river of France, which runs into the Rhone, 2 miles W. of Caderouffe.

CEZIMBRA, a small sea-port town of Portugal, seated on the Atlantic, in a hollow surrounded by steep, rocky, naked summits, and close to the sea; 10 miles west of Setuval. The harbour is small and badly protected; and close behind the town is an old castle situated on a mountain and visible to a great distance. The town is supported by the fishery, and sends a great quantity of fish to Lisbon. In former times, Cezimbra was more considerable.

CEZY, a town of France, in the department of the Yonne, and district of Joigny; three miles N. W. of Joigny.

CHA, in *Commerce*, a silk stuff very thin and light, made in China, which most commonly serves the inhabitants

for a summer dress; it is somewhat like our taffeties, or lustrings.

CHA, in *Geography*, a town of China of the third rank, in the province of Fo-kien; 25 miles S. S. W. of Yen-ping.

CHAA, in *Botany*, Bauh. Pin. See **THEA**.

CHAA, in *Ancient Geography*, a town of Peloponnesus in Triphylia, towards the N. W. of Macistus. It was pretended in the time of Strabo, that it was designated by Homer under the name of Pheia, and that it was the subject of a war between the Arcadians and Pylians.

CHAALLA, a town of Arabia Felix. Strabo.

CHAALONS, in *Geography*. See **CHALONS** *sur Marne*.

CHABACA, in *Ancient Geography*, a town of Cappadocia, placed by Strabo in the country called Sillene.

CHABALA, a town of Albania, according to Ptolemy.

CHABALON, or **CHABAL**, a town of Palestine, placed by Josephus S. of Tyre, and in the vicinity of Ptolemais.

CHABANOIS, in *Geography*, a town of France, in the department of the Charente, and chief place of a canton, in the district of Confolens; three leagues S. of it. The place contains 1,444 and the canton 10,306 inhabitants. The territory comprehends 310 kilometres and eleven communes.

CHABANON, M. in *Biography*, *Ci-devant* member of the *Acad. des Inscr. et Belles Lettres* at Paris: a poet and an ingenious writer on various subjects of literature and criticism. But we allow him a place here only as a writer on music. In 1780 he published a work of considerable merit, entitled, *Observations sur la musique et principalement sur la metaphysique de l'art*. "Observations on music and chiefly on the metaphysics of the art." This was only the first part of his plan; but in 1785, the work came out entire, under the following title: *De la musique considerée en elle même, dans ses supports avec la parole, les langues, la poesie, & le theatre*; "Concerning music, considered in itself, and in its connexion with speech, languages, poetry, and the theatre." In which he discovers a refined taste, nice discernment, much meditation and knowledge of the subject, and an uncommon spirit of investigation.

Though our sentiments are not always *in tune* with the opinions and reasoning of M. de Chabanon, yet there are such enlarged views and luminous and elegant observations in analysing the sensations which music excites, in assigning reasons for the pleasures which this art communicates to ears that vibrate true to musical intervals and concordant sounds, that its perusal will generate reflexions on the art, and set the mind of a musician at work, who had never before regarded music but as a mere object of sense.

M. Chabanon has proved that music has its metaphysics, as well as philosophy and languages. This work therefore requires less knowledge of practical music in the reader than a mind accustomed to reflexion. The author himself says that "he writes more for intelligent readers, ignorant of music, than for musicians who neither know how to reflect nor how to think," and we fear there are such to be found sometimes, even among great performers.

M. Chabanon informs us, that he has studied music theoretically and practically—execution and composition—has played out of the same books with the greatest masters of all countries; and has reflected on the subject more than 30 years. Indeed, his work seems to have been the fruit of long experience and observation, and so totally independent of the variations which music has experienced of late years, that the changes in taste, style, and execution leave his observations still in force.

The author confines his reasoning to what he calls the most essential part of music, melody; perhaps too pertinaciously, as music now can never be regarded as complete but by the union of melody and harmony. By his definition of music, he seems to regard harmony as unnecessary to its existence. This ingredient, so essential in modern music, though deemed unnecessary in high antiquity, and though still unknown in three quarters of the globe, would hardly be called for in Europe, by obtuse northern ears (according to Rousseau) which want stimulants to put them in vibration, awaken attention, and excite pleasure.

When the author says it is impossible to conceive an agreeable melody, whence a base and chords may not be deduced, we cannot entirely agree with him: for melody is so far from always arising from harmony, that the contrary is frequently true. There are many delicate and pleasing passages in melody that cannot receive an accompaniment without injury. The Italians, whose taste and feeling in music seem more refined and acute than the people of any other country, are so sensible of this, that they frequently leave a score thin rather than crowd it with notes of no other effect than to destroy the beauty and expression of the melody.

The superiority which the author gives to melody over harmony will please the extremes of ignorance and refinement; but the middle class of half-bred judges and exclusive lovers of harmony, will be scandalized at the impiety of the decision which annihilates the chief merit of their favourite old masters, and excommunicates psalmody from good music, if not from the church.

The author discusses the question, whether music is an imitative art? and whether its original object was imitation? but throws a doubt on its power of imitation, as well as censures the attempt, except in some very few instances. Nothing so true as that situation gives energy and meaning to dramatic music, which taken out of its niche seems insipid or absurd. In a theatre the scenes, dress, action, and previous business, prepare the mind of an auditor and spectator for illusion, and enable it to assist the poet, composer, painter, and performer to deceive itself.

We can subscribe to this author's opinions, refinements, and metaphysics, concerning music, and allow them to be not only ingenious, but just; except when, in order perhaps to flatter his nation, he prefers French singing to Italian. While he confined himself to instrumental music, he reasoned like a man of knowledge, taste, and candour; but in speaking of singing, his opinions are so totally different from those of every nation in Europe, except France, that we cannot help regarding them as national prejudices. "The Italians (he says) either in swelling their tones, or by a stronger aspiration, introduce that exaggeration in their singing with which we are so much displeased. I remember having heard 20 years ago *Voi amanti*, when first sung at Paris by Signora Piccinelli to the original Italian words, displeased so much, that the audience murmured at a music so barbarous, or at least so different from our own; till French words were ingeniously applied to the same air which had so displeased before; when it soon became, by a more sober and mitigated manner, when sung by a native of Paris, so familiar and popular, that we began to doubt whether it could ever have been sung to Italian words." All this defence of French vocal expression, or rather attack of the Italian, is a proof that this ingenious author, with all his study, practice, and experience in instrumental music, was very ill qualified to direct the public opinion concerning vocal.

M. Chabanon's book was written in the midst of the war of musical opinions between the Gluckists and Piccinists. The author, who died in 1800, had heard very little good

singing, and was less able to judge with decision on that art than of any other musical faculty or excellence. He is said to have been not only an excellent judge of instrumental composition and performance, but, among dilettanti, to have ranked high as a performer on the violin.

CHABAQUIDDICK *Isle*, in *Geography*, an isle of America, belonging to Duke's county in the Massachusetts. It lies near to, and extends across the east end of Martha's vineyard island.

CHABEIL, or **CHABEUIL**, a town of France, in the department of the Drôme, and chief place of a canton, in the district of Valence; 2 leagues S.E. of Valence. The place contains 4,050, and the canton 11,107 inhabitants; the territory includes 285 kilometres, and 12 communes.

CHABERIS, or **CHABERUS**, in *Ancient Geography*, a river of India, in the peninsula on this side of the Ganges, according to Ptolemy; which discharged itself by a great number of branches into the sea on the eastern side, N. of the promontory of Caligicum, and near it. See **CAVERY**.

CHABERIS, *Caveri-Patnam*, a town of India, in the eastern part of the peninsula, on this side of the Ganges, and at the northern mouth of the river of the same name, according to Ptolemy.

CHABINUS, a mountain wholly covered with wood, according to Diodorus Siculus, who places it in Arabia Felix, upon the coast of the Red Sea.

CHABIS, in *Geography*, a town of Persia, in the province of Kerman, at the edge of a desert, on the confines of Segestan; 115 miles N. of Sirgian.

CHABLAIS, *duchy of*, a province of Savoy, which stretches along the southern bank of the lake of Geneva, as far as the Valais, which bounds it on the east; on the south it is bounded by Faucigny; and on the west by the republic of Geneva. The country, though mountainous, exhibits a delightful variety of fields, meadows, vineyards, and woods, and is well cultivated and populous. Its capital is Thonon.

CHABLASII, in *Ancient Geography*, a people of Arabia Felix, who inhabited a district in the vicinity of the Nabathæans.

CHABLEAU, a middle-sized rope for tracking and drawing bateaux up rivers. It is impossible to row large boats loaded with provisions, &c. up violent rapids, such as those of the river St. Laurence above Montreal, or to take them up, indeed, with setting poles. Each bateau, therefore, employed in carrying provisions, ammunition, &c. from La Chine, about 12 miles higher up that river than Montreal, to the upper posts, has a rope fastened to its bow. And as it is extremely difficult for the crew of one boat to take her up some of the rapids with the assistance both of the rope and setting-poles, the bateaux, when loaded, generally start from that place in divisions or brigades, and when they reach the foot of a bad rapid, the crews of two or three of them join together, and first take up one of them, then another, and so on.

CHABLER, to fasten a heavy parcel, bundle, burthen, or weight to a rope, in order to haul and raise it up, as they do in store-houses and work-houses.

CHABLIS, in *Geography*, a town of France, in the department of the Yonne, and chief place of a canton, in the district of Auxerre, celebrated for its excellent white wine; 3 leagues E. of Auxerre. The place contains 2223, and the canton 7736 inhabitants: the territory includes 182½ kilometres, and 13 communes.

CHABNAM, or **ROSEE**, in *Commerce*, a kind of muslin or cotton linen, very clear and fine: it comes from the East Indies, particularly from Bengal.

CHABNO,

CHABNO, in *Geography*, a town of Poland, in the palatinate of Volhynia: 68 miles N.E. of Zytomiers.

CHABON, or CHEBBON, in *Ancient Geography*, a town of Palestine, so called by Eusebius and Jerom, who place it in the tribe of Juda.

CHABONS, in *Geography*, a town of France, in the department of the Isere, and district of La Tour-du-Pin; 30 miles S.E. of Lyons.

CHABOR, or CHABORA, in *Ancient Geography*, a strong place of Asia, in Mesopotamia, situated at the confluence of the Chabor and Euphrates, according to Ptolemy.

CHABOR, or CHABORAS, *Khabour*, a river of Asia, in Mesopotamia, springing, according to Ptolemy, from mount Masius. It ran towards the S.W., passed near the town of Anemusia, and discharged itself into the Euphrates, in the strait on which were situated the towns of Chabor and Cereasium. Julian is said to have crossed this river on a bridge of boats. Strabo and Ammianus Marcellinus call this river Aboras. See ABORAS.

CHABORA, a town of Mesopotamia, placed by Ptolemy near the Euphrates.

CHABORAS, a mountain of Assyria, which, according to Ptolemy, lay on the borders of Media.

CHABOT, in *Ichthyology*, the common French name of the small fish, vaguely called by the English fishermen the *miller's thumb*. See *CORRUS gobio*.

CHABOTTES, in *Geography*, a town of France, in the department of the Higher Alps, and district of Gap; 7 miles N. of Gap.

CHABRIA, a town of Persia, 60 miles N.E. of Astabat.

CHABRILLAND, a town of France, in the department of the Drôme, and district of Crest; 3 miles W. of Crest.

CHABRIS, a town of France, in the department of the Indre, and district of Issoudun; $7\frac{1}{2}$ leagues N.N.W. of Issoudun.

CHABRIUS, in *Ancient Geography*, a river of Macedonia, which had its source in mount Berricenses, ran towards the south, watered the town of Anthemusia, and discharged itself into the sea. Ptolemy.

CHABURA, a fountain of Asia in Mesopotamia, mentioned by Pausanias, Athenæus, and Pliny; the latter of whom says that its waters were naturally perfumed.

CHACA-HAMAR, in *Geography*, a town of Chinese Tartary. N. lat. $44^{\circ} 50'$. E. long. $92^{\circ} 37'$.

CHACAL, in *Zoology*, the French name of the animal we denominate jackal, *canis mesomelus*, Linn. Buffon calls it *chacal*, and likewise calls the *canis aureus* of Schreber and Cmel. *chacal adive*.

CHACAMEL, in *Ornithology*, the name given by Buffon to the crying curassaw, *crax vociferans*, Gmel. It is also called *chachalacametti* in the Hist. New Spain. Fernand. &c.

CHACANGA, in *Geography*. See CHICANGA.

CHACA-TERGASO, a town of Asia, in the country of Tibet, 42 miles N.N.E. of Tchoutri.

CHACAO, a port town of South America, in the island of Chiloe, where the governor usually resides.

CHACE. See CHASE.

CHACE, *La Chasse*. French, *Alla Caccia*, Ital. in *Musique*, all equally imply a *hunting-piece*, or movement, in which the French horn, flute, and style chiefly prevail. "With early horn," an admirable song in the hunting style, accompanied by the French horn, composed by Galhard for a pratincole entertainment at Covent Garden, 60 years ago, was in such favour during the middle of the last century,

that Beard and Lew hardly ever escaped being called upon every night, for a long time, to sing it at the theatres between the acts, or in the play and farce. One of the most animated and pleasing of Haydn's symphonies is called "La Chasse." Schobert, Kotzeluch, Clementi, Duffee, Steibelt, Cramer, and other great players and eminent composers for the harpsichord and piano forte, have severally published a chasse that has never failed to please whenever well played. See RUSSIAN MUSIC.

In the "Almanac de Gotha" for 1772, there is an abridged history of music in Russia, well drawn up, and allowed by the natives themselves to be authentic. In this sketch of musical history we have an account of a band which attends some of the grandes of that empire in the chase of so extraordinary a kind, that it was long regarded as fabulous by the rest of Europe, till the late coronation of the present emperor Alexander, at Moscow, at which splendid solemnity many of our countrymen were present, who have sent and brought hither a description of the extraordinary performance of this band, which exactly tallies with, and confirms that in the Gotha almanac 30 years ago. We shall, therefore, under the present article on the music of the chase, give our readers, in our own language, a translation of this part of the history of Russian music.

"The lovers of the chase in Russia formerly knew no other musical instrument than an ordinary brazen horn of a strait conical form, a little curved.

"These clumsy and ill-shaped horns in themselves resembled each other in length and caliber, and, consequently, produced the same tone in tuning them together. It was not music which they produced, but a kind of frightful scream, fit at best but to terrify and start game. The grand vizier, Nariskin, undertook to reform this music, or, at least, to render its effects less barbarous. With this view, he applied to one of the huntsmen of the court, named Marzeleh, a name which ought to be recorded in the history of music. This inventive spirit began by having 37 horns made of the same kind, but of different length and diameter; so that by each producing a different tone, he acquired a series of sounds, extending to three complete octaves. These 37 horns were distributed to as many young men of the hunt, who were taught to blow them in such a manner as to produce the clearest and sweetest tone possible. After this, they were taught musical measures, and to count the time not only of sounds but of silence, so as to know precisely when the tone of their instrument would be wanted, and for what duration, in proportion to the measure of the air or piece of music that was to be executed. This was certainly the most difficult part of the task; but the Russians accustomed to discipline and obedience, and manifesting docility, and a disposition for so pleasing an art, by a little patience on the part of the master, and great perseverance in the pupils, the undertaking was crowned with success. The rest was the business of the composer, who distributed the several parts to the performers of each note, with the rests in whole bars and fractions, which they had to count between every two notes in their part. From this singular invention, in a short time, these young chasseurs were able to perform whatever was put before them, and they are at present in such high practice, that they play marches, airs, entire symphonies, with their allegros, andantes, and prestos, executing with astonishing precision the most difficult compositions crowded with semiquavers, and even demi-semiquavers. During performance every one holds a paper in his hand, on which the notes, or rather the repetition of the single tone of his instrument is marked, as well as the rests which he has to count, in order to be ready at the instant his

tone is wanted, either loud or soft, short or long, according to the pleasure of the author.

"The ear of the auditor is so deceived, that he imagines passages to be played by one instrument, which, if no one note is repeated, is performed by as many different instruments as there are notes in the melody.

"This music has the most astonishing effect, particularly in the open air, where it has room to expand without the vibration being reflected back by the echoes which these sonorous instruments excite. The effect is at once grand, majestic, and pleasing: indeed, it is impossible to form an accurate idea of it without hearing it. Twenty-four or thirty common French-horns may, perhaps, if united, something approach to the same effect; but always of an inferior kind to the astonishing harmony of these Russian-horns, which, by the undulation and vibration of such full and round tones, which no one instrument can produce in succession with that equal force, at once astonishes the ear and the hearer."

At Petersburg, this music is often heard in a fine evening on the Neva, where it generally precedes the barges of the court; and we have been assured by good judges of music with nice ears, that they have not discovered, till they were told, how this music was produced; and that, as in a belfry, where no ringer has more than one bell or note to his share, so here a man's whole life is devoted to one and the same sound or note.

CHACE of a gun. See CANNON.

CHACE, *order of, or grand order of Wurtemberg*, was instituted by Eberard Lewis, Duke of Wurtemberg, in 1702, in allusion to his being grand huntsman of the empire. The ensign is a cross of gold of eight points, enamelled red, with an eagle displayed, and bugle horns. On the centre is the letter W, and over, a ducal hat of the empire. The cross is worn pendent to a scarlet ribbon, from the left shoulder to the right side: on the left breast of the coat is a silver star, and the motto in a green circle is "*Amicitiae virtutisque fœdus*."

CHACE, in *Geography*, a town of France, in the department of the Mayne and Loire, and district of Saumur; one league S. of Saumur.

CHACHALACAMETL, in *Ornithology*. See CHACAMEL and CRAX vociferans.

CHACHAPOYAS, in *Geography*, a jurisdiction of South America, in Peru, in the diocese of Truxillo. As it lies without the Cordilleras, its temperature is hot, and towards the east its territories have a low situation. It is of great extent and thinly inhabited; and the products of the earth are only such as naturally flourish in such a climate. The Indians here are very ingenious in making cottons, particularly tapestry, which, by the liveliness of the colours, and delicacy of the work, exhibit an elegant appearance; these, together with the sail-cloth, yield great profits to the country, as they are highly valued in the other provinces.

CHACING. See CHASING.

CHACK, in the *Manege*, is taken in the same sense as *beat upon the hand*; it is applied to a horse when his head is not steady; but he tosses up his nose, and shakes it all of a sudden, to avoid the subjection of the bridle. Turkish horses have this fault frequently. We say, they beat upon the hand; and neither the best bits, nor the best hand, can ever fix their heads. Croats, or Croatian horses, are also subject to beat upon the hand; which proceeds from this, that the bars are too sharp and ridged, or edged, so that they cannot bear the pressure of a bit, though ever so gently. If a horse had not too sensible, or too tender a mouth, he would not beat upon the hand: but in order to fix and secure his head, you need only put under his nose-band a

small flat band of iron, bent archwise, which answers to a martingale. This will hinder him to beat upon the hand, but will not break him of the habit; for as soon as the martingale is taken off, he will fall into the same vice again.

CHACO, LE, in *Geography*, a province of South America, in the country of Buenos Ayres, reckoned 200 leagues in length, and 125 broad, on the west side of the river La Plata, and bounded on the east by a chain of mountains: it is inhabited by Indian nations that are little known.

CHACONNE, *French*, a serious and splendid dance to music formerly written on a ground base; but that restraint has of late been given up. The measure, however, is invariably that of $\frac{3}{4}$, and there are frequent returns to the subject or first strain, after episodes and excursions into new modulations and styles.

The word is formed of the Spanish *chacona*, which may probably be derived from the Persian *shack*, a king, thus intimating, that this might have been a royal dance; not, as others pretend, from the Italian *Ceccone*, a blind man, the inventor.

CHACRELAS, the name of a race of people, according to Buffon, who, like the Bedas of Ceylon, are of a white colour, and inhabit the island of Java. Similar to these are the white Indians of the isthmus of Darien, and the white negroes of Africa. Some have supposed that these people form a distinct race, inhabiting the isthmus of Darien, the negro country, and the island of Ceylon, all which are under the same parallel. Others imagine, that they are individuals who have accidentally degenerated from their original stock. To this last opinion Buffon inclines. The production of whites by negro parents, he says, which sometimes happens, adds great force to this theory. In the history of the French Academy we have descriptions of two of these white negroes; and Buffon adds, that they are very frequent among the negroes of Africa. This variation of nature, which is a singular circumstance, takes place from black to white only, and not vice versa: and it is no less singular, that all the people in the East Indies, in Africa, and America, where these white men appear, are under the same latitude.

CHACTAW Hills, in *Geography*, hills of America, situate in the N.W. corner of Georgia river.

CHACTAWS, or *Flat-heads*, a powerful, hardy, subtle, and intrepid race of Indians, who inhabit a fine and extensive tract of hilly country, intersected with large and fertile plains, between the Alabama and Mississippi rivers, and in the western part of the state of Georgia, in America. To this nation belonged, not many years ago, 43 towns and village, in three divisions, containing 12,123 inhabitants, of which 4,041, or, as some say, 6,000, were warriors. They are called by the traders Flat-heads; all the males having the fore and hind part of their skulls flattened when young. These men, unlike the Muscogulges, are slovenly and negligent in every part of their dress; but they are said to be ingenious, sensible, and virtuous men; bold and intrepid, and yet quiet and peaceable. Some late travellers, however, have observed, that they pay little attention to the most necessary rules of moral conduct; or at least, that unnatural crimes are too frequent among them. Different from most of the Indians bordering on the United States, they have large plantations, or country farms, in which they employ most of their time in agricultural improvements, after the manner of the white people. Although their territories are not one-fourth so large as those of the Muscogulge confederacy, the number of inhabitants is greater. The Chactaws and Creeks are inveterate enemies to each other.

CHADACA,

CHADACA, in *Ancient Geography*, a town of Albania, placed by Ptolemy, between the Albanus and the Cassius.

CHADÆI, a people who inhabited the eastern part of Arabia Felix, according to Pliny.

CHADAGHI, in *Geography*, a town of Persia, in the province of Farfittan, five miles W. of Schiras.

CHADARA, in *Botany*. Forsk. See *GREWIA populifolia*.

CHADBOURNE'S River, in *Geography*, a river of America, in the district of Maine, called by some Great Works river, about 30 miles from the mouth of the Bonnebeag pond, from which it flows. It is said to have derived its latter name from a mill with 18 saws moved by one wheel, erected by one Lodors; but the project was soon laid aside. The former name is derived from Mr. Chadbourne, one of the first settlers, who purchased the land at the mouth of it, of the natives, and whose posterity possess it at this day.

CHADCHOD, in *Jewish Antiquity*. Ezekiel mentions *chadchod* among the several merchandizes which were brought to Tyre. The old interpreters, not very well knowing the meaning of this term, continued it in their translation. St. Jerom acknowledges that he could not discover the signification of it. The Chaldee interprets it pearls; others think that the onyx, ruby, carbuncle, crystal, or diamond, is meant by it. Ezek. chap. xxvii. ver. 16. Calmet. Dict. Bibl. in voc.

CHADDÆIR, in *Ornithology*, a name given by the French to the *MEROPS ÆGYPTIUS*.

CHADER, in *Geography*, an island of Asia, formed by a river which runs from the Euphrates to the Persian gulf, and extends from Bassora nearly to El Catif, 240 miles long, and 30 wide.

CHADISIA, in *Ancient Geography*, a river of Cappadocia, which runs between the town of Amisus and the river Lycaste.

CHADRAMOTITÆ, or *Cathramotæ*, (Ptol.) a people of Arabia Felix, who inhabited the southern coast opposite to the Indian ocean, near the strait in which the river Prion discharges itself.

CHÆANOITÆ, a people mentioned by Strabo, and placed in Asiatic Sarmatia.

CHÆDENI, a people placed by Ptolemy in Scandinavia.

CHÆLÆ Cancrorum. See *CRAB's claws*.

CHÆMÆ, in *Ancient Geography*, a people of Germany, who inhabited the districts near the river Amasius, according to Ptolemy.

CHÆNIDES, a people of Asiatic Sarmatia, according to Ptolemy; supposed to be the same with the Chæanoitæ of Strabo.

CHÆRCOLA, a town of Africa, in Cyrenaica.

CHÆRETAPA, a town of Asia Minor, in Phrygia.

CHÆROPHYLLON *smilis*, in *Botany*, Bauh. pin. See *APHANES*.

CHÆROPHYLLUM, (from *χαίρειν*, *rejoicing*; and *φυλλον*, *leaf*; alluding to the luxuriance and beauty of its leaves.) Linn. gen. 358. Schreb. 490. Juss. p. 220. Class and order, *pentandria digynia*. Nat. Ord. *Umbellata*, Linn. *Umbellifera*, Juss. Vent.

Gen. Char. *Cal. Umbel universal* spreading; *partial* nearly equal in the number of its rays. *Invol. universal* generally none; *partial* five-leaved or more; leaflets lanceolate, concave, reflexed, about the length of the partial umbel. *Perianth proper* scarcely discernible. *Cor. universal* nearly uniform; *florets of the disk* often abortive. *Proper petals* five, inflexed, heart-shaped, with an inflexed point, flattish; outer ones a little larger. *Stam.* Filaments five, simple, the length of the little umbel; anthers roundish.

Pist. Germ inferior; styles two, reflexed; stigmas obtuse. *Peric.* none. *Fruit* oblong, acuminate, even, divisible into two. *Seeds* two, oblong, attenuated upwards, convex on one side, flat on the other.

Eff. Ch. Involucre reflexed, concave. Petals inflexed, heart-shaped. Fruit oblong, even.

Sp. 1. *C. sylvestre*, smooth cow-parsley, or wild chervil. Linn. Sp. Pl. 1. Mart. 1. Willd. 1. Lam. 8. Jacq. Aust. tab. 149. Curt. Flor. Lond. tab. 25. Eng. bot. tab. 752. (*C. sylvestre* perenne, cicutæ folio; Tourn. Inst. 314. *Cerrefolium*; Hall. helv. n. 748. Riv. tab. 43. *Myrrhis sylvestris*, *feminibus lævibus*; Bauh. pin. *Cicutaria vulgaris*; Dod. pempt. 701. Bauh. hist. 3. p. 181. Rai Syn. 207.) "Stem striated, slightly swelling below the joints." Root perennial, spindle-shaped, slightly milky, but little branched. Stem about three feet high, erect, branched, leafy, round, downy towards the bottom, almost always void of pubescence above. Leaves triply pinnated, deeply cut, rough at the edge, petioles short, dilated, ribbed. Flowers whitish; umbels erect, terminal; leaves of the partial involucre egg-shaped, membranous, fringed with thick-set white hairs; petals more or less emarginate, rarely entire. Fruit oblong, somewhat elliptical, roundish, very slightly striated, quite smooth. Common in meadows and pastures in most parts of Europe; flowering in April. The whole herb has a sweetish carrot-like smell and taste; and is eaten by domestic cattle. Dr. Smith. John Bauhin mentions instances of two families having been poisoned by eating a small quantity of the root; and a few years since there was an account in the public papers of a similar disaster with respect to some children in the neighbourhood of Chester. 2. *C. bulbosum*, Linn. Sp. Pl. 2. Mart. 2. Lam. 4. Willd. 2. (*Myrrhis*; Hall. helv. 752. Pluk. tab. 206. fig. 2. Barrel. Ic. 555. *Cicutaria bulbosa*; Bauh. pin. 161. *Scandix bulbosa*; Roth. germ. 1, 123. 2, 318.) "Stem even, swelling at the joints, rough, with hairs at the base." Root biennial, fleshy, succulent, of a pleasant taste. Stem six feet high, marked with reddish-brown spots. Leaves triply pinnated, deeply cut, the upper surface smooth, the petioles and midrib beset with scattered white hairs underneath. Umbels small, terminal; leaflets of the partial involucre awl-shaped, unequal, a little united at the base. Petals white, inversely heart-shaped, unequal. Some of the florets of the disk abortive. Seeds slightly striated. A native of hedges and wood sides in France, Switzerland, Hungary, and Norway; flowering in June and July. The roots taken up early in the spring are eaten boiled with oil, salt, and vinegar. Gmelin asserts that both these and the seeds occasion vertiges; but this is probably in a more advanced time of the summer. 3. *C. aristatum*, Murray Syst. 288. Willd. 3. Thuab. jap. 119. "Stem even, swelling at the joints; seeds rough with hairs, two-awned." Stem round, striated, smooth, erect. Leaves twice pinnated, villous; sheaths of the petioles ciliated. Umbels terminal, compound; general and partial involucres awl-shaped, reflexed. Seeds oblong, awned with the divaricated styles, rough with white hairs. Thunb. 4. *C. temulum*, rough cow parsley, or rough chervil. Linn. Sp. Pl. 3. Mart. 4. Willd. 4. Lam. 9. Curt. Flor. Lond. tab. 24. Jacq. Flor. Aust. tab. 65. Eng. bot. tab. 1521. (*C. sylvestre*; Bauh. pin. 152. *Myrrhis*; Hall. helv. 750. Riv. tab. 98. M. annua femine striato levi; Morif. Umb. 44. Tourn. Inst. 315.) "Stem rugged, joints swelling." Root biennial, spindle-shaped, often divided. Stem about three feet high, erect, branched, leafy, round, slightly furrowed, marked with purple spots. Leaves slightly hairy, twice pinnated, pinnatifid and lobed, pale underneath. Umbels drooping before the opening of the flowers; rays rough. Flowers white;

white; petals irregular, deeply cloven. *Fruit* slightly striated, quite smooth. A native of hedges in England and other parts of Europe, flowering in June and July. The whole plant has a sweetish aromatic taste, and is eaten by cattle. Dr. Smith. Its trivial name is derived from its supposed narcotic or inebriating quality. Linnæus, and numerous authors after him, have spelt it *temulum*; but as there is no such Latin word, Dr. Smith has very properly changed it into *temulentum*. 5. *C. capense*, Willd. 5. Thunb. prod. 51. "Stem even, equal; seeds furrowed; leaflets trifid, smooth." A native of the Cape of Good Hope. 6. *C. fabrum*, Mart. 9. Willd. 6. Thunb. jap. 119. (Jamma Nintin; Kämpf. amœn. p. 882.) "Stem equal; leaflets gashed, acute, rough with hairs; peduncles scabrous." Root fibrous. Stem a foot high, somewhat zigzag, erect, angular, striated, smooth near the bottom, hairy above; branches alternate, spreading, somewhat fastigiate. Leaves twice-pinnated. Umbels terminal. Seeds ovate-oblong. It differs from the following in having smaller and more divided leaflets, sheaths not dilated, and smaller umbels. 7. *C. hirsutum*, Linn. Sp. Pl. 5. Mart. 5. Willd. 7. Jacq. Flor. Austr. tab. 148. (*C. palustre*; *β. Lam.* 3. Myrrhis; Hall. helv. n. 751. Riv. pent. 50. *Cicutaria palustris latifolia*; Bauh. pin. 161. *Cerefolium*; Morif. hist. 3. tab. 10. fig. 6.) "Stem equal; leaflets gashed, acute; fruit two-awned." Root perennial. Stem round, very rough, with rigid hairs. Leaves thrice pinnated or pinnatifid. Umbel convex, nodding before it flowers. Flowers white, not radiate; many of them barren. Fruit somewhat cylindrical, slightly striated; awns straight, bluntish, more rigid than in *C. aromaticum*. A native of Switzerland, Germany, and Carniola; cultivated by Mr. Miller in 1768. 8. *C. aromaticum*, Linn. Sp. Pl. 6. Mart. 6. Willd. 8. Lam. 2. Jacq. Austr. tab. 150. (*Myrrhis orientalis angelicæ folio*; Tourn. Cor. 22. M. fol. podagræ; Riv. pent. tab. 53. *Angelica*; Bauh. pin. 156. n. 4. *Cerefolium*; Bocc. Mus. 2. tab. 19.) "Stem equal; leaflets heart-shaped, serrated; fruit two-awned." Root perennial, aromatic. Stem about two feet high, branched, reddish, beset with distant hairs. Leaves twice pinnated; petioles hairy. Umbels terminal. Flowers white, small, not radiate, many of them barren; leaflets of the partial involucre from seven to nine, lanceolate, reflexed. A native of Lusatia, Silesia, Austria, and the Levant; cultivated by Mr. Miller in 1758. 9. *C. aureum*, Linn. Sp. Pl. 4. Mart. 4. Lam. 5. Willd. 10. Jacq. Austr. tab. 54. (*Cerefolium*; Hall. helv. n. 749. *Myrrhis minor*; Bauh. p. 160.) "Stem equal; leaflets gashed; seeds furrowed, coloured, awnless." Root perennial, thick, branched. Stems two or three feet high, angular, striated, spotted, hairy near the bottom, not hollow. Leaves twice pinnated, pale, smooth above, hairy underneath; leaflets gashed, acute, upper ones confluent. Flowers white, externally reddish. Fruit spindle-shaped. Seeds yellow, with four obtuse remote furrows. A native of Germany and Switzerland. 10. *C. coloratum*, Linn. Mant. 57. Mart. 7. Lam. 6. Willd. 9. Jacq. hort. tab. 51. (*Myrrhis*; Morif. 3. tab. 10. fig. 6. Pluk. tab. 100. fig. 5.) "Stem equal; leaves thrice pinnated; partial involucre coloured." Root perennial. Stem a foot and half high, cylindrical, striated, hairy towards the bottom. Leaves thinly beset with hairs; petiole dilated, membranous. Flowers yellow, in loose umbels; partial umbels small; leaflets of the partial involucre six or seven, oval-acuminate, yellowish as in the preceding species, but more finely striated. A native of Illyria. 11. *C. arborescens*, Linn. Sp. Pl. 7. Mart. 10. Lam. 7. Willd. 11. (*Cicuta arbor virginiana*; Rai Supp. 257. Pluk. mant. 49.) "Shrubby." Stem woody. Leaves

resembling those of *C. sylvestris*, large, triply pinnate; pinnules expanding, smooth, gashed and toothed; umbels small. Flowers white, all fertile. A native of Virginia.

Obf. In this, as in all other very natural families, authors differ very much from each other in the formation of genera. La Marck unites the *chærophylum* and *scandix* of Linnæus, and asserts that they make a well-defined genus, which ought by no means to be broken; and which has for its essential character; fruit slender, elongated like the beak of a bird, either even or striated, smooth or hairy. Ventenat, on the other hand, has distributed the species into three genera. 1. *Chærophylum*, including *chærophylum sylvestre*; with *scandix cerefolium*, *nodosa* and *anthriscus* of Linnæus, with the following generic character. Cal. entire. Cor. Petals heart-shaped or emarginate, unequal. Fruit cylindrical, awl-shaped, smooth, either smooth or rough with hairs. 2. *Myrrhis*, a name revived from the old botanists, including *scandix odorata*, with *chærophylum hirsutum*, *aureum*, *bulbosum*, *temulum*, *aromaticum*, and *coloratum*; under the following character; fruit oblong, attenuated at the summit into a short point, either even or furrowed, smooth or hairy. 3. *Scandix*, including *scandix pecten*, *australis* and *grandiflora*, with the following character; fruit terminated by a long point, finely striated, either smooth or rough with hairs. Gærtner had before made the same division, and had founded his generic characters on the comparative length of the nucleus and the whole seed. According to him the nucleus of *scandix* is scarcely a quarter of the length of the seed, *chærophylum* three quarters, and *myrrhis* the whole length. Under the first he figured the fruit of *scandix pecten*; under the second, of *scandix cerefolium*; and under the third, of *scandix odorata*, *chærophylum aureum*, *C. temulum*, and *sison canadense*. See SCANDIX.

CHÆRUS, in *Ichthyology*, a name given by Strabo and other old writers to the Caprifiscus or goat-fish of later writers. See BALISTES *monoceros*.

CHÆTÆ, in *Ancient Geography*, a people placed by Ptolemy in Scythia, on the other side of the Imaus.

CHÆTANTHERA, in *Botany*, Bosc. Nouv. Dict. Flor. Peruv. pl. 23. Class and order, *syngenesia polygamia superflua*.

Gen. Ch. Cal. common, many-leaved; outer leaflets lanceolate, ciliated; intermediate ones linear, ciliated at the summit; inner ones linear, scarious, sphecelated, terminated by a bristle. Receptacle naked. Seeds oval; down capillary. There are two species, natives of Peru.

CHÆTIA, in *Zoology*. This is the name under which Dr. Hill describes that kind of intestinal vermes, which the English call Hair-worm. Vide Hill, Hist. Anim. p. 14. It is a species of Gordius, the *seta* of Müller, and *aquaticus* of Linnæus. See GORDIUS *aquaticus*.

CHÆTOCRATER, in *Botany*, (from *χæurn*, the mane of a horse, and *κράτος*, a cup.) Bosc. Nouv. Dict. Flor. Peruv. pl. 35. Class and order, *dicaendria monogynia*.

Gen. Ch. Cal. perianth bell-shaped, with five oval segments. Cor. none; a wide tube surrounding the germ, crowned by ten bristles. Stam. filaments ten, alternately shorter, inserted into the edge of the tube. Pist. germ superior, trigonous; style short; stigmas three, capitate. Peric. capsule three-celled. A tree, native of Peru.

CHÆTODON, in *Ichthyology*, a genus of Thoracic fishes. The head is small; mouth small; lips retractile; teeth numerous, close set, equal, setaceous, flexible, and moveable; eyes round, small, vertical, and furnished with a nictitant membrane; gill membrane, with from three to six rays. Body broad, compressed, scaly, and generally fasciated;

ated; dorsal and anal fin thick, fleshy, scaly, and commonly spinous.

The fishes of this numerous genus are, with very few exceptions, extremely beautiful, their colours remarkably vivid; and their variegations consisting generally of stripes, lines, bands, or spots; their body covered with strong scales, which are finely denticulated at the margin; and the dorsal and anal fin remarkably broad.

CHÆTODON aureus, *La Bandoulière dorée*, of French writers, and *Golden Chatodon* of the English, is one of the most brilliant species of this genus. The colour is golden yellow, with a spine near the cheek bone. Bloch. Gmel.

This beautiful fish was figured by Bloch from one of Plumier's drawings, as an inhabitant of the Antilles. The body is oval, and except the pectoral and ventral fin, the whole is covered with scales. The colour of the body is fine golden yellow; the fins are yellow at the base, and green at the extremity; the pectoral and caudal fins are both rounded, the rest falcated. The pectoral fin contains twelve rays; ventral six; anal nineteen, caudal fifteen, and dorsal thirty-six. Length of this fish about twelve or fourteen inches.

CHÆTODON imperator. Yellow, with numerous longitudinal streaks, and about fourteen dorsal spines. *C. Imperator, longitudinaliter striatus, aculeis dorsalis* 14. Bloch. *L'empereur du Japon, & la couronne*, ib. Ruysch, &c.

The head of this fish is large, the iris golden, and partly surrounded by a blue arch; mouth small, with the lips large, and the jaws equal; gill membrane of two parts marked with a blue streak; lateral line near the back, and bending down at the end of the dorsal fin. This is a most splendid fish, about the same length, or rather larger than *C. aureus*, and has the body also of an oval form. It is a native of Japan, where, according to Ruysch and Renard, it is in high esteem as an article of food, and is said to be richer and superior in flavour to the salmon, called, by the last writers, *der Kaiser von Japan*.

CHÆTODON fasciatus. Body fasciated; abdomen armed with seven spines. Bloch. *La Bandoulière rayée*, ib. *Chatodon Dux*, Gmel. *Ikan sengadji molukko*, Valent. *Douwing batard d'Harohe, et Chiefsevisch*, Renard. *Fasciated Chatodon*.

First described by Valentyn, who informs us the Dutch in India call it *Molukse Hertog*. The body is whitish with a silvery line, rather dusky on the back; and is barred across with nine broad bands of deep blue, each of which is margined on both sides with a narrow streak of brown; the dorsal fin is edged with a blue stripe, and the anal fin marked posteriorly with four nearly equidistant lines of the same colour. The iris is white; mouth narrow; jaws equal; gill-cover of one piece; lateral line near the back, and bending at the end of the dorsal fin: pectoral fin short, pellucid and rounded. The dorsal fin contains about thirty-seven rays, the first fourteen of which are spinous. This inhabits the Indian seas.

CHÆTODON guttatus. Body spotted; ventral spines two. Bloch. Gmel. &c. The body is long, narrow, covered with minute scales, above cinereous, beneath white, and spotted with tawny. The eyes are large and round, with dusky yellow iris; mouth large; jaws equal; gill-cover of one thin long piece; fins destitute of scales, with the rays branched; pectoral fin yellow-brown: dorsal and anal cinereous; tail yellow, with cinereous spots. The dorsal fin contains thirty-seven rays; pectoral fifteen; ventral seven; anal twenty-three; and the tail sixteen. This species inhabits Japan, and was first described by Bloch.

CHÆTODON paru. Dorsal spines ten, anal five. Bloch. Gmel. *Paru*, Marcg. *La Bandoulière Noire*, Bloch.

This fish inhabits South America, where it subsists on smaller fishes, insects, and other aquatic animals; it is found throughout Brasil, and in Jamaica. The body is black, but at the sides grey, and the edge of each scale is large and edged with yellow. The eyes are small, with golden irides; lower jaw longest; gill cover of two pieces terminating downwards in a spine, and covering the membrane; vent in the middle of the body; pectoral and tail-fins short, rounded; the rest long, and falcated; before the pectoral fin a yellow spot. Described by Marcgrave as being from nine to ten inches long, but according to the manuscripts and drawings of Prince Maurice preserved in the royal library at Berlin, the length is more than sixteen inches.

CHÆTODON pavo. Dorsal spines fourteen: body oblong. Bloch. Gmel. &c.

The head large, and with the breast yellow-brown, spotted with blue and marked near the gills with blue lines; iris greenish-white; mouth small; gill cover of one piece, the membrane loose; lateral line parallel with the back, and interrupted at the end of the dorsal fin: vent in the middle of the body; rays of the fin branched. This species is described by Bloch as a native of the East Indies, probably from a drawing, as he observes he is unable to determine its size; he adds that it is of the number of carnivorous fishes, and that the display of beautiful colours which pervade it induced him to name it *paon de l'Inde*, Indian Peacock *Chatodon*.

CHÆTODON vespertilio. Dorsal and anal fin broad; band on the tail black. Gmel. &c.

This species inhabits India. The body is cinereous, beneath paler, very thin, and covered with minute scales. The head is destitute of scales; iris silvery and yellowish; mouth small; lips thick; gill-covers of two pieces; lateral line arched; fins cinereous, with branched rays; scaly part of the dorsal and anal fins yellowish. This species is in particular distinguished by the extreme length and breadth of the dorsal and anal fin, both which are of a somewhat triangular shape, and nearly equal the body in point of size; the depth from the opposite tips of the dorsal and anal fins is about six inches and a half, but that of the body from the front of the head to the extremity of the tail four inches. Supposed to be the sea-bat of Willughby. The French call it, *la Bandoulière à larges nageoires*.

CHÆTODON unimaculatus. On each side, near the back, an oval black spot; dorsal spines about thirteen. *Chatodon unimaculatus*, Gmel. Bloch, &c. A native of India; the body is of a roundish ovate form; the colour greyish-white, with transverse brown lines; back cinereous; scales large; over the eye is a black band; jaws equal; lateral line parallel with the back, and nearly approaching it; fins yellowish; tail brown at the base. The dorsal fin contains about forty-eight rays; pectoral four, ventral six, anal thirty-six, and caudal sixteen. *La Bandoulière à tache*. Bloch.

CHÆTODON marginatus. Fins margined and pointed; dorsal spines about twelve. Gmel. Bloch, &c. *La Bandoulière bordée*, ibid.

Inhabits the gravelly shores of the Caribbee islands near the mouths of the rivers. The body is yellow; head and lower parts whitish, with eight pale brown bands: scales large. The eyes are oblong, with silvery irides; vent nearest the tail; fins without scales, and with the rays branched, yellow on the anterior, and cinereous on the

CHÆTODON.

posterior part; tail forked and entirely yellow. Flesh good.

CHÆTODON macrolepidotus. Tail entire; dorsal spines eleven, the fourth filiform, and very long, Gmel. *Bandoulère à larges écailles*, Bloch, &c. *Ican-Pampus* and *Terelec*, Valent, &c.

This species inhabits the East Indies, where it grows to a considerable size. Renard assures us it is found in the isle of Hila, not far from Amboyna, of the weight of twenty or twenty-five pounds. According to Valentyn the flesh is fat, and of a very good flavour, resembling that of the sole. The body is silvery, with two brown bands, and coated with larger scales towards the tail. The head is small, with the jaws of unequal length; eyes round, with black pupil, and bluish irides; before each eye a brown spot, and another over each; the gill-cover consists of a single plate; the lateral line is arched; vent situated near the middle of the body; tail truncated. The dorsal fin contains eleven spiny, and about thirty-four soft rays; pectoral sixteen; ventral seven; anal twenty-seven; tail sixteen.

CHÆTODON teira. Body with three black bands; dorsal and anal fins very long, Bloch, Gmel. &c. *Chatodon*, corpore rhombico fuscescente, fascia transversa duplici obscuriori; pinnis ventralibus, ani et caudæ falcatis corpore longioribus, Forsk. *Breedvinnige klipvisch*, Mus. Schwenck. *Ikan-Kambing*, Valent. *Cambing*, Renard. *Zeeboje*, Ruysch. *Bandoulère à nageoires noires*, Bloch, &c.

This species inhabits the Arabian and Indian seas. The Arabians call this fish when small *Teira*, or *Teyra*, whence its specific name is derived, and when large *Daakar*. Forskael tells us it grows to the length of three feet, and is an edible fish. Its principal food consists of corals and testaceous animals. The body is white, broad, long, and sloping at the head; scales small and denticulated; irides white, tinged with reddish; the gill covers consist of a single piece, lateral line much bent, and composed of white dots: vent situated near the ventral fins which are black; the other fins white. The dorsal fin contains five spiny and thirty-four soft rays; pectoral eleven; ventral one spiny, and six soft rays; anal three spiny and twenty-six soft rays, and the tail seventeen rays.

CHÆTODON cornutus. Tail bifid; dorsal spines three, the last extremely long. *C. Cornutus*, cauda bifida spinis pinnæ dorsalis 7, radio dorsali tertio longissimo, Linn. *Geflamder Trompetter*, *Ikan Paroeli*, *Alferex Djawa*, Valent. *Ican Schwangi*, Ruysch. *Bezaantje Klipvisch*, *Speervisch*, *Moorsche Afgodt*, Renard, &c. *Heron de Mer*, Bloch.

According to Valentyn this is an edible fish of excellent quality. The shape of the body is somewhat orbicular, thin, coated with fine scales, white, and marked with three transverse blackish bands, one passing through the eye, the second nearly parallel, and touching the base of the pectoral fin, and the third broader and situated near the tail. The tail also, which is somewhat lunated, is black, with a black transverse bar of white. The snout is rather produced, and above each eye is a small horn-like pointed process. Bloch is persuaded that Linnæus was either mistaken in regard to the number of spiny rays in the dorsal fin of this fish, or that an error has crept into the Syst. Nat. in printing, as he could not, in either of the three specimens he examined, observe more than three such spiny rays instead of seven as Linnæus describes. *C. Cornutus* is a native of the Indian seas.

CHÆTODON rostratus. Tail entire; dorsal spines nine; fin with a black ocellated spot; snout cylindrical, Gmel. &c. *Bandoulère à bec*, Bloch.

The body is of a roundish ovate form, with the snout so greatly lengthened into a tubular form as to afford an excellent criterion of the species; the irides are yellow; jaws equal; lateral line near the back and arched. The body is whitish, with a dusky tinge on the back, and marked across with five transverse, and nearly equidistant brown bands, the edges of which are milky-white. The dorsal and anal fin are very broad at the hinder part, and the former is marked with a large black spot, encircled with white; the gill-covers are scaly, and without spines; the tail with a black band edged with white. This fish lives in all the seas of India. According to M. Hommel, inspector of the hospital at Batavia, it resides principally in the deeper parts of the sea, or the mouths of rivers, the last of which it may be supposed to visit like many other fishes during the spawning season. The manner in which this species takes its prey, though not entirely peculiar to this fish, is rather extraordinary. It lives principally on the smaller kinds of insects that fly near the surface of the water, and when it observes any one of these hovering or gliding near it, darts from its tubular snout a drop of water with an aim so steady and certain, as to bring the insect down with it into its jaws. If the fly, or other insect which it singles out for its object, be at rest on some aquatic plant, the fish cautiously approaches within the distance of four, five, or six feet before it ejects the water, which, even at this distance, is almost certain of bringing the insect down to the surface of the water. When kept in a state of confinement in a large vessel, it is said to afford considerable entertainment by its dexterity in taking the insects placed at a convenient distance within its reach. M. Hommel informs us, that they are preserved in the gardens and houses of the great men in India, in very large vases, for the amusement of their ladies. The flesh is eatable, and the fish is usually taken with the hook and line.

CHÆTODON orbis. Body orbicular, bluish; second, third, and fourth dorsal fin elongated and bristle-formed. *C. orbis*, orbicularis, pinnæ analis radiis 19, Bloch. *Scheibe* of the Germans, *L'Orbe* of the French writers. *Orb chatodon*.

A native of India. The head large and sloping; irides golden; gill-cover long, narrow, covering the membrane; lateral line composed of many straight, interrupted lines running together into an obtuse angle towards the back; vent in the middle of the body; upper part of the body bluish-green; belly white; ventral fins long, narrow, and falcated. The dorsal fin contains about 37 rays; pectoral 14; ventral 7; anal 26; and caudal 14.

CHÆTODON nigricans. Tail bifid, with a spine on each side. *Chatodon nigricans*, Gmel. Tail somewhat bifid, with a spine on each side; dorsal spines nine. Andre in Phil. Trans. 1784. *Acarauna*, Ruysch. *Philosophe & Caantje* of Verkenfkoop, Renard. *Ikan batoc boano*, ib. *Perfien*, Bloch, &c.

Inhabits the Indian Ocean and Red Sea. The length is two feet; body blackish, at the sides brown, and beneath white. The eyes are large; teeth in the upper jaw 16; in the lower 10; gill-cover long and narrow; lateral line nearest the back and continued parallel with it; pectoral and caudal fin cinereous, ventral black, dorsal and anal white at the base, the rest brownish. Maregrave found this species in Brasil, Haffelquist in the Red Sea, and Valentyn in the East Indies. It grows to the length of eighteen inches and rarely to two feet.

CHÆTODON argus. Body spotted with brown; anal spines four. *Chatodon*, spinis dorsalis 11 corpore punctis nigris plurimis, cauda integra. Brunniche. Gmel. *Stroutvisch*, Ruysch. *Ican taci*, Renard. *Cacatocha babintang*, Valent. *L'Argus*, Bloch, &c.

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The *Argus chatodon* inhabits the fresh waters of India, living principally in swampy places, where it finds an abundance of insects, on which it feeds. Valentyn speaks of it as a fish of excellent flavour. The body is nearly square, of a silvery grey colour, and violet on the upper parts; fins yellow; the whole body and also part of the fins are marked with numerous round spots, of a dark brown colour. The irides are golden; jaws equal; gill-cover large; membrane loose; lateral line arched; vent nearly in the middle of the body; tail even at the end.

CHÆTODON vagabundus. Mouth cylindrical; dorsal spines 13; body striated. *C. vagabundus*, Gmel. &c. Linn. Mus. Ad. Frid. *Ican sagadji*, *Ican poetri*, & *Japansche prins*, Valent. *Douwing prins*, *Douwing royal*, & *Douwing hertogin*, Renard. *Princesse*, Ruysch. *Le vagabond*, Bloch. *Wandering chatodon*.

This species is mentioned as a native of all the Indian seas, and is esteemed an excellent fish for the table. The body is yellow, lineated with brown; above the eyes runs a black band, which Bloch considers as one of the leading particulars of its specific distinction. There is also another black band at the end of the body, near the base of the tail, which runs both into the dorsal and anal fins; and a third black band across the middle of the tail. The head is covered with small scales, but those on the body are large. The gill-covers are of two pieces, the membrane loose; vent nearer the tail; fins yellow, with branched rays, the dorsal, anal, and caudal fins edged with black.

CHÆTODON ciliaris. Gill-covers spinous; scales ciliated. *Chatodon*, cauda integra, squamis pinnæ dorsalis 14, operculis spinosis, squamis ciliatis. Linn. *Sparus saxatilis*, Osb. *Platiglossus*, &c. Klein. *Acarauna altera major*, Ray.

The body is white, with six black bands. The eyes are large; aperture of the gills very large, the membrane loose; lateral line interrupted at the dorsal fin; fins large and black; tail forked. Length eight inches. Inhabits the coral reefs on the shores of Brasil, India, and Arabia.

CHÆTODON striatus. Tail entire; dorsal spines twelve; body striated; snout prominent. Gmel. Linn. &c. *Ikan katoe melia*, *Heeflykke klipvisch*, Valent.

The body is yellow, fasciated with brown, one band passing in a semicircular direction transversely through the eyes, a second nearly parallel from the back to the belly, across the pectoral fin, a third intermediate between that and the tail, a fourth at the base of the tail, and the fifth across the tail; extremity of the caudal fin, and posterior end of the anal and dorsal fins brown. Found in Japan, and other parts of India. The French call this *L'ouagre*, or *Le zèbre*.

CHÆTODON arcuanus. Tail bifid; dorsal spines twelve; body barred with brown. *C. arcuanus*, cauda bifurca, fasciis 3 fuscis. Linn. Mus. Ad. Frid. *Bonte duifje*, Valent. *Bourgonjese*, Renard.

The body is silvery, cinereous on the back, with deep brown bands, one on the head, another on the breast, and a third passing from the dorsal to the anal fin. The head is large, the mouth narrow, jaws equal, gill-cover of one piece and mucronated in the middle; ventral fins long, and with the anal black; tail and dorsal fin cinereous.

CHÆTODON capistratus. Tail entire; dorsal spines twelve; a purple spot surrounded with white near the tail. *Chatodon capistratus*, &c. Linn. *Tetragonopterus levis*, &c. Klein.

The body is covered with rather large scales; colour white, with brown lines. The eyes are very large; band through the eyes black, and edged with white; gill-cover sea-green, and consisting of two pieces; fins yellowish; the rays branched; dorsal and anal fin brown at the edge; spines

sea-green; near the tail a black band. Length three inches. Inhabits Jamaica.

CHÆTODON rotundus. Dorsal spines twenty-three; body with five pale bands. Linn. Inhabits South America and India. The body is cinereous and rounded.

CHÆTODON lanceolatus. Tail entire; body with three bands, one across the eye, another across the breast, and a third extending from the anterior dorsal fin to the tail. Gmel. *Guoperva*, Edwards. A native of India. Form of the body lanceolate. The bands are black, edged with grey.

CHÆTODON chirurgus. Dorsal spines fourteen, caudal one. Bloch. *Le chirurgien* & *Wundarzt*, ib.

This species inhabits the seas surrounding the Caribbee islands, and is described by Bloch from one of Plumier's drawings and manuscripts. The colour of the body is yellow, with five narrow violet bands, and beneath bluish. The head is large, and of a violet colour, with a black spot on the mouth and cheeks. Its upper jaw is longer than the lower; vent nearer the mouth than the tail; fins without scales; pectoral, ventral, and anal fin violet, the last barred with yellow; dorsal fin, varied with yellow and violet; tail yellow at the base, and violet towards the edge. In Plumier's drawing, above-mentioned, the dorsal fin contained 14 spiny and 26 soft and branched rays; pectoral fin 16 rays; ventral 1 spine and 6 soft rays, 3 spines and 20 soft rays, and the tail 16.

CHÆTODON rhomboides. Dorsal spines five; anal three. Bloch. *La bandoulière rhomboïde*, ib.

A beautiful species, described, like the preceding, on the authority of a drawing by father Plumier, and which is supposed to attain to a considerable size. It is a native of the American seas. The body is of a rhombic form, deep green on the upper parts; the sides greenish, below which, near the belly, are three green lines, and three intermediate lines of white; belly yellow. The head is silvery, truncated anteriorly, with the eyes large, and mouth still larger in proportion; teeth small; gill-covers consist of two semilunar pieces, with the membrane loose; lateral line slightly curved, vent in the middle of the body; dorsal fin green; pectoral and ventral yellow at the base, and edged with violet; margin of the anal and caudal fin green.

CHÆTODON Plumieri. Dorsal fins two; head without scales. Bloch.

This also is an elegant species, described by Bloch from the designs of father Plumier, and named in compliment to that collector. The fish inhabits the stony shores of the American seas, and is of the number of edible fishes held in most esteem for the table. The body is of an oblong form, coated with small scales. The colour brownish above, cinereous at the sides, beneath white, and marked with six greenish-black bands. The head is brown above, at the sides white; lateral line arched; fins much falcated, green, at the base yellow, and without scales; all the spines of the first dorsal fin yellowish. In Plumier's figure are delineated 5 spines in the first dorsal fin, and 35 soft rays in the second; pectoral 14; ventral 1 spine and 5 soft rays; anal 2 spines and 25 soft rays; and tail 12 rays.

CHÆTODON Curaçao. Dorsal spines 13; anal 2. Bloch. *La bandoulière de Curaçao*, ib. *Angel-fish* of Curaçao.

A native of South America. The head is large, the jaws of equal length, and the lips thick; the gill-covers are broad, violet, and covered with large scales. The body is thick, brownish, with the sides silvery, and the scales edged with violet. The lateral line is composed of oblong white scales, and is broken, or interrupted at the dorsal fin; vent in the middle of the body; fins yellow, with branched rays; tail forked.

CHÆTODON Mauriti. Dorsal spines eleven; anal three. Bloch. *La bandoulière du prince Maurice*, ib.

The Brazilian name of this fish, according to the above author, is *Jaguacaguare*. He describes it from one of Plumier's drawings, and informs us, on the authority of prince Maurice, that it inhabits Brasil, grows to the length of two feet, and that the flesh is white, and of a good flavour. The body is long, and covered with small scales; blue on the back, and the sides paler blue, and belly white. From the back descend six narrow black transverse bands, which terminate about the middle of the body. The irides are yellowish-silvery; the mouth and aperture of the gills large; the back rather arched, with the lateral line contiguous; vent nearest the tail; rays of the fins ramose; ventral fin yellow; pectoral dusky; and the rest pale blue. This is named in compliment to the memory of the celebrated prince John Maurice of Nassau-Sigen, under whose conduct the Dutch, in 1637 and 1638, became possessed of the richest part of Brasil, and who afterwards, while governor of that country, amused his leisure hours in taking drawings and descriptions of its zoological productions.

CHÆTODON Bengalenfis. Body fasciated; dorsal spines thirteen; anal two. Bloch. *La bandoulière bengalenfis*, ib.

This fish inhabits Bengal. The body is large, whitish, with a bluish back, and marked across with five bay-coloured bands. The irides are yellowish-white; aperture of the gills large; lateral line slightly arched near the back, and interrupted at the extremity; vent nearest the tail; fins brown at the base and edged with blue.

CHÆTODON olofsciiatus. Body with eight brown bands; dorsal spines eleven; anal three. Bloch, Gmel. &c.

The head is small, and rather advanced, with the lower jaw projected beyond the upper. Its body is nearly round, of a whitish colour, except on the back, which is violet, and the whole marked transversely from the back to the belly with nearly equidistant brown narrow bands; the dorsal and anal fins are both edged with brown, the rest of the fins grey. This species is a native of the East Indies.

CHÆTODON annularis. Brownish, with obliquely curved longitudinal streaks, and a blue ring on the lateral line behind the gills. *Chatodon annularis*. Bloch, Gmel. &c. *Ikan batoe*, *Jang aboe*, and *Ikan pampus Cambodia*.

A native of India. The body is ovate, and brownish, with about five blue lines. The irides are silvery; gill-covers of two pieces; the anterior one toothed and spinous; lateral line parallel with the back; vent in the middle of the body; dorsal fin pointed; anal rounded, both dark brown, banded with blue, the rest of the fins white. The dorsal fin contains fourteen spinous rays, and forty-one soft; pectoral sixteen; ventral one spine and six soft rays; anal three spines and twenty-eight rays, and caudal sixteen rays.

CHÆTODON collare. Head with two white and three black bands; dorsal spines twelve; anal seven. Bloch. *Le collier*, ib.

This kind is a native of Japan. The body is of a round ovate form; colour bluish on the upper parts, and yellowish beneath. The scales are very large. The head is sloping, of a brown colour, marked with two white, perpendicular stripes, and three black ones; the mouth is white; eyes large, with the iris blue; lateral line bending in an obtuse angle at the dorsal fin, and interrupted at the end; pectoral fins yellow; ventral cinereous; the rest yellowish edged with brown; the dorsal fin is marked with a yellow band, and the tail across the middle by a brown one. Figured by Seba, who describes it to be about six inches long.

CHÆTODON mesoleucus. Head fasciated with a single band; gill-cover one-spined; dorsal spines twelve; anal three. *Chatodon mesoleucus*, Bloch. *Le mulat*, ib. *Chatodon mesomelas*, Gmel.

Shape of this fish roundish-ovate; the anterior part bluish-white, the hind part black; and the whole body covered with very small scales; gill-covers consist of two pieces, and are armed with one large and several small spines; the opening of the gills large; the lateral line runs near the back; vent situated in the middle of the body; all the fins are white, except the dorsal and anal fins, which are black. Inhabits Japan.

CHÆTODON faber. Body fasciated; the third dorsal spine very long. Bloch, &c. *Le forgeron*, Broussonet.

This species was first described by Broussonet, under the name of *Forgeron*. It inhabits the Indian and American seas; and from a drawing of father Plumier's, referred to by Bloch, is said to grow to the length of eleven inches. The body is silvery, ornamented with six bands of deep blue. The iris of the eye is yellow; the lateral line is arched to the form of the back, running parallel and contiguous; the vent is in the middle of the body. The ventral and pectoral fins are black, and the rest deep blue. This is an edible fish, and in much request for the table in South America.

CHÆTODON Suratenfis. Dorsal and anal fin armed with many spiny rays; body banded with fuscous; a black semilunar mark at the base of the pectoral fin. *Chatodon Suratenfis*, *La bandoulière de Surate*, Bloch.

Form of this fish ovate; colour silvery-grey, darkest on the back and fins; head and body marked with seven brown bands; dorsal and anal fin rather broader behind, and with the tail yellow, with a broad violet border. Received from one of the Danish missionaries in Surat by Chemnitz at Copenhagen.

CHÆTODON canescens. Tail bifid; dorsal spines two, third ray very long; mouth bidentated. Gmel. &c. Described and figured in the work of Seba as *Chatodon canescens*.

The colour of the body is greyish, and covered with very small scales. Inhabits the American and Indian seas.

CHÆTODON alepidotus. Tail bifid; dorsal spines three; no ventral fins. Gmel. Linn. &c.

Communicated to Linnæus by Dr. Garden. This inhabits the seas of Carolina. The body is of a rhombic form, without scales; upper parts bluish; jaws with a simple row of teeth; lateral line parallel to the back, and dotted; dorsal and anal fins falcated.

CHÆTODON acuminatus. Tail entire; dorsal spines three; third ray very long. Gmel. Linn. Inhabits South America and India. The body is marked with three brown bands; dorsal fin setiform. Linn. Mus. Ad. Fr.

CHÆTODON pinnatus. Tail entire; dorsal spines four; dorsal and anal fins very long. Gmel. *Greyish Chatodon*, with frontal band and tip of the tail white. Linn. This is a native of South America and India, and is remarkable for the extraordinary size of the fins.

CHÆTODON Chinenfis. Anal fin eighteen-spined. Bloch. This inhabits China. The body is oblong, marked with fuscous bands, and a round spot on the gill-cover.

CHÆTODON argenteus. Tail bifid; eight spiny rays in the dorsal fin, and two ventral spines instead of fins. Linn. Amœn. Acad. Found in the Indian seas. Obs. The ventral spines are short, and the first dorsal fin so small as to be scarcely visible.

CHÆTODON Boddaerti. Body with brown and blue bands; spines of the ventral fins two. Schr. der berl. Naturf. Gefn. Gmel. &c. Native place unascertained.

CHÆTODON punctatus. Spines in the dorsal fin eight; pectoral fin falcated. Gmel. A species of a whitish or silvery colour, dotted with fuscous; eyes large, red; lateral line curved; three first rays of the anal fin distant.

CHÆTODON arcuatus. Tail entire; dorsal spines eight; body with four white arched bands. Gmel. Length four inches. This species inhabits Brasil.

CHÆTODON leucurus. Tail entire: dorsal spines nine, the first recumbent; body black; tail white. Gmel. This is of a small size, and inhabits America. Obs. The ventral fins are pointed.

CHÆTODON lineatus. Tail bifid; dorsal spines nine, and one on each side of the tail. Gmel. Figured by Seba, and is an inhabitant of the South American and Indian seas.

CHÆTODON triostegus. Tail somewhat bifid; dorsal spines nine; branchiostegous membrane three-rayed. Linn. Mus. Ad. Fr. *Chatodon*, corpore cingulato, pinnæ dorsalis spinis 9, caudæ utrinque 1, dentibus apice ferratis. Broussonet.

CHÆTODON bicolor. Upper half of the body brown; lower and tail white. *Chatodon bicolor*, Bloch. *Chatodon bicoloratus*, Mus. Schwenk. *Acaraua maculata*, Seeligm. *Ikan koelar*, Valent. *Ekorkouning*, *Color sousounam*, &c. Renard.

This inhabits South America and India. Its form is oblong: the head is thick; eyes large, with silvery iris; gill-cover large, spinous ferrated, and of one piece; fins rigid, with branched rays; dorsal and anal fins entirely covered with scales: ventral fins small; pectoral pellucid; dorsal spines fifteen, anal three.

CHÆTODON glaucus. Lateral line straight; dorsal spines five. Bloch. *Glaucus des anciens*, Gautier, &c.

Described from the drawings and MS. of Plumier. It is a native of the American seas, and grows to the length of a foot and a half. The body is of an oblong form, and covered with moderately sized scales, above blue, and beneath silvery, with six short narrow brown streaks; flesh good, Plumier. Obs. The eyes are small with yellow iris; mouth large; lips thick, with many bones; aperture of the gills narrower, the gill-membrane loose; fins with branched rays; ventral very small, and terminating in a long narrow point, and with the pectoral fin whitish, the rest blackish; anal fin without spines.

CHÆTODON Chilensis. Golden, with five coloured bands; tail even; dorsal spines eleven. *Chatodon Chilensis*, aureus fasciis 5 discoloribus, cauda integra, spinis dorsalibus 11. Molin. Hist. Nat. Chili.

Length twelve inches; the snout is lengthened; the body oval, coated with minute scales, and marked with five distinct bands; the first black, two next cinereous, and the two last black and cinereous. Nostrils two, and placed near the eyes; aperture of the gills arched, the cover of three pieces; lateral line arched and scarcely visible; vent near the middle of the body; pectoral fins small, and, like the ventral, pointed; dorsal fin large and yellow; tail silvery, edged with yellow, and a black oval spot near the tail.

CHÆTODON longirostris. Snout cylindrical; tail unarmed; dorsal spines eleven. Broussonet.

Inhabits the Pacific Ocean. The body is compressed, and citron-coloured; beneath striated and coated with unequal obliquely imbricated scales; the head is sloping and brownish; beneath silvery flesh-colour; pupil brownish; iris pale glaucous; mouth large and oblong; jaws nearly equal, with a few small unequal teeth; tongue and palate smooth; lateral line straight; vent nearly in the middle of the body, dorsal and anal fins citron-coloured, with a black

line on the posterior part, and another edged with whitish, the last with a black spot near the tip; ventral fins citron, edged exteriorly with brownish; tail and pectoral fin pale blue, the latter yellowish at the base.

CHÆTODON orbicularis. Body somewhat roundish; cinereous brown; no dorsal spines. Forsk. Fn. Arab.

Inhabits the stony shores of Arabia. Length about twelve inches; body resembling a flat fish, spotted with black; beneath whitish; behind yellowish; scales round and entire.

CHÆTODON auriga. Whitish, with about sixteen oblique brown bands; fifth ray of the dorsal fin long and filiform, Forsk. Fn. Arab.

Inhabits the shores of Arabia. Length five inches; shape nearly rhomboidal, and coated with rhombic scales; the head is flat above, scaly, of a reddish-white colour, and marked with four transverse tawny bands; iris of the eye black; mouth compressed and conic; lips rounded and equal; dorsal fin black at the posterior edge; anal varied with black and yellowish white.

CHÆTODON mesoleucus. Anterior part of the body white; posterior brown, with twelve black bands. *Chatodon* parte anteriore albus, posteriore fuscus, fasciis nigris. Forsk. Fn. Arab.

Found by Forskal on the shores of Arabia. The length is three inches; the body ovate, with large rhombic ciliated scales; head conic and narrow, with a black band through the eye; lateral line curved; pectoral fins glaucous; ventral white; dorsal and anal brown; tail black, with a broad hyaline stripe at the tip.

CHÆTODON asfur. Black, with a transverse yellow lunar-cuneated band, Forsk. Fn. Arab. *Chatodon Asfur*, Gmel.

Observed by Forskal on the shores of Arabia. The body is oval, and covered with rhombic scales, disposed in a quincunx order, and finely toothed; the teeth are numerous, filiform, and flexible; anterior gill-cover furnished with a strong spine, nearly half an inch in length. The general colour is black, with a transverse and somewhat lunar yellow band in the middle of the body, having the horns pointing backward; the lateral line is curved and nearest the back; dorsal and anal fins horizontal and falcated; tail rounded, tawny, and edged with black. Forskal describes another fish, which Gmelin and others consider as a variety β of the last mentioned species. "*Chatodon cærulescens* lituris et fasciis obliquis, lineolis violaceis." Bluff *Chatodon*, with oblique bands, blotches, and fine violet lines. This is a native of the Arabian shores, where it is chiefly found among corals; the flesh is bitter.

CHÆTODON maculosus. Cinereous, with transverse blue spots; anterior gill-covers armed with a single spine. Forsk. Fn. Arab.

Inhabits the Arabian shores. The body is an ovate oblong, covered with serrated scales; behind the middle of the head a large transverse golden spot; the front between the eyes is elevated, flat, and scaly; gill-cover scaly on the fore part, and serrated behind; lateral line near and parallel with the back; pectoral fins oval; ventral lanceolate; dorsal falcated behind; anal triangular; tail fin entire, rather rounded, cinereous, and dotted with yellow.

CHÆTODON sordidus. Oval; ash coloured brown, with four obsolete transverse bands. Forsk. Fn. Arab.

This species, which is found among the coral beds on the coast of Arabia, is about a span in length; the body is covered with broad scales, which are membranaceous at the edge; the gill-cover is bidentated at the posterior edge; lateral line near the back; fins ash-coloured brown; pectoral

fin oval, ventral pointed; anal and dorsal fin rounded behind; tail short, yellowish, divided into two lobes, and marked with a black spot.

CHÆTODON unicornis. Front horned; tail with two elevated ridges on each side. Fork. Fn. Arab.

Very abundant on the Arabian coast, where it is seen swimming in shoals of two or three hundred each, and feeding on sea weeds. It grows to the length of three feet or more; the body is of an oblong oval form, rough, and of a shining grey colour; the front is sloping, with an horizontal straight horn before the eyes; the teeth are rigid and disposed in one row, the middle ones larger; lips obtuse; lateral line parallel with, and nearer the back; aperture of the gills short; pectoral fins pointed, oval; tail truncated. *Monoceros minor*, Willughby. *Le Nason Licornet*, Cope. *Leffer Unicorn fish*, Grew.

CHÆTODON sobar. Tail with a bony carina, situated in a red cavity on each side. Fork. Fn. Arab.

Inhabits the deep waters of the Arabian shores; the body is of an oval form, about three spans long, of a brown colour, with longitudinal violet lines; beneath whitish; the head is scaly; the teeth contiguous, crenated, and disposed in one row; lips equal; gill-cover entire; lateral line obsolete; fins coriaceous, violet; pectoral fin with a yellow spot; tail truncated in the middle. This is nearly allied to *Chatodon lineatus*.

CHÆTODON nigrofuscus. Black fuscous; tail two lobed, with a recumbent spine each side. Fork. Fn. Arab.

This species was observed by Forkal in the Arabian seas, where they live in deep waters. A variety of this species, is described under the title of *gabm*, as being of a black colour, with the base of the tail violet. The length of this fish is five inches; first spine of the dorsal and anal fin covered by the skin; posterior edges of the tail whitish, two-lobed, and the lobes falcated; lateral spine somewhat subulate and moveable.

CHÆTODON bifasciatus. Tail bifid, yellow, with two black bands on the head. Fork. Fn. Arab.

Body of an oblong oval form, and silvery; the crown is wrinkled; iris silvery; jaws full of hemispherical callosities; upper lip longest; anterior gill-cover serrated behind; posterior with a bony point or process on the back part; ventral fins black; dorsal fin and tail yellow; pectoral ones half yellow, the other white; lateral line curved and nearer the back. Gmel. Inhabits the Arabian coasts.

CHÆTODON pictus. Whitish, with oblique violet lines; ocular band and tail black. Fork. Fn. Arab.

Nearly of a rectangular form; the body covered with broad, serrated, obliquely imbricated scales, and marked with about eighteen violet lines, disposed in an oblique direction; on the crown of the head are five transverse tawny lines; the snout is prominent; lips equal; lateral line curved; dorsal fin black, and rounded behind; tail truncated, marked with a golden crescent in the middle, and edged with brown.

CHÆTODON trifasciatus. Head with three black bands; body with sixteen longitudinal dusky streaks. Trans. Linn. Soc.

Discovered by Mr. Mungo Park on the coast of Sumatra, and described in the third volume of the Transactions of the Linnæan Society. The length is three inches; colour pale brown, or brownish, and covered with rather large ciliated scales; on the dorsal fin is a black band edged with yellow; another at the base of the anal fin, and a third through the middle of the tail; the iris brown; mouth very small; gill-cover of two pieces; lateral line near the back, and interrupted or broken at the end of the

dorsal; vent nearest the tail; fins yellow; tail somewhat rounded.

CHÆTODON caniculatus. All the spines of the fins grooved. Linn. Trans.

The body is greenish-yellow above; beneath whitish with paler spots; scales small, oboval; the iris silvery-yellow; gill-cover of two pieces; lateral line parallel with the back; vent nearer the head; fins greenish and without spots; tail bifid. Observed at the same place as the preceding species.

CHÆTODON ocellatus. A black band across the eyes; dorsal fin with twelve spines, and an ocellated spot; anal spines three. *Chatodon ocellatus*, Bloch.

Found in India. The body is yellow above; beneath white, and covered with large scales; the jaws are equal and prominent; lips thick; gill-cover consisting of one short golden lamina; lateral line straight, interrupted at the dorsal spot; fins cinereous, with branched rays.

CHÆTODON setifer. A very long setiform ray, and black annular spot in the dorsal fin. *Chatodon setifer*; *Le Seton*, Bloch.

The body of this fish is of a roundish ovate form, with the head rather taper and produced; the colour is purplish-red on the back, and a tinge of red and intermixture of yellow pervade the rest of the body, which is transversely fasciated with about nine oblique crimson stripes; through the eye passes a broad black transverse band, margined on both sides with white; the fins are yellow, with a brown marginal stripe on the anal and dorsal fin, and three stripes of the same colour across the tail. A native of the Indian seas.

CHÆTODON falcata. Back with two black sickle-formed spots, edged with white. *Chatodon falcata*, *La Fau-cille*, Bloch, &c.

This inhabits the coast of Coromandel. In its general properties this resembles the last; it has a similar ocular band of black, but the colours are paler, more inclining to yellow; the transverse bands violaceous, paler and less angulated, and the dorsal fin has neither the black spot encircled by a white ring, nor the remarkable setiform ray, like the last species.

CHÆTODON tricolor. Anterior part of the body yellow; posterior black; tail and border of the dorsal and anal fins yellow, edged with red.

Duhamel was the first author who published a figure of this superb fish. He speaks of it as a native of Gaudaloupe. Bloch describes it as a Brazilian species, on the authority of Prince Maurice. It is of a more elongated figure than the generality of Chætodons, and seems to agree better in this respect with the Labrus genus. The head and fore part of the body are of a fine golden yellow, the posterior part deep black, and the two colours separate abruptly in an obliquely incurvated direction, leaving the lower half of the pectoral fin, and the belly down to the vent, fine yellow. The bed of black passes without interruption into the anal fin, and posterior end of the dorsal fin, in both of which it forms a subtriangular disk within the yellow border of these fins. The tail is much furcated.

CHÆTODON Kleinii. Head marked with an ocular band; dorsal fin seventeen-spined.

First described by Klein, and named after that author by Bloch. This fish is of an orbicular form. The opening of the mouth very small; the nostrils simple; iris white; gill-cover consisting of two plates; lateral line bent, and situated near the back; the back is yellowish, inclining to olive-brown; the belly silvery; fins yellowish. Figured by Bloch, from a large specimen in the collection of Linke, at Leipzig:

Leipzig: its general size in the East Indies, the seas of which it inhabits, is not exactly known.

CHÆTODON bimaculatus. Head marked with an ocular band; an annular spot and half spot on the dorsal fin. *Chatodon bimaculatus*, *La Bandoulière a deux taches*, Bloch.

This fish is of a roundish form, the back very gibbous, and the abdomen flattish; the head is sloping, lengthened, and tapering; the back is brown; sides whitish, tinged with grey; pectoral and ventral fins are red; the rest yellow at the base, and greyish at the extremities; band across the eyes edged with white; and the black spot on the dorsal fin is encircled with a white ring; the half spot bounded on one side with a semicircular white line. Inhabits the Indian seas.

CHÆTODON biaculeatus. Two-spined below the eyes. *Chatodon biaculeatus*, *La Bandoulière a deux aiguillons*, Bloch.

The body of this fish is of an elongated form; the head is yellow; the back blue; and the belly white. Across the head, behind the eyes, is a transverse brown streak; another passes across the middle of the body, and a third between the extremity of the dorsal and anal fin, near the tail. The posterior one of the two spines below the eyes is much larger than the other; all the fins are grey. This is a native of the East Indies.

CHÆTODON fargoides. Golden yellow; head and six transverse bands violet. *La Chatodon Sargoide*, Cope.

Described by La Cope from the drawings and manuscripts of Plumier. The dorsal fin contains thirteen spiny rays; pectoral fin one: there is a depression before the eyes; the opening of the mouth is small, and the upper lip thick; gill-covers rounded. This is a native of the American seas.

CHÆTODON Lamarkii. Golden yellow, with three longitudinal dusky stripes. *Chatodon La Mark*, Cope.

The description of this species is taken by Cope from a specimen in the museum of the Prince of Orange, the native country of which is unknown. The lower jaw is longer than the upper; the scales rounded, striated, and denticulated; fifteen spiny rays, and sixteen soft ones in the dorsal fin; three spiny, and twenty soft ones in the anal fin; gill-covers armed with a very long spine.

CHÆTODON constrictus. Yellowish grey, with numerous black bands, and body constricted in the middle. Shaw, N. Holland. Zool.

The length of this species is about eight inches; the shape of the body inclining to an oblong square, and remarkably contracting in diameter about the middle, so as to appear constricted in that part; scales of moderate size; colour yellowish-grey, tinged on the back and part of the fins with blue; across the body eight black bands, that in the middle narrowest; on the back two very distinct fins, the rays of the first being all spiny; tail inclining, though very slightly, to a lunated form. Native of the Indian seas, and observed about the coast of New Holland.

CHÆTODON armatus. Silvery, with seven transverse black bands, lengthened head and two dorsal fins. Shaw Gen. Zool.

The length of the specimen described in White's Journ. New South Wales, was about four inches; the colour silvery-white, darker, and with a bluish tinge on the back; head of a somewhat lengthened form; across the body seven black bands; on the back two distinct dorsal fins, of which the first consists of very strong spiny rays, the third exceeding the rest in length; tail very slightly inclining to a lunated form at the extremity. Observed about the coast of New Holland.

CHÆTUORI, in *Ancient Geography*, a people placed by Ptolemy in the Higher Germany, among the Curiones.

CHAFALIA, in *Geography*, the first large body of water which leaves the Mississippi, and falls, by a regular and separate channel, into the gulf of Mexico. It leaves the Mississippi in the westernmost part of the remarkable bend just below the boundary, and has every appearance of having been formerly a continuation of the Red River, when the Mississippi washed the high land from Clarksville to the Bayou Tunica, or Willing's creek, the traces of which are yet visible by the lake, through which a large current still passes, when the river is high. The distance on a straight line from Clarksville to the Bayou Tunica is not more than eight miles; but by the present course of the river, it is supposed to be not less than 50 miles. If the Mississippi should break its way by a shorter course, which is not improbable, the Chafalia will again become a part of the Red River. When the Mississippi is high, the draught into the Chafalia is very strong, and has frequently carried rafts, and likewise some few flats or Kentucky boats down it, which are generally lost. This branch, notwithstanding its size, is not navigable to the gulf of Mexico, on account of an immense floating bridge, or raft, across it, of many leagues in length, and in some places so firm and compact that cattle and horses are driven over it. This astonishing bridge, or raft, is constantly augmented by the trees or rubbish, which the Chafalia draws out of the Mississippi.

CHAFE, or *CHAFING* of a rope, in *Sea-Language*, is said of a rope that is galled or fretted, or when the rope runs against any thing. *The cable is chafed in the hawse*, signifies that it is fretted or begun to be worn out there.

CHAFE-Wax, or *CHAFFEE-Wax*, an officer in chancery, whose business it is to fit the wax for the sealing of writs, patents, and other instruments issued thence.

CHAFER, in *Geography*, a town of Persia, in the province of Farsistan; 50 miles S. of Schiras.

CHAFF, in *Agriculture*, the husky substance of corn, which is separated by threshing and winnowing. It also sometimes signifies the rind of corn: thus, barley that has a thick rind is said to be thick-chaffed; and it likewise implies straw, &c. cut small for the purpose of being given to horses and other cattle, mixed with corn. This substance, whether obtained by the dressing of grain or made from straw and other matters by cutting, is highly useful in the feeding of horses and many other animals, as saving much other more valuable food. Besides its advantage in the common feeding of animals, it is of vast utility in the fattening of different sorts of animals, where much luxuriant green food is given, as a dry meat; as without some sort of material of this nature they never go on well.

It has been remarked by Mr. Young, that the practice of cutting both hay and straw for all sorts of stock is one that has been found very important by many practical and intelligent cultivators of great experience; and though he admits that general observations are not equally satisfactory with that of comparative experience, there can probably be little doubt of the advantage of this mode of applying it. Besides, there are but few persons who have opportunity, time, and power, to make comparisons between the food and labour of different teams fed in the common way with hay, and with cut chaff, half or one-third straw. The opinions of the best informed and most practical persons are, however, decidedly in support of the latter method. It is, therefore, conceived by the above intelligent writer, that the practice of giving hay cut with a mixture of straw, instead of feeding in the common way with hay, is at all events to be advised to as great an extent as can be effected,

as the saving is unquestionable; and he thinks that it should not only be practised for the teams, but likewise for all the other sorts of stock that consume hay. He adds, that Mr. Page of Cobham, in feeding his stock, gives no hay or straw but what is cut into chaff before it is used.

The same author thinks that if racks are permitted in a stable, it is not an easy matter to prevent horse-keepers from cramming them full of hay, and especially at night. The best contrivance he has heard of to supply the place of racks was that of Mr. Vancouver, who made, he says, a sort of hopper the whole length of the manger, which delivered chaff from a loft above it gradually, as the horses moved the lower lip of the hopper with their noses; in this manner supplying themselves. But a very intelligent nobleman, he observes, on trying it, found that it would not deliver regularly. This might arise, he thinks, from the dimensions not having been sufficiently attended to; for if the hopper be not of a due breadth, the chaff might arch above the moveable board, and not come down: the aperture in the manger through which it passes must necessarily, he imagines, be of a certain size, neither too wide nor too narrow. It certainly seems, in his opinion, to be a practical idea, and very capable, after some trials and regulations, of being fully applicable to common practice. It well deserves attention, especially as the expence of an experiment for one stall could not be considerable. He has often determined to try it himself, but has always been prevented by some journey or excursion taking him from home, at the moment when he could otherwise have given the requisite attention. He conceives that it would demand a manger from four to six inches wider than common ones, to render it perfect for this purpose.

In the use of this substance for sheep, considerable attention is necessary to the troughs in which it is given, to see that they be so secured by boards that it is not blown out of them. This is effected, according to Mr. Young, in lord Clarendon's sheep-yard in Hertfordshire, by a semicircular boarding of thin materials, which covers the heads of the animals while they are feeding in the troughs.

It has been suggested by the same writer, in the third volume of the *Annals of Agriculture*, that when chaff is made to undergo the process of fermentation in the houses where it is deposited, by slightly watering it, it is rendered "much more nutritious than when used in the common way."

CHAFF, in *Botany*, a name given to the scales or dry membranous substances, interposed between the florets of some aggregate and compound plants, as in *Dipsacus*, *Hypochaeris*, &c. In that case the receptacle is said to be chaffy.

CHAFF-Cutter, in *Rural Economy*, an implement constructed for the purpose of cutting hay, straw, and other substances into chaff. Instruments of this sort consisted formerly simply of a box and a cutting blade; but they are at present much improved, being made of different forms and constructions, so as to perform the work with greater economy and dispatch. Mr. Cook has invented one, which, by means of a man and boy, will cut one hundred quarters a week; and when fixed to a large wheel, and turned by an animal, such as a poney or ass, will cut half the above quantity per day. Another contrived by Mr. Nailer is capable of cutting three quarters an hour, by the assistance of two men, and costs about ten guineas. An instrument for this purpose, made by Mr. James Pihe, is likewise both cheap and of the most simple construction. It is fixed on a wooden frame, which is supported with four legs; and on this frame is a box for containing the straw, four feet six inches long, and about ten inches broad: at one end are

fixed across the box two rollers, inlaid with iron, in a diagonal line, about an eighth of an inch above the surface; on the ends of these rollers are fixed two strong brass wheels, which take one into the other. On one of these wheels is a contract wheel, whose teeth take in a worm on a large arbour; on the end of the arbour is fixed a wooden wheel, two feet five inches diameter, and three inches thick. On the inner part of this wheel is fixed a knife, and at every revolution of the wheel the knife passes before the end of the box, and cuts the chaff, which is brought forward between the rollers, which are about two inches and a half asunder. The straw is brought on by the worm taking one tooth of the wheel every round of the knife: the straw being so hard pressed between the rollers, the knife cuts off the chaff with so great ease, that twenty-two bushels can be cut within the hour, and makes no more noise than is caused by the knife passing through the chaff. It consists of the box into which the straw is put, and an upper roller, with diagonal projecting ribs of iron; the whole moving by the revolution of the brass wheel, on the axis of which it is fixed. Another brass wheel has upon it a face wheel, whose teeth take into the endless screw on the arbour, while the teeth on the edge of this wheel enter between those on the edge of the other wheel. On the axis of the latter brass wheel is a roller with iron ribs, similar to the above, but hid within the box. The arbour has one of the ends of which it is composed made square, and passing through a mortise in the center of the wooden wheel, which is fastened by a strong screw and nut; the other end of this arbour moves round in a hole within the wooden block; and the knife is made fast by screws to the wooden wheel, and kept at the distance of nearly three quarters of an inch from it, by means of a strip of wood of that thickness, of the form of the blade, and reaching to within an inch of the edge. The handle is mortised into the outside of the wooden wheel.

An improved machine of this sort has been invented by Mr. Robert Salmon, of Weburn, Bedfordshire, and described in the *Transactions of the Society for the Encouragement of Arts, &c.* With it the chaff is cut by two knives, fixed on the inside of the fellics to two wheels, which are strongly connected together; the edge of the knives being at an angle of about forty-five degrees from the plane of the wheel's motion. These knives are so fixed as to be forced forward by springs on the wheel, which springs are formed to adjust, and act more or less, as occasion may require, so as to give the knives as much pressure against the box as may be requisite to cut the straw. The knives are prevented from coming too forward, and occasioning unnecessary friction, by wedges being put in under the staples; which wedges, as the knives wear, must be drawn out so as to admit the knives to come more forward. With the before-mentioned provisions, it will be found very easy at any time to put on new knives, as the springs, &c. will always adjust them to their work.

On one side of the wheel is fixed a round block of wood, in which there are four holes and a moveable screw; to this block is screwed one end of the feeding-arm, running nearly horizontally to the cross bar at the end of the box; to which cross bar there is a pin, moveable to five different holes, by means of which, and the four holes in the block before described, twenty changes in the length of the chaff may be obtained. The straw is brought forward by the rollers in the box, the form of which has been just described, which rollers are turned from the outside by the triggers or ratchet-wheels on each side of the box, which move more or less, according to the stroke given to the cross bar by the feeding-arm and wheel. By this mode of feeding, the straw is perfectly

feetly at rest, and does not press forward at the time of the knife cutting; and, by means of the pins being taken out of the cross-bar, the feeding is instantly thrown off, although the wheel and knives may continue their motion. Under the box is suspended the pressing weight, which may be made more or less powerful by shifting the weight on the bearer to which it hangs, and also may be thrown on either side, more or less, as occasion may require; which will be found useful, in order to force the straw towards the knife, and to counterbalance the ratchet-wheel of the upper roller. Near the fulcrum of this bearer is fixed a chain, the upper end of which is suspended from a roller; at each extremity of which is a small bar of iron, joined to the end of the upper spiked roller, by which means the straw is always equally pressed in passing the two-spiked rollers. The winch by which the machine is turned is of the common kind, and the frame of the machine is to be made very firm and strong.

In order to apply this implement to the best advantage, the inventor proposes a second box, to be placed at the end of the first; which box may be of any length, and suspended by a line and counter-weight, whereby the end of it is brought down level whilst filling with straw, and then drawn up, so as to give the box a declivity, to make the straw more easily come forward.

It is supposed that much advantage may be derived in this instrument from its cutting various lengths, resting during the cut, the knives being adjusted to their work by regulating springs, the feeding being readily thrown off, and the pressure moveable to either side. It is also well calculated to be applied to any power which may be occasionally fixed to the opposite side to that on which it is turned by hand; and, by the additional box, when used by hand, the workman will be enabled to cut for some continuance, without stopping to feed.

Where threshing machines are in use, these implements may frequently be attached to them with great advantage. There are many other instruments of this sort constructed in different ways; but those which are the least complex, and can be afforded at the cheapest rate, are the most adapted to the purpose of the farmer. See CUTTING-BOX.

The above machine, as considerably altered and improved by Mr. Rawntree, is seen in *Plate VII. on Agriculture*, in which *fig. 1.* is a side, and *fig. 2.* an end view of it. The advantages of this implement are, 1st, Its great simplicity; 2d, Its cutting the chaff of various lengths; 3d, The straw being at rest while the knives are making the cut; 4th, The friction being less, more work of course may be done with equal labour.

A, is the handle.

B, B, the fly-wheels on which the knives are fixed.

C, the ratchet-wheels, and rollers for drawing the straw forwards.

D, the rods to work the ratchet-wheels, connected with the lever and crank.

E, the box for containing the straw.

F, the lever and weight for pressing the straw.

G, the knives.

H, the crank for regulating the cut.

I, the frame.

At *fig. 3.* is represented Mr. McDougall's patent chaff-cutter, which is a very useful instrument of this kind. In this machine the inventor has been particularly careful so to construct it, that, in case it should be accidentally broken, it might be easily repaired by any common mechanic. The substance to be cut into chaff may be pressed as hard as the workman chooses, by simply placing the weight near to the

end of the lever. But the chief excellence of the instrument consists in the inventor having judiciously applied a spiral groove in the room of the endless screw, commonly used by other agricultural instrument-makers, by means of which he has in a great degree got rid of friction; and the lever may rise to any height, without putting the machine out of work.

It has been remarked by Mr. Young, that the number of machines which have been invented of late years for this purpose, most of which perform their work with sufficient accuracy, leaves no farmer in the kingdom under the necessity of employing the common chaff-box, which is worked by those only who have acquired the art of making use of it, and who commonly make much greater wages per day than the ordinary pay. He observes that there is a very good machine of this sort made at Thetford, which only costs eight guineas. It has been observed by a late practical writer, that as the principal objects aimed at in the construction of these machines are those of expedition and the lessening of manual labour, it is evident that many of those of the improved kind must answer such purposes much more effectually than such as were formerly in use, especially where they are attached to any great power, such as that of horses, water, &c. as in the case of threshing machines, or other mills, to which they are in general well suited, as has been noticed above.

Mr. Page of Cobham has, according to Mr. Young, at the trifling expence of only five pounds, added a mill-wheel to his chaff-cutter, by which means a boy and a little poney cut twenty bushels of chaff per hour.

CHAFF-HOUSE, a place constructed for the purpose of containing chaff. It should be situated as near to the barn, threshing machine, and stable, as possible, in order that it may receive it with the least possible labour and trouble. And in order to prevent danger, where the chaff is suffered to undergo the process of fermentation, it should be constructed of brick work. The dimensions must be suitable to the extent of the farm, or the quantity of live stock that are kept and fed with it.

CHAFER, or *COCKCHAFER*, in *Entomology*, the common English name of the beetle, called by Linnaeus, *SCARABÆUS melolontha*, and by Fabricius *MELOLONTHA vulgaris*. See *SCARABÆUS*.

CHAFERCONNERS, in *Commerce*, printed linens manufactured in the Great Mogul's dominions. They are imported by the way of Surat; and are of the number of those linens prohibited in France.

CHAFERS, in our *Statutes*, seem to signify wares or merchandize. 3 Edw. IV. c. 4.

The original French of the statute is *chaffares*.

CHAFFERY, or *CHAFERY*, in the *Iron-Works*, the name of one of the two principal forges. The other is called the *finery*. When the iron has been wrought at the finery, into what is called an *ancony* or square mass, hammered into a bar in its middle, but with its two ends rough, the business to be done at the chaffery is the reducing of the whole to the same shape, by hammering down these rough ends to the shape of the middle part.

CHAFFINCH, in *Ornithology*. See *FRINGILLA Cælebs*.

CHAGAIING, in *Geography*, a city of the Birman empire seated on the north side of the Irrawaddy, and opposite to the ancient capital Ainga-hung, or Awa, in N. lat. 21° 56'. E. long. 96°. This city, which was once the seat of imperial residence, is situated partly at the foot and partly on the side of a rugged hill that is broken into separate eminences, and on the summit of each stands a spiral temple.

These

These temples, rising irregularly above one another, form a beautiful assemblage of objects, the effect of which is increased by their being carefully white-washed and kept in repair. Chagaing is the principal emporium to which cotton is brought from all parts of the country, and where, after being cleaned, it is embarked for the China market. The operation of clearing it from the buds is performed by females, by means of double cylinders turned by a lathe, which a woman works with her foot, while she applies the cotton with her hands. This city is become a place of religious resort, from the number of praws or temples erected in its neighbourhood: as well as on account of its being the principal manufactory of images or statues of the divinity, Gaudma, which are sculptured of fine marble obtained in a quarry at Maengaing about 12 miles distant. Birmans are forbidden to purchase the marble of which these images are made, but they are allowed and even encouraged to buy figures of the deity actually manufactured, and to carry them to the remotest corners of the empire. Exportation of the marble divinites out of the kingdom is strictly forbidden.

CHAGNON, a town of France in the department of the Rhone and Loire, 6 leagues S. of Lyons.

CHAGNY, a town of France, in the department of the Saône and Loire, and chief place of a canton in the district of Châlons-sur-Lône; 10 miles N.N.W. of it. The place contains 2214, and the canton 10,204 inhabitants; the territory includes $137\frac{1}{2}$ kilometres, and 13 communes.

CHAGRE, a river of North America, in Terra Firma, which opens into the North Sea, in $9^{\circ} 18' 40''$ N. lat. and W. long. 81° ; 30 miles W.S.W. of Porto Bello; and has its source in the mountains near Cruces. It was formerly called Lagartos from the number of alligators in it, and was discovered by Lopez de Olano. Diego de Alviles discovered that part of it where Cruces is situated; but the first Spaniard who failed down it, so as to reconnoitre it to its mouth, was Captain Hernando de la Serna, in the year 1527. Its entrance is defended by a fort, seated on a steep rock on the east side near the sea-shore. This fort is called San Lorenzo de Chagres, and has a commandant and a lieutenant; and the garrison is draughted from Panama. The fort was taken by admiral Vernon in 1740. About eight toises from the fort is a town of the same name. The houses are principally of reeds, and the inhabitants Negroes, Mulattoes, and Mestizos. They are a brave and active people, and occasionally take up arms to the number of triple the usual garrison of the fort. Opposite, on a low and level ground, stands the royal custom-house, where an account is taken of all goods conveyed up the Chagre. Here the breadth of the river is about 120 toises, but it becomes gradually narrower as you approach its source. At Cruces, the place where it begins to be navigable, it is only 20 toises broad; and the nearest distance between this town and the mouth is 21 miles, and the bearing N.W. $7^{\circ} 24'$ westerly; but the distance measured along the several windings of the river is no less than 43 miles. It breeds a great number of Caymanes or alligators, creatures often seen on its banks, which are impassable, both on account of the closeness of the trees, and the bushes, which cover the ground, as it were with thorns. Some of these trees, especially the cedar, are used in making the canoes or banjas, employed on the river. The passage of the river is obstructed by the trunks of the trees that fall into it; and also by the swift currents over the shallows. The barks employed on this river are the chatas and bongos, called in Peru, bonques. The first are composed of several pieces of timber, like barks, and of a great breadth, that they may draw but little water:

they carry six or seven hundred quintals. The bongos are formed out of one piece of wood, some of them being 11 Paris feet broad, and conveniently carrying four or five hundred quintals. Both forts have a cabin at the stern for the convenience of passengers, and a kind of awning reaching to the head, with a partition in the middle continued through the whole length of the vessel; and over the whole, when the vessel is loaded, are laid hides, that the goods may not be damaged by the rains, which are frequently violent. Each of these requires, besides a pilot, at least 18 or 20 robust negroes, for without such a number, they would not be able, in going up, to make any way against the current. All the forests and woods near this river are full of wild beasts, and especially different kinds of monkeys, the flesh of which is highly valued by the negroes. They are also eaten by the Creoles and the Europeans.

CHAGREEN, or CHAGRIN, in *Commerce*. See SHA-GREEN.

CHAHAGNE, in *Geography*, a town of France in the department of the Sarthe, and district of St. Calais; 5 miles N.E. of Chateau du Loir.

CHA-HO, a town of China in the province of Pe-tche-li; 7 miles S. of Chun-te.

CHA-HO-TCHAN, a town of Chinese Tartary; 30 miles S.W. of Ning-yuen.

CHAIA, a river of Siberia, which runs into the Oby; 20 miles N.E. of Obdorskoi.

CHAIBAR, or KAIBAR, a strong town of Arabia, taken from the Jews by Mahomet, in the 7th year of the Hegeira, A.D. 628: 152 miles N.E. of Medina.

CHAILARD, LE, a town of France, in the department of the Ardèche, and chief place of a canton, in the district of Tournon; $4\frac{1}{2}$ leagues N.W. of Privas. The place contains 1722, and the canton 9693 inhabitants: the territory includes $167\frac{1}{2}$ kilometres, and 13 communes.

CHAILLAC, a town of France, in the department of the Indre, and district of Chateauroux; 4 leagues S.S.W. of Argenton.

CHAILLAND, a town of France, in the department of the Mayenne, and chief place of a canton, in the district of Laval; 10 miles N. of it. The place contains 2059, and the canton 15,166 inhabitants: the territory comprehends $237\frac{1}{2}$ kilometres and 9 communes.

CHAILLE-LES-MARAIS, a town of France in the department of the Vendée, and chief place of a canton in the district of Fontenay-le Comté; 3 leagues W.S.W. of it. The place contains 1749, and the canton 7547 inhabitants: the territory comprehends 235 kilometres and 7 communes.

CHAILLE-SOUS-LES-ORMEAUX, a town of France, in the department of the Sarthe; 10 miles E. of Sablé.

CHAILLEVETTE, a town of France, in the department of the Lower Charente; 5 miles S. of Marrennes.

CHAILLONE, a town of France in the department of the Orne, and district of Alençon, containing about 1100 inhabitants; one league N. of Sees.

CHAIN, in French *chaîne*, an instrument composed, or consisting of links, and commonly made of iron, though it may be made of other metals. There are different chains for different purposes; as draft chains, bending chains, canting chains, mill-chains, measuring chains, neck chains, &c. &c.

A *port-chain*, or *chaîne de port*, is a strong iron chain, reaching across the entrance of the port to prevent vessels from sailing or getting into it. Of these there are sometimes several at the entrance of one and the same port; and when

when it is wide they are supported on piles from distance to distance.

A *foraging chain*, or *chaîne du fourrage*, is the placing, by means of a chain of foldiers, or a military communication and arrangement of troops, those who are charged with foraging in a state of security against any attack or incursion of the enemy; those forming the chain being commanded to keep a constant and careful look out on all sides.

The Romans, when they went to war, carried with them a great number of chains, destined for those that might become their prisoners. They had them made of different metals; a great many of iron, others of silver, and some even of gold. And they were distributed or made use of according to the rank and quality of the prisoners. Before the battle at the Thrasymene lake, between Hannibal and Flaminius, the latter, who, though altogether unfit for the management of military affairs, was vain, arrogant, and presumptuous; was singularly formed by nature for the gaining of popularity; was a plausible prater or declaimer, and so persuasive a public speaker, that he filled the people with such confidence of victory and success, that the multitude of those, who followed his army for the sake of booty, as Polybius informs us, exceeded even the number of his troops, and carried with them chains, fetters, and other implements of the same kind in great quantities and abundance.

The arms of the kingdom of Navarre are, *chains, or, in a field, gules*. The occasion hereof is referred to the kings of Spain leagued against the Moors; who having gained a celebrated victory against them in 1212, in the distribution of the spoils, the magnificent tent of Miralmumin fell to the king of Navarre; as being the first that broke and forced the *chains* thereof.

CHAIN, *a gold*, is one of the ornaments or badges of the dignity of a lord mayor of London; and remains to the person, after his being divested of that magistrature, as a mark that he has passed the chair.

Something like this, Chorier observes, obtained among the ancient Gauls: the principal ornament of their people in power and authority was a gold chain, which they wore on all occasions; and even in battle, to distinguish them from the common soldiers. Hist. de Dauph. lib. iii. p. 130.

CHAIN also denotes a kind of string, or twisted wire; serving to hang watches, tweezer-cases, and other valuable toys upon. The invention of this piece of curious work was owing to the English: whence, in foreign countries, it is denominated the *English chain*. It was some time before foreigners undertook to imitate them, and at last with no extraordinary success: those of Paris have come nearest. These chains were at first usually either of silver or gold, some of gilt copper; the thread or wire of each kind must be very fine.

For the fabric, or making of these CHAINS; a part of the wire is folded into little links of an oval form; the longest diameter about three lines; the shortest, one. These, after they have been exactly folded, are again folded into two; and then bound together, or interwoven, by means of several other little threads of the same thickness; some whereof, which pass from one end to the other, resemble the warp of a stuff; and the others which pass transversely, the woof. There are at least 4000 little links in a chain of four pendants; which are, by this means, bound so equally, and withal so firmly together, that the eye is deceived, and takes the whole to consist of one entire piece.

Plate Mechanics, fig. 1, represents the chain used for common purposes with oval links; the ends of which are welded or folded together.

Fig. 2, is the chain used for slight purposes, as scales, &c.

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the links are formed of wire, and the ends are sometimes soldered to the middle.

Fig. 3, is a chain nearly the same as the last, except that the ends of the links are hooked into one another instead of being soldered.

Fig. 4, shews a chain invented by Mr. Hancock, for which he received a premium of 50 guineas from the Society of Arts, and is described in their Transactions. The two ends of the wire of which this link is composed are hooked to the middle of it. This chain is used in Baker's patent mangle, and answers the purpose very well.

Fig. 5, is a double wire chain; the ends of which are folded together. This is very ancient, being described in a book of Agricola "De Re Metallica," printed in 1624, p. 132.

Fig. 6, shews a very simple chain formed of bunches of small wire.

Fig. 7, is a flat chain; it has a wire link, the ends of which are bent into an eye, *ab*, to receive the parts, *c, d*, of another link; this chain may be used to great advantage in turning wheels instead of a strap or rope, as cogs may be fixed on the edge of the wheel, which go into the spaces, *A, A, A*, of the chain, and prevent its slipping. This is also described in Agricola de Re Metallica, pages 133 and 162.

Fig. 8, is another for the same purpose; it has two kinds of links; one, *a*, is of wire bent into a square, the other, *b*, is made of copper or iron plate bent and rivetted.

Fig. 9, is the chain used in watches and spring clocks, also in steam engines: it is composed of two thin pieces of steel plates, *a a*, between which is the other, *b*, of twice the thickness; they are held together by a pin, which makes the joints.

CHAIN is also a kind of measure in France, applied to fowl-wood, sheaves of corn, in estimating the tythes, hay, and horses. These measures are divided variously, according to the uses for which they are intended.

CHAIN, in Geography, an island of the Pacific Ocean, discovered by captain Cook in 1769, about 4 leagues long and two wide. S. lat. $17^{\circ} 23'$. W. long. $145^{\circ} 54'$.

CHAIN, or CURB, in the *Mancege*. See BITS.

CHAIN, in Surveying, is a measure, consisting of a certain number of links of iron wire, usually a hundred; serving to take the dimensions of fields, &c. This is what Mercator takes to be the *arwipendium* of the ancients.

The chain is of various dimensions, as the length or number of links varies: that commonly used in measuring land, called *Gunter's chain*, is in length four poles or perches; or 22 yards; or 66 feet, consisting of a hundred equal links; each link being $\frac{22}{100}$ of a yard, or $\frac{66}{100}$ of a foot, or 7.92 inches long; that is nearly, eight inches or $\frac{3}{4}$ of a foot. Whence it is easy to reduce any number of those links to feet, or any number of feet to links.

This chain is entirely adapted to English measures; and its chief convenience is in finding readily the numbers contained in a given field. Where the proportions of square feet and acres differ, the chain, to have the same advantages as Gunter's chain, must also be varied. Thus, in Scotland, the chain ought to be of 74 feet, or 24 Scots ells, if no regard be had to the difference between the Scots and English foot; but if regard be had to this difference, the Scots chain ought to consist of $74\frac{2}{3}$ English feet, or 74 feet four inches, and $\frac{2}{3}$ of an inch. This chain being divided into a hundred links, each of these will be $8\frac{22}{100}$ inches. See FOOT and ACRE.

That ordinarily used for large distances is in length a hundred feet; each link one foot.

C H A I N.

For small parcels, as gardens, &c. is sometimes used a small chain of one pole, or sixteen feet and a half in length; each link one inch $\frac{9}{16}$. In measuring towns, a chain of 50 feet in length, consisting of 50 links, is the most commodious, with an off-set-staff of 10 feet in length.

Some in lieu of chains use ropes; but these are liable to several irregularities; both from the different degrees of moisture, and of the force which stretches them. Schwen-terus, in his Practical Geometry, tells us, he has observed a rope 16 feet long, reduced to 15 in an hour's time, by the mere falling of a hoar frost. To obviate these inconveniences, Wolfius directs, that the little strands whereof the rope consists be twisted contrary ways, and the rope dipped in boiling hot oil; and when dry, drawn through melted wax. A rope, thus prepared, will not get or lose any thing in length, even though kept under water all day.

Sir George Shuckburg observes (Phil. Trans. vol. lxvii. p. 518.), that the common Gunter's chain of the shops is always subject to spring and stretch considerably. That which he used in his measurement for ascertaining the height of mountains was made of hardened steel, on purpose to avoid this defect. It, however, still preserved some degree of elasticity; for when pulled with a force of about 10 pounds, it seemed = 0.12 inch longer than when laid gently on the floor without being stretched at all. He corrected its length by allowing for its expansion by heat at $13\frac{1}{2}^{\circ}$.05 inch.

Use of the CHAIN in Surveying.—The manner of applying the chain in measuring lengths, is very obvious. Having provided a chain, with 10 small arrows (see ARROW), two persons take hold of the chain, one at each end of it, and all the 10 arrows are taken by one of them, who is to go foremost, and is called the leader; the other, for distinction's sake, being called the follower. A picket, or station-staff, being set up in the direction of the line to be measured, if there appear no natural marks in that direction; the follower stands at the beginning of the line, holding the ring at the end of the chain in his hand, while the leader drags forward the chain by the other end of it, till it is stretched straight, and laid or held level, and the leader directed, by the follower's waving his hand, to the right or left, till the follower see him exactly in a line with the mark or object of direction to which the measure is to be extended; then both of them stretching the chain straight, and stooping so as to hold it level, the leader having the head of one of his arrows in the same hand by which he holds the end of the chain, let him then stick one of them down with it while he holds the chain stretched. This being done, he leaves the arrow in the ground, as a mark for the follower to come to, and advances another chain forward, being directed in his position by the follower standing at the arrow, as before; as also by himself now, and at every succeeding chain's length, by moving himself from side to side, till he brings the follower and the hinder mark into a line. Having then stretched the chain, and stuck down an arrow, as before, the follower takes up his arrow, and they advance again in the same manner another chain-length. And thus they proceed till all the 10 arrows are employed, and are in the hands of the follower; and the leader, without an arrow, is arrived at the end of the 11th chain-length. The follower then sends or brings the 10 arrows to the leader, who puts one of them down at the end of his chain, and advances with the chain, as before. And thus the arrows are changed from the one to the other at every 10 chains' length, till the whole line is finished; when the number of changes of the arrows shews the number of tens, to which the follower adds the arrows he holds in his hand, and the number of links of another

chain over to the mark or end of the line. So that if there have been three changes of the arrows, and the follower holds six arrows, and the end of the line cut off 45 links more, the whole length of the line is set down in links, thus, 3645. In entering down the dimensions taken by the chain, the chains and links are separated by a dot; the former being integers, and the latter decimals: thus a line 63 chains 55 links long, is written 63.55. If the links be short of 10, a cypher is prefixed; thus 10 chains, 8 links, are written 10.08. It is usual, however, to set down the length of lines, measured with a chain, in links as integers, every chain or length being 100 links; and not in chains and decimals.

To find the area of a field, &c. the dimensions whereof are given in CHAINS and links. An acre of land is equal to 10 square chains, i. e. 10 chains in length and one chain in breadth; or, 220×22 , or 4840 square yards; or, $40 \times 4 = 160$ square poles; or, $1000 \times 100 = 100000$ square links. Also, an acre is divided into four parts, called roods, and a rood into 40 parts called perches, which are square poles, or the square of a pole of $5\frac{1}{2}$ yards in length, or the square of $\frac{1}{4}$ th of a chain, or of 25 links, which is 625 square links. So that the divisions of land measure will be thus:

625 square links = 1 pole or perch.
40 perches = 1 rood.
4 roods = 1 acre.

Consequently, 1st, Multiply the links by one another, according to the rules for the area, and thus the content will be found in square links; and from the product cut off five figures towards the right, which is nothing more than dividing by 100000 the number of square links in an acre: those remaining on the left will be acres. 2dly, Multiply the five figures cut off, which are decimals, by four, the number of roods in an acre; and cutting off five again from the product on the right, those remaining on the left will be roods. Lastly, Multiply the five thus cut off by 40, the fourth part of the square perches in an acre; and cutting off five, as before, on the right, those remaining on the left are square perches. E. G. Suppose the length of a rectangular piece of ground to be 792 links, and its breadth 385; to find the area in acres, roods, and perches:

792
385

3960
6336
2376

3,04920
4

.19680
40

7.87200

Ans. 3 acres, 0 rood, 7 perches.

To take an angle, DAE (Plate I. Surveying, fig. 3.) by the CHAIN. Measure a small distance from the vertex A along each leg, v. g. to *d* and *e*; then measure the distance *dc*: to lay this down, draw AE at pleasure, and from your scale set off the distance measured on it. See SCALE.

Then, taking in your compasses the length measured on the other side, on the vertex A, as a center, describe an arc *dc*; and on the point *c*, as a center, with the measured distance of *cd*, describe another arc *ab*. Through
the

CHAIN.

the point where this intersects the former arc, draw a line A D. So is the angle plotted; and its quantity, if required, may be measured on a line of chords. See CHORD.

To survey a triangular field, A B C, (fig. 4.) Having set up marks at the corners, if no natural marks occur; measure with the chain from A to P, where a perpendicular would fall from the angle C, and set up a mark at P, noting down the distance A P. Then complete the distance A B by measuring from P to B. Having set down this measure, return to P, and measure the perpendicular P C. And thus, having the base and perpendicular, the area is easily found. Or, having the place P of the perpendicular, the triangle is easily constructed. Or, measure all the three sides with the chain, and note them down; hence the content is easily found, and the figure constructed. Or again, two sides A B, A C, may be measured, as well as the included angle A; or, one side A B, and the adjacent angles, A and B, may be measured; and then the figures may be easily planned. Then by measuring the perpendicular C P on the plan, and multiplying it by half A B, we shall have the content.

For an example of the application of this problem, let A P be 794, A B 1321, and P C 826: Then,

$$\begin{array}{r} 1321 \\ 826 \\ \hline 7926 \\ 2642 \\ \hline 10568 \\ 2)10.91146 \\ 5.45573 \\ 4 \\ \hline 1.82292 \\ 40 \\ \hline 32.91680 \end{array}$$

Ans. 5 acres, 1 rood, 33 perches nearly.

To measure a four-sided field, A B C D (fig. 5.) Measure along a diagonal, as A C, and either of the two perpendiculars D E, B F, as in the last problem; or else the sides A B, B C, C D, D A. From either of which the figure may be planned, and its contents computed. Otherwise, measure on the longest side the distances A P, A Q, A B, and the perpendiculars P C, Q D. (fig. 6.) Or, measure the diagonal in fig. 5; and the angles C A B, C A D, A C B, A C D. Or, measure the four sides, and any one of the angles, as B A D.

Ex. 1. Let A E be 214, A F 362, A C 592, D E 210, and B F 306. Then,

$$\begin{array}{r} 516 \text{ sum of perpendiculars} \\ 592 \text{ A C} \\ \hline 1032 \\ 4644 \\ \hline 2580 \\ 3.05472 \\ 4 \\ \hline 21888 \\ 40 \\ \hline 8.75520 \end{array}$$

Ans. 3 acres, 0 rood, 8½ perches.

Or, in fig. 6. Let A P be 110, A Q 745, A B 1119, P C 352, and Q D 595. Then,

PC 352	PC 352	QD 595
AP 110	QD 595	QB 365
2APC 38720		sum 947
	PQ 635	2975
		3570
		1785
	4735	
	2841	217175 = 2 Q D B
	5682	601345 = 2 P C D Q
2 P C D Q	601345	38720 = 2 A P C
		2)8.57240 = double the whole.
		4.2862
		4
		1.1448
		40
		5.7920

Ans. 4 acres, 1 rood, 5½ perches.

To survey any field by the CHAIN only. Having set up marks at the corners, where necessary, of the proposed field A B C D E F G, (fig. 7.) Form a judgment, by walking over the ground, how it may best be divided into triangles and trapeziums; and measure them separately as in the two last problems. In this way it will be proper to divide it into as few separate triangles, and as many trapeziums as may be, by drawing diagonals from corner to corner; and so as that all the perpendiculars may fall within the figure. Thus, the figure is divided into the two trapeziums A B C G, G D E F, and the triangle G C D. Then, beginning with the first at A, measure the diagonal A C, and the two perpendiculars G m, B n; then the base G C, and the perpendicular D q; lastly, the diagonal D F, and the two perpendiculars E p, G o. All which measures write against the corresponding parts of a rough figure drawn to resemble the figure to be surveyed, or set them down in any other form at pleasure.

A m 135	130 m G
A n 410	180 n B
A C 550	
C q 152	230 q D
C G 440	
F o 206	120 o G
F P 288	80 p E.
F D 520	

Or thus; measure all the sides A B, B C, C D, D E, E F, F G, and G A; and the diagonals A C, C G, G D, D F.

Otherwise; many pieces of land may be very well surveyed, by measuring any base line, either within or without them, together with the perpendicular let fall upon it from every corner of them. For they are then divided into several triangles and trapezoids, all whose parallel sides are perpendicular to the base line; and the sum of these triangles and trapeziums will be equal to the figure proposed, if the base-line fall within it; if not, the sum of the parts which are without being taken from the sum of the whole which are both within and without, will leave the area of the figure proposed. In pieces that are not very large, it will be sufficiently exact to find the points, in the base-line, where the several perpendiculars will fall, by means of the cross,

(see Cross), and from thence measuring to the corners for the lengths of the perpendiculars. And it will be most convenient to draw the line so as that all the perpendiculars may fall within the figure. Thus, in *fig. 8*, beginning at A, and measuring along the line AG, the distances and perpendiculars, on the right and left, which will be as follows; viz.

A b	315	350	b B
A c	440	70	c G
A d	585	320	d D
A e	610	50	e E
A f	990	47 ²	f F
A G	1020	—	—

— — See SURVEYING.

By the CHAIN to find the distance between two objects inaccessible in respect of each other. From some place, as C (*fig. 1.*), whence the common distance to each object, A and B, is accessible in a right line; measure the distance CA, which suppose fifty chains; and continue the line to D, viz. fifty more; measure also BC, which suppose thirty chains; and produce the line to E, viz. thirty more. Thus will be formed the triangle CDE, equal and similar to the triangle ABC; consequently the distance DE, being measured, will give the inaccessible distance required.

By the CHAIN to find the distance of an inaccessible object, v. g. the breadth of a river. On one side place a pole, four or five feet high, perpendicularly, having a slit at top, with a straight piece of wire, or the like, two or three inches long, put through the same. This is to be slipped up or down, till, looking along it, you find it point full on the other side of the river; then turning the pole with the wire in the same direction, observe the point on the dry land to which it points when looked along as before: measure the distance from the pole to this last point; it is the same with that of the first required.

CHAIN bar, in Canals, is a line of metal-cramps, sometimes let into the top-course or coping of locks and walls to tie them together.

CHAIN-boat, a large boat fitted with a davit over its stem, and two windlasses, one forward and the other aft, in the inside. It is used for getting up mooring-chains, anchors, &c.

CHAIN-Plates, in Ship-building, thick iron plates bolted to the ship's sides, and to which the chains and dead-eyes that support the masts by the shrouds are connected.

CHAIN-Pump. See PUMP.

CHAIN-Shot. See SHOT.

CHAIN, Top. See TOP-chain.

CHAIN-Wales, or CHANNELS, in Ship-building, are thick planks projecting horizontally from the sides of a ship, to which they are bolted, and also confined thereto by chains, or chain-plates, and hence the name. The lower ends of the chain-plates are bolted into the ship's sides, and the upper pass through notches in the chain-wales, and contain the dead-eyes, immediately above. To these dead eyes, those at the lower ends of the shrouds are connected by laniards, each to each; and the chain-wales are of a breadth sufficient to keep the shrouds clear of the gunwale. Two chain-wales belong to each mast, one upon each side of the ship, and they are so placed that the fore dead-eye in each, and the mast to which they belong, are nearly in the same straight line; and of length sufficient to contain as many dead-eyes, at proper intervals, as there are shrouds: by this disposition, the mast is supported laterally, and from abaft, by the shrouds and back-stays; and the other stays support it forward.

CHAINGY, in Geography, a town of France, in the department of the Loiret, 5 miles W. of Orleans.

CHAINS, *Catena*, in Ecclesiastical History, denote collections of such theological opinions and scriptural interpretations, as had been received by the ancient doctors of the church. See CATENA.

CHAINS, hanging in, a kind of punishment inflicted on murderers. By stat. 25 Geo. II. c. 37. the judge shall direct such to be executed on the next day but one, unless Sunday intervene; and their bodies to be delivered to the surgeons to be dissected and anatomized; and he may direct them afterwards to be hung in chains. During the interval between sentence and execution, the prisoner shall be kept alone, and sustained only with bread and water. The judge, however, hath power to respite the execution, and relax the other restraints of the act. Blackst. Com. vol. iv. p. 202.

CHAINS, in Ship building, are those irons by which the shrouds of the masts are made fast to the chain-wales.

CHAIR, *Cathedra*, was anciently used for the pulpit, or fuggellum, whence the priest spoke to the people.

It is still applied to the place whence professors and regents in universities deliver their lectures, and teach the sciences to their pupils: thus, we say, the professor's chair, the doctor's chair, &c.

CHAIR, *Curule*, was an ivory seat placed on a car, wherein were seated the prime magistrates of Rome, and those to whom the honour of a triumph had been granted.

CHAIR, *Sedan*, a covered vehicle for carrying a single person supported by two poles, and borne by two men, hence denominated chairmen. They were first introduced in London in 1634, when Sir Sanders Duncomb obtained the sole privilege to use, let, and hire a number of the said covered chairs for 14 years. The first sedan chair, says Hume (Hist. vol. vi. p. 168, 8vo.) seen in England, was in the reign of James I., and was used by the duke of Buckingham; to the great indignation of the people, who exclaimed, that he was employing his fellow-creatures to do the service of beasts. In 1694 they were first taxed by act of parliament (5 and 6 W. and M. c. 22.): and by 9 Anne, c. 23. § 8. 200 hackney-chairs were licensed, at 10s. per annum; and no person was obliged to pay for a hackney-chair more than the rate allowed by the act for a hackney-coach driven two-third parts of the said distance. By the said act every chair shall have a distinct mark on each side, and altering such mark incurs a forfeiture of 5l. half to the informer and half to the king. Nor shall any person carry for hire in a hackney chair, without licence, on pain of 40s.

In the following year, by 10 Ann. c. 19. chairs were increased to 300; and by 12 Geo. I. c. 12 to 400, on account of the great increase of buildings to the westward. By 7 Geo. III. c. 44. §. 13. a chairman may take for any distance not exceeding one mile, 12d.; for any distance above one mile and not exceeding one mile and four furlongs, 1s. 6d.; for every further distance not exceeding four furlongs, 6d.; and by the hour 18d. for the first hour, and 6d. for every half hour after. By 9 Ann. c. 23. a chairman, guilty of misbehaviour, by demanding more than his fare, or giving abusive language, or otherwise behaving rudely, shall, on conviction on oath forfeit not exceeding 20s. to the poor, or be committed for 7 days to Bridewell or some other house of correction; and by 7 Geo. III. c. 44. the commissioners may revoke his licence, or inflict on him a penalty not exceeding 3l. to the poor; and on non-payment, he shall be committed to hard labour in some house of correction for 30 days. See HACKNEY-COACHES.

CHAIR is also applied by the Romanists to certain feasts, held anciently in commemoration of the translation of the see, or seat of the vicarage of Christ, by St. Peter.

The *perforated chair*, wherein the new-elected pope is placed, F. Mabillon observes, is to be seen at Rome: but the origin thereof he does not attribute, as is commonly done, to the adventure of pope Joan; but says there is a mystery in it; and it is intended, forsooth, to explain to the pope those words of Scripture, that *God draws the poor from out of the dust and mire*.

CHAIRMAN, the president, or speaker of an assembly, company, &c. We say, the *chairman* of a committee, &c.

CHAISE, a sort of light open chariot, or calash. See COACHES.

Aurelius Victor relates, that Trajan first introduced the use of post-chaises: but the invention is generally ascribed to Augustus; and was probably only improved by Trajan, and succeeding emperors. Goth. in Cod. Theodof. tom. ii. p. 506, &c.

CHAISE, FRANCIS DE LA, in *Biography*, a distinguished ecclesiastic of France, in the reign of Lewis XIV. was born in the chateau of Aix in 1624, and entered the society of Jesuits at their college of Roanne, where he had been educated. He was employed for several years in teaching the belles-lettres, philosophy, and theology in different colleges of his order, and at length became provincial of the province of Lyons. From hence he was drawn to court, in 1675, by Lewis XIV. to fill the important post of his confessor, for which he possessed many necessary qualifications. As his figure was commanding, his manners polite, and his disposition to luxury and splendour such as suited the taste of Lewis, he acquired a powerful and permanent influence. To him was committed the distribution of benefices; and he maintained an absolute independence of mad. de Maintenon. The jealousy and dislike with which she regarded him were expressed in her letters; but her unfavourable representations of his temper and character were counteracted by those of the duke of St. Simon, who describes him as mild and moderate, humane and modest, possessed of honour and probity, and though much attached to his family, perfectly disinterested. This panegyrist adds, that he valued himself on his birth, and loved to favour nobility; and this circumstance served to induce a partiality on the part of this nobleman in his favour. Attached to his own order, he promoted its triumph over Janseuism; nevertheless, his treatment of the Janseuists may be reckoned very moderate compared with that of his successor Le Tessier. In his 80th year, sensible of the decline of his faculties, he wished to retire, and with these wishes the Jesuits concurred; but the king would not allow it. Even when he was broken down by infirmities, and had lost his memory, the king, as M. de St. Simon emphatically expresses it, had the *carcass* of his confessor brought to him for the purpose of transacting the usual business. He retained this office till his death, at the age of 85, in 1709. He was one of the first members of the Academy of Inscriptions, to which rank he was entitled by his knowledge of medals and of ancient history. Nouv. Dict. Hist. Gen. Biog.

CHAISE, LA, or LACHEZE, in *Geography*, a town of France, in the department of the North coasts, and chief place of a canton in the district of Loudeac; 5 miles S.E. of Loudeac. The place contains 458, and the canton 11,828 inhabitants; the territory includes 212½ kilimètres and 7 communes.

CHAISE-DIEU, LA, a town of France, in the department of the Upper Loire, and chief place of a canton in the district of Brioude, 13 miles from Brioude, and 18 N.N.W. of Le Puy. The place contains 1312, and the canton 9042 inhabitants; the territory comprehends 230 kilimètres and 14 communes.

CHAISE-LE-VICOMTE, LA, a town of France, in the de-

partment of the Vendée, and district of Montaigu; 5 miles E. of La-Roche-sur-Yon.

CHAJUK, a town of Asia, in the country of Charasm, on the frontiers of the Greater Bucharina.

CHAKEN-KAN, a town of Asiatic Turkey, in the province of Caramania; 20 miles N.N.E. of Tarsus.

CHAKENI KOUZEY, a town of Asia, in the kingdom of Candahar; 120 miles E.N.E. of Candahar.

CHALA, a small sea-port of South America, in the Pacific Ocean, near the river Arequipa.

CHALA, in *Ancient Geography*, a town of Asia, in Assyria; placed by Ildore de Charux in the Chalonitis.

CHALAAMA, a river of Asia, in Syria.

CHALABRE, in *Geography*, a town of France, in the department of the Aude, and chief place of a canton, in the district of Limoux; 10 miles S.W. of Limoux. The place contains 1820, and the canton 8513 inhabitants: the territory includes 205 kilimètres and 16 communes.

CHALACH, in *Ancient Geography*, the capital of Chalacene, near the springs of the river Lycus. Strabo places the Chalacene in the vicinity of Adiabene.

CHALADRA, CHARADRA, or GALADRA, a town and marsh of Macedonia.

CHALÆON, a port of Greece, in the Locride, 7 miles from Delphi, according to Pliny, who ascribes it to the Locriani-Ozoli.

CHALAIN, or LA POTHERIE, in *Geography*, a town of France, in the department of the Mayne and Loire, and district of Segré; 7 leagues N.W. of Angers.

CHALAIS, a town of France, in the department of the Charente, and chief place of a canton, in the district of Barbezieux; 5 miles W. of Aubeterre. The place contains 383, and the canton 7728 inhabitants: the territory comprehends 130 kilimètres and 16 communes.

CHALAMONT, a town of France, in the department of the Ain, and chief place of a canton, in the district of Trevoux; 4 leagues N.N.E. of Montluel.

CHALAK, a town of Persia, in the province of Gedrosia.

CHALAN, a town of Persia, in the province of Farsistan; 40 miles N.W. of Schiras.

CHALANÇON, a town of France, in the department of the Ardeche; 3 leagues N. of Privas.

CHALAPA, in *Botany*, and the *Materia Medica*, is a name given to jalap.

CHALAPU, in *Geography*, a mountain of the Cordilleras, in South America; which has, in its neighbourhood, the town of Hambato, and its skirts diversified with feats and farms; but its declivity is very steep. On this mountain the French mathematicians erected one of their signals, in measuring the length of an arc of the meridian.

CHALARONNE, a river of France, which runs into the Saône, near Toissey.

CHALASTIC *Medicines*, are such as have the faculty of relaxing the parts; when, on account of their extraordinary tension, or swelling, they occasion pain.

The word comes from χαλαω, *I relax*.

Of this kind are butter, and many oils, &c.

CHALASTICUM SAL, in the *Materia Medica*, a name given by some writers to the sal gem.

CHALASTRA, in *Ancient Geography*, a town of Macedonia, placed by Pliny, in the Thermaean gulf. Herodotus and Strabo call it *Chalestra*.

CHALAU, or KALAU, in *Geography*, a town of Lusatia; 46 miles S.W. of Frankfort on the Oder.

CHALAUTRE, a town of France, in the department of the Seine and Marne; 2½ leagues E. of Provins.

CHALAZA,

CHALAZA, among *Naturalists*, a white knotty kind of string at each end of an egg, formed of the plexus of the fibres of the membranes, whereby the yolk and white are connected together.

Its use, according to Harvey, is to be as it were the poles of this microcosm, and the connection of all the membranes twisted and knit together; whereby the liquors are not only conveyed, each in its place, but also in its due position to the rest.

Mr. Derham adds, that they also serve to keep one and the same part of the yolk uppermost, let the egg be turned which way it will; which is done by the following mechanism: the *chalazæ* are specifically heavier than the whites wherein they swim; and being braced to the membrane of the yolk, a little out of the axis, they cause one side of the yolk to be heavier than the other. The yolk being thus by the *chalazæ* made buoyant, and kept swimming in the midst of the two whites, is, by its own heavy side, kept with the same side always uppermost: which uppermost side he imagines to be that whereon the cicatrix lies.

CHALAZA, in *Botany*, a name given by Gærtner to a particular part of the internal membrane which belongs to most seeds. It has the form either of a small deep-coloured spot, or of a small, spongy, callous tubercle, proceeding from the extremities of the internal umbilical vessels, or from the dry remains of the chorion, and appearing on the outer surface of the membrane. It is found in many, but not in all seeds; and is situated either near the external umbilicus, or directly opposite to it. The first situation is not very common, but exhibits a variety of forms. The chalaza is a black sphacelated spot in cleusine, a thick fungous excrescence in zecynthys, and a small spongy scale in the seeds of hibiscus, lavatera, and other malvaceous plants. When it is situated, as it most frequently is, opposite to the umbilicus, its form is always round, with a moderate convexity; as in citrus, myrobalanus, bixa, protea, staphylia, alchemilla, and very many others; in all which the deep colour of the chalaza, and its close connection with the internal membrane, are clearly discernible. See Gærtner de Fructibus, vol. i. Introd. p. 135.

CHALAZIAS, or **CHALAZITES**, in *Natural History*, the name of a small stone, described by Pliny and other ancient writers, and said to have been of the size and colour of a common hail-stone, and of the hardness of the diamond. It was probably no other than the small pebble-crystals of the Indies, which are at this time frequent on the shores of rivers there, from the bigness of a large pin's head to that of a pea: and as they lie in great clusters together, without any other stones among them, they make a sort of coarse sand, which much resembles a cluster of hail-stones.

CHALCA, in *Ancient Geography*, a town of Africa, according to Strabo.

CHALCANTHUM, in *Natural History*. This term, together with chalcitis, mify, melanteria, and fory, was applied by the ancients, without much scientific discrimination, to signify iron and copper pyrites in a state of greater or less decomposition, and therefore approaching more or less to native vitriol. See IRON. *sulphat of*.

CHALCANTHUM, in *Medicine*, the same with vitriol.

Some have also used *chalcantum* corruptly for *colcothar*, or *vitriol rubefied*.

CHALCANTHUM chlorum, in the *Materia Medica*, a name given by some of the old Greek writers to the *melanteria*, a yellowish vitriolic mineral, which turned black on being wetted with common water.

CHALCAS, in *Botany*, Linn. See MURRAYA.

CHALCE, in *Ancient Geography*, an ancient town of

Africa, in Libya, according to Steph. Byz.—Also, a town placed by this geographer in Phœnicia.—Also, a town situate in the territory of Larissa.—Also, an island of the Mediterranean, on the coast of Asia Minor, near Rhodes, according to Pliny; called also *Chalcia*.

CHALCEA, a town of Asia, in Caria.

CHALCEDON, or **CALCEDON**, in *Ancient Geography*, a famous city of Bithynia, seated on the Bosphorus, and built, as it is said, by the inhabitants of Megara, some years before Byzantium. It was anciently known by the names of Procerastis and Colbua. It was taken by the Athenians 409 years B.C.; and 74 years before the same æra, it was besieged by Mithridates, king of Pontus, but succoured by the consul L. Lucullus. The emperor Justinian repaired it, and gave it his own name. It afterwards became very powerful. Pliny, Strabo, and Tacitus call it "the City of the Blind;" alluding to the answers which the Pythian Apollo gave to the founders of Byzantium, who, consulting the oracle in relation to a place where to build a city, were directed to choose that spot which lay opposite to "the habitation of the blind;" that is, as it was then understood, to Chalcedon: the Chalcedonians deservng that epithet for having built their city on a barren and sandy soil, without perceiving that advantageous and pleasant spot on the opposite shore, which the Byzantines afterwards chose. The emperor Julian erected a tribunal in this city, for trying and punishing the evil ministers of his predecessor Constantius. In the suburb of this city, furnished the "Oak," Rufinus, the infamous minister of the emperor Theodosius, built a magnificent villa; to which he added a stately church, consecrated to the apostles St. Peter and St. Paul, and continually sanctified by the prayers and penance of a regular society of monks. A numerous and almost general synod of the bishops of the Eastern empire was summoned to celebrate, at the same time, the dedication of the church and the baptism of the founder; and this double ceremony was performed with extraordinary pomp. Chalcedon became famous in Christian times for the council held there in 451 against Eutyches, which is reckoned the fourth general or œcumenical council. At this council Eutyches, who had been already banished, and deprived by the emperor of his sacerdotal dignity, was condemned, though absent; and the following doctrine was inculcated upon Christians as the object of faith, viz. "that in Christ two distinct natures were united in one person, and that without any change, mixture, or confusion." The emperor Valens caused the walls of this city to be levelled with the ground, for siding with Procopius, and the materials to be conveyed to Constantinople, where they were employed in constructing the famous Valentinian aqueduct. This city was taken after a long siege, A.D. 616, by Chosroes II. king of Persia. Chalcedon is at present a poor place, known to the Greeks by its ancient name, and to the Turks by that of Cadiaci, and Kadi-keni, or the Judges-town.

CHALCEDONIUS, the name of a medicine described by Galen; and directed by him to be infused into the ears, in inveterate disorders of that part.

CHALCEDONY, in the *Glass Trade*. See GLASS-*chalcedony*.

CHALCEDONY, in *Natural History*. Of this mineral there are the two following subspecies:

1. *Common Chalcedony*. Its colour is bluish-grey, passing into milk-white and smalt-blue; also greenish-grey, passing into apple and olive-green; or yellowish-grey, passing into wax and ochre-yellow, yellowish and blackish-brown, and brownish-black. Two or more of these colours are often found in the same specimen, of which one generally forms the

the ground, while the others are distributed over its surface in dots, clouds, or stripes. When white and yellowish-brown stripes alternate with each other, the stone is called an *onyx*, and is highly esteemed by the lapidaries. The grey varieties, with thick prismatic distinct concretions, when transversely cut, present iridescent colours when held to the light, and have hence been named *rainbow chalcedony*. The translucent milk-white variety is called *cacholong*. The green and smalt-blue varieties are the rarest: the dark coloured ones, when cut thin and held to a strong light, appear blood-red.

It is found massive, or forming veins, or in round balls of various sizes called geodes; also kidney-shaped, botryoidal, stalactitic, mamillated, and impressed by various organized bodies, such as turbinitis, &c. Certain crystalline forms, especially those of quartz, have also been attributed to chalcedony; but these appear to be nothing more than crystals of quartz coated over with chalcedony. It possesses little or no lustre; its fracture is perfectly even, passing into fine-splintery and flat-conchoidal; it breaks into indeterminate sharp-edged fragments; it frequently exhibits concentric, lamellar, or angular distinct concretions; it is commonly semi-transparent, but the darker-coloured varieties are only translucent; it is somewhat harder than flint, and much less brittle. Sp. gr. 2.58 to 2.65. It is infusible *per se*, before the blow-pipe, but becomes milk-white and opaque. According to Bergman, the chalcedony from Ferroe consists of

84 Silica.

16 Alumina and a little iron.

100

It occurs in veins and geodes in amygdaloid; also in veins, accompanied by quartz, pyrites, &c. in porphyry.

It was anciently procured from Chalcedon, in Lesser Asia (whence its name); but at present it is found principally in Saxony, Hungary, Iceland, Scotland, and the adjacent islands, Cornwall, and various parts of Asiatic Russia.

2. *Cornelian*. The usual colour of this mineral is blood-red, whence it passes into flesh-red, reddish-white, milk-white, orange and honey-yellow. Two or more colours often occur in the same specimen, disposed in zones, stripes, and arborizations. It occurs in veins and rounded pieces, has a conchoidal fracture, and a slight degree of lustre: in other respects it agrees with the common chalcedony. The variety with alternate red and white stripes is called *Sardonyx*.

Cornelian is found in various parts of Europe; but the most beautiful and valuable pieces are brought from Arabia, and Surat, and Cambay in India. Cornelian, from its beauty and hardness, has always been much sought after by lapidaries. Some of the finest antique cameos are made of it.

The coloured chalcedonies pass into AGATE, which see.

CHALCEMBOLON, in *Antiquity*, a ship, the rostrum of which was of brass.

The word is compounded of *χαλκος*, *brass*, and *εμβολον*, *rostrum*.

CHALCEPOS, in *Botany*, Dalech. See ECHINOPS *Spharocephalus*.

CHALCETORES, in *Ancient Geography*, a name given by Strabo to a place of Asia Minor, in Caria.

CHALCETORIUM, a town of the island of Crete. Steph. Byz.

CHALCIDENE, an inland province of Syria, bounded by Antiochene or Seleucia, on the west; Cyrrhestica, on the north; Chalybonitis, on the east; and by Apamene and Cælesyria, on the south. It took its name from its metropolis *Chalcis*. This was reckoned one of the most fruitful provinces of Syria, and was seized by Ptolemy, the son of Mennæus, during the troubles of Syria, and by him made a separate kingdom. Ptolemy himself is styled by Josephus and Hegesippus only prince of Chalcis; but his son Lyfianias is honoured both by Josephus and Dio with the title of king.

CHALCIDENSES, a people of Asia Minor, placed by Strabo in Ionia.—Also, a people situate, according to Diodorus Siculus, about the river Phasis.—Also, a people of Thrace, in the country where were situated the towns of Tinda and Milcorus. They are mentioned by Aristotle and Thucydides.

CHALCIDIC, CHALCIDICUM, or CHALCEDONIUM, in the *Ancient Architecture*, a large magnificent hall belonging to a tribunal or court of justice.

Festus says, it took its name from the city Chalcis; but he does not give the reason. Philander will have it to be the court, or tribunal, where affairs of money and coinage were regulated; so called from *χαλκος*, *brass*, and *δικη*, *justice*. Others say, the money was struck in it; and derive the word from *χαλκο*, and *οικος*, *house*.

In Vitruvius, it is used for the auditory of a BASILICA: in other of the ancient writers, for a hall, or apartment, where the heathens imagined their gods to eat.

CHALCIDICA LACERTA, in *Zoology*, a reptile described as a sort of serpent, and so called from its resemblance in colour to the chalcedony. Its bite is succeeded, they tell us, by a pellucid tumour, which has a shining blackness at the margin; and drank in wine, it cures its own bite, according to Paulus Aegineta. This animal is no other than the LACERTA *Chalcides* of Linnæus, which see.

CHALCIDICE, or CHALCITIS, in *Ancient Geography*, a country of Macedonia, according to Ptolemy, which comprehended the mountains S. E. of Apollonia, and the two peninsulæ which lay between the Toronaic, Singitic, and Strymonic gulfs. In this country was the famous mount ATHOS, which see. Ptolemy reckoned in this country only five cities; but Suidas says, that Philip took here 32 towns. Among these we may mention Augæa, Singus, Chalcis, and Æcanthus, now Eristo.

CHALCIDICUM, in *Antiquity*, sometimes denoted a dining-room. See CHALCIDIC.

CHALCIDICUS Mons, in *Ancient Geography*, a mountain of Sicily, according to Polybius and Steph. Byz.

CHALCIDIUS, in *Biography*, a Platonic philosopher, concerning whose time and character writers have entertained different opinions. Some have supposed that he was deacon or arch-deacon in the church of Carthage; others think that he was an heathen. According to Hody he was a Gentile, well acquainted with Christian writings. Beausobre calls him a Christian philosopher, and says, that he joined Christianity with Platonism. Cave is doubtful whether he was a Gentile or a Christian. Fabricius represents him as a Christian writer of the fourth century; but Mosheim hesitates. Dr. Lardner suggests some difficulties; such as his seeming to approve of the divinations of Gentilism, and allowing them to be of use for discovering futurities. He quotes Moses as a wise man, but seems to express a doubt whether he possessed divine inspiration, as well as human knowledge. Upon the whole, his manner of

writing does not clearly shew whether his religion was Christianity or Gentilism. Lardner, with his usual modesty, inclines to the opinion that he was a polite Platonic philosopher, who wished to be upon good terms with Christians, whose religion prevailed at that time; and he supposes with Cave, that he flourished about the year 330. Chalcidius translated into Latin the former part of the *Timæus* of Plato, and added a prolix commentary, in which he shews much learning and good skill in the sentiments of the ancient philosophers. This work is inscribed to Osius, or Hosius, supposed to be the bishop of Corduba in Spain, and a principal member of the council of Nice in 325. He refers to the history of St. Matthew (chap. ii. 1.); and whether he was a Christian or a heathen, this passage is a valuable testimony to St. Matthew's gospel, and to the history which he cites. If the commentary be considered as the work of a Gentile philosopher, the several quotations of the Old Testament and of the New that occur in it afford proof that the Scriptures were then well known in the world. Lardner thinks with Cave, that the style of the paragraph which he has cited is that of a Gentile, not of a Christian writer. Lardner's Works, vol. viii. c. 42. Cave, H. L. vol. i. p. 199.

CHALCIS, EGRIPO, in *Ancient Geography*, a town of Greece, and reckoned the capital of Eubœa, was built in the western part on a small peninsula, which seemed to join the island. The name of Chalcis, which was common to the island of Eubœa, and its capital, Stephanus derives from the daughter of Alopus, king of Bœotia; called Combe, and surname Chalcis, from her having first invented brazen armour; whence Pliny deduces it from a Greek word *χαλκος*, signifying brass or copper, which he supposes to have been first used here. The Chalcidians, in their better days, were renowned for their skill in navigation; but they were very generally reproached, on account of the dissoluteness of their manners; and their avarice was a topic of ridicule among the ancient Armenians. They sent colonies into Thrace, Macedonia, Sicily, the island of Corcyra, Lemnos, Italy, &c. See **EUBŒA**. Chalcis was one of the three cities which Philip, son of Demetrius, called "the fetters of Greece." Strabo says, that it was joined to the continent of Bœotia: and Pliny thought that Eubœa was united with the continent by this place, which is not improbable. The small strait which separates the island from the continent is called Euripus, and by the modern Greeks Euripo, whence by corruption is derived Egripo, the name given to the island.

CHALCIS, a town of Macedonia in Chalcidice. It was situated between Olynthus, the Singitic gulf, and Apollonia. Thucydides and Steph. Byz. refer it to Thrace, because the boundaries of this country were sometimes changed.

CHALCIS, a mountain of Greece, in Ætolia, according to Strabo, who says, that it extended along the eastern bank of the Evenus, from the mouth of this river to the northern extremity of Ætolia.

CHALCIS, a town of Greece, in Ætolia, seated on the fore-mentioned mountain.—Also, a town of Greece, in Bœotia, according to Hesychius.—Also, a river of Greece, in the Peloponnesus, which, according to Strabo, ran to the confines of Triphylia and the Pisadite territory, near Sarnicum.—Also, a river of Asia Minor, in Bithynia, which watered the city of Chalcedon, and discharged itself into the Thracian Bosphorus.—Also, a maritime burgh, with a port, in Asia Minor, upon the southern coast of Ionia, N. of the isle of Samos, and near Teos.—Also, one of the islands called Echinades, which were Grecian islands on the

coast of Ætolia.—Also, a town of Asia, in Syria; seated on the northern bank of a lake, whence sprung the river Chalcis, and which gave its name Chalcidene to the country. The Notitia of Hierocles distinguishes it as an episcopal city of Syria Prima, and the Itinerary of Antonine places it W. of Beroœa.—Also, a town of Arabia Felix, which Pliny says was founded by the Greeks, but destroyed by the war.—Also, a town of Scythia, mentioned by Steph. Byz.

CHALCIS, in *Entomology*, a genus of Hymenopterous insects established by Fabricius, and included by Gmelin in the Linnæan arrangement between the **TIPHIA** and **CHRYISIS**.

The genus Chalcis consists, with the exception of one, or, at most, two species, of insects discovered since the time of Linnæus, and which cannot, with propriety, be reduced to any of the Linnæan genera. It approaches both the *Sphex* and *Vespa* tribe; it is to the *Vespa* Linnæus refers *Chalcis minuta* of Fabr., and if the insect described in his *Fauna Suecica*, n. 1657, be the *Chalcis Siffes*, as commonly believed, the latter stands in his genus *Sphex*. The Fabrician character of the genus Chalcis is *Palpi quatuor æquales: Antennæ breves, cylindricæ, fere fusiformes: articulo primo subcrassiori*. Fabr. Ent. Syst. The following generic character after the Linnæan method is proposed for *Chalcis*, in the eleventh volume of the Natural History of British Insects. Mouth with a horny, compressed, and sometimes elongated jaw; feelers four, equal; antennæ cylindrical, fusiform, first joint rather thickest; thorax gibbous, lengthened behind, and obtuse; abdomen small, rounded, and subpetiolate; posterior thighs thickish. Donov. v. II. p. 57. t. 379.

SPECIES.

CHALCIS siffes. Black; petiole of the abdomen, and posterior thighs yellow. Fabr. mant. *Sphex siffes*, Fabr. Sp. Inf. *Sphex nigrifex*, Subz. *Vespa*, &c. Geoff. A native of Europe.

Obf. The posterior thighs are clavated, and toothed, of a yellow colour, and marked with a large spot of black; those of the female simple.

CHALCIS clavipes. Black; thighs of the hind-legs thick, and rufous. Donov. Brit. Inf. Fabr. Hybner, &c.

Size of the last; colour black and glossy, except the posterior thighs. According to Hybner this insect inhabits Saxony; it has been taken rarely in England. Latreille, who describes it under the name of *Chalcis clavipède*, mentions it as a scarce insect in France.

CHALCIS minuta. Black: posterior thighs thick, and yellow at the tip. Fabr. *Vespa minuta*, atra geniculis pedum luteis, femoribus posticis ovatis subtus muricatis, Linn.

This species is small, and has the posterior thighs serrated, and shanks incurvated, yellow, and tipped with black. Fabricius describes this as a German insect. Latreille informs us it is not uncommon in France, in the vicinity of Paris, and it may be considered, we believe, as a native of this country.

CHALCIS punctata. Yellow, dotted with black: posterior thighs clavated and toothed; abdomen conic. Fabr. Ent. Syst. *Sphex punctata*, Sp. Inf.

This kind inhabits the South American islands. The thorax is yellow, with black spots and dots; abdomen somewhat petiolate, yellow, tipped with black; posterior thighs with a black dot at the base and tip; wings white, and without spots.

CHALCIS apiformis. Cinereous; abdomen black; posterior

rior legs thick, testaceous, with a tooth at the base of the foot. Fabr.

Native country unknown. Described from the collection of Lund. The antennæ are black, with ferruginous base; head villous and cinereous; lip rounded, yellow, with a black streak; thorax cinereous; abdomen black; wings white.

CHALCIS podagrica. Black; posterior thighs thick, serrated, and ferruginous, with a white spot at the tip. Fabr.

Inhabits Tranquebar. Small; antennæ short and thick; head and thorax black, with a callous dot before the wings; abdomen short, rather compressed, black and without spots; legs white; thighs black; posterior pair, with a large white spot above; the shanks incurved, white, and in the middle black.

CHALCIS Aenea. Black; abdomen conic, black, and glossy; posterior thighs thick, and without spots. Fabr. *Chalcis Aenea*, Rossi.

This is a native of Italy. The size is small, and the colour entirely black, except the white wings; posterior thighs very thick.

CHALCIS pusilla. Glossy black; posterior thighs thick, with a white dot at the tip. Fabr. Resembles the last, but is only half the size. Inhabits Saxony. Hybner Natur.

CHALCIS annulata. Black; posterior thighs thick and dentated, with a white dot at the tip; shanks white, fringed with black. Fabr.

Inhabits South America, and appears, from the account of Dr. Pflug, to be of the parasitic kind like the Ichneumon, being found in the pupa of moths. It may be added, that as we are unacquainted with the Chalcis tribe in general, except in the winged state, the whole of them may be of the parasitic kind, depositing their ova, and being nourished in the larva state in the bodies of other insects. The size of *Chalcis annulatus* is the same as the preceding; the head and antennæ are black; thorax somewhat villous, black, with a snowy white dot before the wings; abdomen conic, smooth, and without spots; wings white; thighs of the posterior legs thick; shank incurved.

CHALCIS flavipes. Black; posterior thighs thick, serrated, with a yellow spot at the tip; legs yellow. Fabr.

Described from the cabinet of Dr. Pflug as a native of the South American islands. Resembles the last in size and appearance. The head is black; thorax dotted, with a yellow callous dot before the wings; abdomen conic, black, and glossy; wings hyaline; legs yellow; thighs black at the base.

CHALCIS maculata. Yellow, spotted with black; segments of the abdomen ferruginous at the base; posterior thighs clavated and immaculate. Fabr. Rohr.

Inhabits Cayenne. The body is small; antennæ short, black, the first joint testaceous; head yellow, with a central black line, and four vertical black dots; thorax yellow, anterior spot, dorsal line, and dot on each side black; legs yellow; thighs black at the base; posterior thighs serrated.

CHALCIS, in *Ichthyology*, a name by which some have called the pilchard; called by others *celerinus*, and *Apua membras*. See *CLUPEA pilcardus*.

CHALCIS was also the name given by Aristotle, Ælian, Appian, and other Greek authors, to the common herring. See *CLUPEA borengus*.

CHALCITARIUM, in the *Materia Medica* of the Ancients, a name given by the Greeks of the middle ages to the *colcothar*, or *calcanthum*. Some have applied it to the *CHALCITIS* alone, but others make it express the vitriols in general. It is derived from the Arabian word *colcothar*.

CHALCITIS. See *CHALCANTHUM*.

CHALCITIS, in *Ancient Geography*. See *CHALCIDICE*.

CHALCITIS, an island of the Propontis, at the entrance of the Thracian Bosphorus, and over against Byzantium. It is said to have had mines of copper.—Also, a country of Asia in Mesopotamia.—Also, a country of India, beyond the Ganges, according to Ptolemy, in which they had mines of copper.—Also, a country of Asia Minor in Ionia. Pausanias says that it was in the vicinity of Erythres.

CHALCO, in *Geography*, a town of North America, in the province of Mexico, near a lake to which it gives name; 18 miles S.E. of Mexico.

CHALCOCONDYLES, *LAONICUS*, an Athenian, who flourished in the 15th century, about 1470, and wrote in Greek, a "History of the Turks," from 1298 to 1462; which was translated into Latin by Conrad Clauser of Zurich: a Louvre edition of it was given in Gr. and Lat. in 1650, fol.; and a French translation by Vigenere and Mezeray, with comments, was published in 1662. *Nouv. Dict. Hist.* Fabr. Græc. t. vi. p. 474.

CHALCODONIUS Mons, in *Ancient Geography*, a mountain of Greece, in that part of Thessaly, called Pelasgia, above Phera.

CHALCODONTIDÆ, a name given by Homer (*Iliad* B.) to the Eubœans, and derived from Chalcodon, who succeeded his father Abas, the first king who reigned in Eubœa. This Chalcodon made war upon the Thebans, reduced their city, and compelled them to pay an annual tribute; but he was afterwards overcome and killed by Amphitruon, the father of the Theban Hercules; after which the Thebans regained their liberty.

CHALCOGRAPHY, the art of engraving on copper and brass. See *ENGRAVING*.

CHALCOLIBANON, a word mentioned in the Apocalypse of St. John, and very much misunderstood by the interpreters, who generally render it *brass*; but the word will bear no such signification. When the name of a metal is prefixed to some other word it only denotes the thing mentioned after the metal to be of the colour of that metal. This word is formed of χρυσος, *brass*, and *olibanon*, *frankincense*. We have many parallel compounds, and all understood in the same way, the name of the metal only expressing the thing to be of its colour: thus *chrysemela* are apples of the colour of gold, &c. This, therefore, can only signify frankincense of the colour of brass, that is, yellow.

CHALCONDYLES, *DEMETRIUS*, in *Biography*, a learned modern Greek, was a native of Athens, and having arrived in Italy, about the year 1447, resided for some time at Rome, and afterwards settled at Perugia, as teacher of the Greek language. About the year 1471 he was invited to Florence by Lorenzo de Medici, as successor in the Greek professorship to Argyropulus. Angelo Poliziano, who at this time taught Greek and Latin at Florence, succeeded by his rivalry and intrigues in removing Chalcondyles from his station as professor; though he was still respected by Lorenzo for his learning, and also for the worth and simplicity of his character. In 1492, the year of Lorenzo's death, he left Florence, and in consequence of the invitation of Lewis Sforza, settled at Milan; where he was famous as a teacher, and attended by a great number of scholars for many years. His erudition has been highly commended, and he has been ranked among the principal of the Greeks, who introduced the study of their language into Italy. He died at Milan in 1511, at the advanced age of 87 years. His only publication was a Greek grammar, first printed without date of year or place, but afterwards reprinted at Paris in 1525, and

and at Basil in 1556. He also assisted in editing some Greek authors. Moreri. Fabr. Bib. Græc.

CHALCOPHTHONGUS, in *Natural History*, a word used by Pliny, and other writers, as the name of a peculiar species of marble, which was very hard, and of a deep black colour, and when struck upon, sounded like brass.

CHALCORYCHIAN MOUNTAINS of Ptolemy, are mountains of Africa, in that part of Mauritania Cæsariensis, which belonged to the Tingitani or Western Moors, between Mons Durdus and the river Malva or Mullooiah. They were inhabited by the ancient Herpiditani, and now by a tribe of Kabyles, called Beni-zenessel, who, secure in their number and situation, have not hitherto submitted to the Tingitani.

CHALCOS, in *Coinage*, a coin of brass, eight of which were contained in the silver obolus, and supposed to have been the first kind of Greek coin. At first it was regarded as of so little moment that it afforded occasion for a proverb; so that to say a thing was not worth a chalcos, was the same with saying that it was worth nothing. As the Greeks became poor, however, even this diminutive coin was subdivided into 2, 4, or even 8 λεπτα or small coins. Pollux, and Suidas after him, tell us, that there were seven lepta to one chalcos; but this kind of division, from the unsuitableness of seven for proportional subdivision, is not likely to have occurred. But both these writers are too late as authorities: Pliny says that there were 10 chalci to the obolus, Diodorus that there were six, and Isidorus that there were four; and as these writers differ about the larger denomination, it may well be imagined that the smaller equally varied in different states. Most of the Greek copper coins which are now extant consist of chalci; the lepta being small, and more liable to be lost. All the brass coins of Athens published by Dr. Coombe are reducible to four sizes, which may be the lepton, dilepton, tetra-lepton, or demichalcos, and chalcos. The first is not above the size of one of king James I.'s farthing tokens: the last about that of our common farthing. See MONEY.

CHALCOSMARAGDUS. Almost every green mineral of a spathose texture was called by the ancient Naturalists smaragdus. The chalcosmaragdus or copper emerald was found in the copper mines of Cyprus, and therefore was probably some spar tinged green by carbonat of copper.

CHALCUITOS, Los, in *Geography*, a town of North America, in the country of Mexico, and province of Zatecas.

CHALCUS, in *Ichthyology*, a name given by the ancient Greeks to the fish we call *Dory*, *John Dorée*, or *Dorée*. It seems to have obtained both these names from its colour; the one from the word *chalcos*, brass; and the other from *doree*, gilded. See ZEUS faber.

CHALCUS, among the *Ancient Greek Physicians*, a weight of about two grains, the same as *areolus* or *areolum*.

CHALDÆA, in *Ancient Geography*, an appellation at first and generally used as synonymous with *Babylonia*; which see. But in process of time, it was restricted to the country, that was situated to the S.W. of Babylonia towards the Persian gulf, and towards the S. of the Euphrates. In Chaldæa, properly so called, Ptolemy places the cities Spunda, Batracharta, Shalatha, Altha, and Teridon, all on the Tigris; in the inland country he enumerates Chuduca, Chumana, Bethana, Orchoe, Bīramba, and several others, equally unknown.

CHALDÆANS, a name never given by Xenophon in his *Retreat of the Ten Thousand*, nor in his *Cyropaedia*, to the people of Babylonia; but it properly belonged to a

family or tribe of people who from their infancy devoted themselves to the study of nature, to the observation of the stars, and to the worship of the gods, much after the same manner with the Magi of Persia and the Brachmans of India. The Chaldæans or Chaldees, properly so called, were the priests and learned men of Babylonia, whose whole science seems to have been subservient to the purposes of superstition. These Chaldæans were, perhaps, more distinguished from the people than the clergy are from the laity with us; and were as much revered in their country, as the Egyptian priests were in theirs; and they are said to have enjoyed the same privileges. See *CHALDÆAN Philosophy*.

Xenophon (ubi supra) gives also the same name of Chaldæans to the people who inhabited that branch of mount Caucasus, where the Tigris, the Euphrates, the Araxes, and the Cyrus had their source. These people are denominated *Chalybes* in the geography of Herodotus, and he places the Chaldæans in Babylon. Strabo says (lib. x. and xi.) that the people anciently called Chalybes were, in his time, named Chaldæans; and the emperor Constantine Porphyrogenitus, who calls the provinces by the name of the people who inhabited them, gives that of Chaldia to the country, of which Trebizond was the capital, and which extended very far to the south and to the east of this city, comprehending a great part of the two Armenias. He adds that this name was derived from the Persians. Strabo describes the Chaldæans as a people almost savage, who dwelt in the mountains of Colchide.

The Chaldæans, says the learned Bryant, (Observ. and Inq. p. 253.) were the most ancient inhabitants of the country called by their name; nor are there any other principals, to whom we may refer their original. They seem to have been the most early constituted, and settled, of any people upon earth; and from their situation, and from every other circumstance, it appears, that Chus was the head of their family, and Nimrod their first king. They seem, he says, to have been the only people, that did not migrate at the general dispersion; and the centre of their province was at Ur, not far from the conflux of the Tigris and Euphrates. From hence they extended themselves under the names of Cusæans and Arabians, as far as Egypt west, and eastward to the Ganges; occupying to the south all the Asiatic sea-coast, and the whole of the large continent of Arabia; and from thence they passed the Erythræan gulf, and penetrated into Ethiopia. They were continually incroaching upon those that were nearest to them; and even trespassed upon their own brotherhood. In process of time they got full possession of Egypt, and the whole coast of Africa upon the Mediterranean even to the Atlantic Ocean, as far as Fez and Taffilet; and are to be found within the tropics almost as low as the Gold coast. Upon the Gambia is the king of Barsally, of Arabian extraction, as are all the Phœley natives; who retain their original language, and are of the religion of Mahomet.

CHALDÆAN PHILOSOPHY claims attention on account of its very high antiquity. The most ancient people, next to the Hebrews, among the Eastern nations, who appear to have been acquainted with philosophy, in its more general sense, were the Chaldæans; for though the Egyptians have pretended that the Chaldæans were an Egyptian colony, and that they derived their learning from Egypt, there is reason to believe, that the kingdom of Babylon, of which Chaldæa was a part, flourished before the Egyptian monarchy; and that the Egyptians were rather indebted to the Chaldæans than the Chaldæans to the Egyptians. Nevertheless, the accounts that have been transmitted to us,

by the Chaldæans themselves, of the antiquity of their learning, are blended with fable and involved in considerable uncertainty. At the time when Callisthenes was requested by Aristotle to gain information concerning the origin of science in Chaldæa, he was informed that the ancestors of the Chaldæans had continued their astronomical observations through a period of 470,000 years; but upon examining the grounds of this report, he found that the Chaldæan observations reached no farther backward than 1903 years, or that of course (adding this number to 331 B. C., the year in which Babylon was taken by Alexander) they had commenced in the year 2234 B. C. Besides, Ptolemy mentions no Chaldæan observations prior to the æra of Nabonassar, which commenced 747 years B. C. Aristotle, however, on the credit of the most ancient records, speaks of the Chaldæan Magi as prior to the Egyptian priests, who, it is well known, cultivated learning before the time of Moses. There are other circumstances, independently of the antiquity of the Chaldæan philosophy, which render our knowledge of it imperfect and uncertain. We derive our acquaintance with it from other nations, and principally from the Greeks, whose vanity led them to despise and misrepresent the pretended learning of barbarous nations. The Chaldæans also adopted a symbolical mode of instruction, and transmitted their doctrines to posterity under a veil of obscurity, which it is not easy to remove. To all which we may add that, about the commencement of the Christian æra, a race of philosophers sprung up, who, with a view of gaining credit to their own wild and extravagant doctrines, passed them upon the world as the ancient wisdom of the Chaldæans and Persians, in spurious books, which they ascribed to Zoroaster, or some other eastern philosopher. Thus, the fictions of these impostors were confounded with the genuine dogmas of the ancient eastern nations. Notwithstanding these causes of uncertainty, which perplex the researches of modern inquirers into the distinguishing doctrines and character of the Chaldæan philosophy; it appears probable, that the philosophers of Chaldæa were the priests of the Babylonian nation, who instructed the people in the principles of religion, interpreted its laws, and conducted its ceremonies. Their character was similar to that of the Persian Magi, and they are often confounded with them by the Greek historians. Like the priests in most other nations, they employed religion in subserviency to the ruling powers, and made use of imposture to serve the purposes of civil policy. Accordingly Diodorus Siculus relates, (lib. ii. p. 31. compared with Dan. ii. 1, &c. Eccles. xlv. 3.), that they pretended to predict future events by divination, to explain prodigies, and interpret dreams, and to avert evils, or confer benefits, by means of augury and incantations. For many ages, they retained a principal place among diviners. In the reign of Marcus Antoninus, when the emperor and his army, who were perishing with thirst, were suddenly relieved by a shower, the prodigy was ascribed to the power and skill of the Chaldæan soothsayers. Thus accredited for their miraculous powers, they maintained their consequence in the courts of princes. The principal instrument, which they employed in support of their superstition, was astrology. The Chaldæans were probably the first people who made regular observations upon the heavenly bodies (Cic. de Divin. l. i. Strabo l. xv.), and hence the appellation of Chaldæan became afterwards synonymous with that of Astronomer. Nevertheless all their observations were applied to the sole purpose of establishing the credit of judicial astrology; and they employed their pretended skill in this art, in calculating nativities, foretelling the weather, predicting good and bad fortune, and other practices usual with impostors of this class. (Sext. Enip. adv.

Math. l. v. §. 2. Aul. Gell. l. xiv. S. 1. Strabo, l. c.) While they taught the vulgar that all human affairs are influenced by the stars, and professed to be acquainted with the nature and laws of their influence, and consequently to possess a power of prying into futurity, they encouraged much idle superstition, and many fraudulent practices. Hence other professors of these mischievous arts were afterwards called Chaldæans, and the arts themselves were called Babylonian arts. Among the Romans these impostors were so troublesome, that, during the time of the republic, it became necessary to issue an edict, requiring the Chaldæans, or mathematicians (by which latter appellation they were commonly known) to depart from Rome and Italy within 10 days; and, afterwards, under the emperors, these soothsayers were put under the most severe interdiction. (Valer. Max. l. i. c. 3. Diod. Sic. l. xvii. p. 622. Sueton. in Tiber.)

We may further add, that the Chaldæan philosophy consisted, not in a free and diligent examination of the nature of things, but merely in the transmission of certain settled opinions from father to son. To this purpose Diodorus Siculus, (l. ii. p. 81.) deviating widely from the character of a true philosopher, commends the Chaldæans for having taken up their opinions upon the authority of their ancestors, and says "that, in this respect, they acted much more wisely than the Greeks, who, adding themselves to disputation, were ever ready to embrace new opinions; and thus obliged their disciples to wander through their whole lives in perpetual uncertainty." Accordingly, the mysteries of Chaldæan philosophy were revealed only to a select few, and studiously concealed from the multitude; and thus a veil of sanctity was cast over their doctrine, so that it might more easily be employed in the support of civil and religious tyranny. Another circumstance which contributed to produce the same effect, was the care taken by the Chaldæan priests to prevent the spreading of religious and philosophical knowledge among the people; and with this view they confined the dissemination of it to a certain tribe and district. They also issued their dogmas under the disguise of symbols; thus reserving to themselves the prerogative of varying the popular system according to the exigencies of the times, or the pleasure of the ruling powers, without danger of detection. The implicit credit which the Chaldæan priests obtained among the people by these artifices is particularly noticed by Juvenal: (Sat. vi. 552.)

" Chaldæis sed major erit fiducia, &c.

" More credit, yet, is to Chaldæans given;
What they foretell is deem'd the voice of heaven:
Their answers as from Hammon's altar come;
Since now the Delphian oracles are dumb.
And mankind ignorant of future fate,
Believe what fond astrologers relate."

DRYDEN.

From the above account of the Chaldæans, it must appear, that they had but a very slight title to the appellation of wise men; and that, instead of ranking with philosophers, they belonged to the class of impostors. The knowledge they possessed was applied by them to the purposes of superstition; and little regard is due to the encomium passed upon this race of sages by some ancient writers, particularly Philo (De Nomin. Mutat. oper. p. 1046.); and still less to the general admiration, which, at a very early period, they obtained in the east. Among the Chaldæans, however, there was some variety of opinions. We learn, from the authority of Strabo (l. xvi. p. 509) and Pliny (Hist. Nat. l. vi. c. 26.) which is confirmed by the testimony of the Jewish prophets, that there were in Assyria and Chaldæa, different schools or sects, which probably differed from each other chiefly in the mode

of practising the arts of divination and astrology; and whose knowledge of nature extended little further than to the discovery of the supposed magical uses of certain natural bodies, particularly minerals and herbs. (Plin. Hist. Nat. l. xxxvii. c. 10.) Moreover, the tenets or institutions of each sect, whatever they might be, were transmitted implicitly from father to son; and the followers of one sect very rarely revolted to another.

Among the ancients it is universally acknowledged, that Zoroaster was the founder of the Chaldæan philosophy. But much confusion and contradiction have occurred in the accounts that are given of this celebrated person. See ZOROASTER. It is probable, that besides Zoroaster, who was a Perso-Median, and who flourished in the time of Darius Hystaspes, there was another of the same name who lived in a much more remote period among the Babylonians, probably towards the beginning of the Babylonian empire; who taught them astronomy, and who was the father of Chaldæan astrology and magic. (Plin. H. N. l. vii. c. 16; xi. 42; xxx. 1. Justin. l. i. c. 2. Recognitiones Clementis, l. iv. c. 27.) The Chaldæan magic was, indeed, a very different thing from a knowledge of the real properties of bodies; and, though some acquaintance with the motions of the heavenly bodies was necessary for astrological calculations, it cannot be inferred, either from their magical or astrological arts, that the Chaldæans were eminent masters in any branch of natural science. All the writings, which have been ascribed to the Chaldæan Zoroaster, are unquestionably spurious.

Among the Chaldæan philosophers we may mention Belus, who promoted the study of astronomy among the Assyrians, probably with a design of applying their faith in astrological predictions to political purposes, to whose memory Semiramis is said to have erected a lofty tower used afterwards by the Chaldæans as an astronomical observatory, and elevated after his death to the rank of divinities. (See BELUS). See also BEROSUS.

The Chaldæan philosophy, notwithstanding the obscurity that has rendered it difficult of research, has been highly extolled, not only by the Orientalists and Greeks, but by Jewish and Christian writers: but upon recurring to authorities that are unquestionable, there seems to be little or nothing in this branch of the Barbaric philosophy which deserves notice. The following brief detail will include the most interesting particulars: From the testimony of Diodorus, and also from other ancient authorities, collected by Eusebius (Præp. Evang. l. iv. c. 5.) it appears, that the Chaldæans believed in God, the lord and parent of all, by whose Providence the world is governed. From this principle sprung their religious rites, the immediate object of which was a supposed race of spiritual beings or dæmons, whose existence could not have been imagined, without first conceiving the idea of a Supreme Being, the source of all intelligence. The belief of a Supreme Deity, the fountain of all the divinities which were supposed to preside over the several parts of the material world, was the true origin of all religious worship, however idolatrous, not excepting even that which consisted in paying divine honours to the memory of dead men. Besides the Supreme Being, the Chaldæans supposed spiritual beings to exist, of several orders; gods, dæmons, heroes: these they probably distributed into subordinate classes, agreeably to their practice of theurgy or magic. The Chaldæans, in common with the eastern nations in general, admitted the existence of certain evil spirits, clothed in a vehicle of grosser matter; and in subduing or counteracting these, they placed a great part of the efficacy of their religious incantations. (Plut. de Defectu Orac.)

These doctrines were the mysteries of the Chaldæan religion, imparted only to the initiated. Their popular religion consisted in the worship of the sun, moon, planets, and stars, as divinities, after the general practice of the east. (Job, xxxi. 27.; Diod. Sic. ubi supra; Herod. l. i. c. 181.; Selden de Diis Syriis. Præf. c. 3.) From the religious system of the Chaldæans were derived two arts, for which they have long been celebrated, viz. magic and astrology. Their magic, which should not be confounded with witchcraft, or a supposed intercourse with evil spirits, consisted in the performance of certain religious ceremonies or incantations, which were supposed, by the interposition of good dæmons, to produce supernatural effects. Their astrology was founded upon the chimerical principle, that the stars have an influence, either beneficial or malignant, upon the affairs of men, which may be discovered, and made the certain ground of prediction, in particular cases; and the whole art consisted in applying astronomical observations to this fanciful purpose, and thus imposing upon the credulity of the vulgar. (See Sext. Emp. adv. Math. l. v. p. 339. Diod. Sic. l. ii. p. 83. Manilius, l. ii. v. 456. Jamblich. de Myster. §. 8. c. 4. Fabr. Bib. Græc. v. ii. p. 494. Vossius de Theolog. Gent. l. ii. c. 47.) Upon this subject, Horace (lib. i. od. xi. 1.) makes the following sensible reflection:

“Tu ne quæsieris (scire nefas) quem mihi, quem tibi
Finem Dii dederint, Leuconoe, neu Babylonios
Tentaris numeros. At melius, quidquid erit, pati.”

“Ask not—’tis impious to inquire—what date
The limit of your life is fix’d by fate;
Nor vainly Babylonian numbers try;
But wisely wait your lot, to live or die.”

The Chaldæans, whilst they were occupied in these and other arts of divination, contributed very little to the promotion of true science. We have scarcely any remains of their astronomical observations and opinions. The loss, with respect to the latter, is not much to be regretted, as far as we may judge by the following specimens.

According to Plutarch and Vitruvius, who quote Berofus, it was their opinion, that an eclipse of the moon happened, when that part of its body which is destitute of fire is turned towards the earth. (Plut. de Placit. Phil. l. ii. c. 29. Comp. Euseb. Præp. l. 15. c. 51. Vitruv. l. ix. c. 4.) From the same authority Seneca (Quæst. Nat. l. iii. c. 29.) gives it as a notion of the Chaldæans, that when all the planets shall meet in Cancer, the world will be consumed by fire; and that when they shall meet in Capricorn, it will be destroyed by an inundation. They thought the form of the earth to be that of a boat. (Diod. Sic. loc. cit.)

The sum of the Chaldaic cosmogony, as it is given by Berofus, in his “Babylonica,” preserved by Syncellus (Chronic. p. 28.), divested of allegory, is, that in the beginning all things consisted of darkness and water; that Belus, or a divine power, dividing this humid mass, formed the world, and that the human mind is an emanation from the divine nature. Perizon. in Orig. Bab. Voss. de Scient. Math. c. xxx. § 5. Hottinger. Hist. Or. p. 365. Herbelot. Bib. Or. Voc. Zor. Anc. Un. Hist. vol. iii. Prid. Conn. b. iv. Shuckford. b. viii. Burnet Archæol. Phil. l. i. c. 4. Brucker’s Hist. Phil. by Enfield, vol. i. b. i. c. 3.

CHALDAISMS, in *Biblical History*, denote certain expressions and modes of expression, derived from the Chaldee language, that occur in the scriptures of the Old Testament. Besides those parts of the Old Testament which are written in Chaldee, viz. the book of Daniel, from the 4th verse of the 2d chapter to the end of the 7th chapter; the book of Ezra, from the 8th verse of the 4th chapter to the 27th verse of

of the 7th chapter; and the 11th verse of the 10th chapter of the book of Jeremiah; there occur in the Hebrew text some single words that are merely Chaldaic. Such is the Chaldee word **בֵּר**, *son*, which is used instead of the Hebrew **בֶּן**; as in Prov. xxxi. 2. Psa. ii. 12. Such are also **מְדוּבָה**, *golden*, for the Hebrew **מְדוּבָה**, from **דָּבָר**, *gold*, in Isaiah, xiv. 4.; and **רַעֲיָךְ**, in Pl. cxxxix. 17. translated by the vulgate *thy friends*, in the Hebrew sense of the term, but in Chaldee **רַעֲיָךְ** signifies *thoughts*, and therefore most persons render it *thy thoughts*. Independently of these whole words, there are some Hebrew terms, which nevertheless are formed after the Chaldee manner, and on that account differ from the Hebrew. Thus, the plural masculine nouns in Hebrew terminate in **ים**; but in Chaldee, and also in Syriac, in **ין**; as **מַלְיִין** (Job, xii. 11.) for **מַלְיִים** *words*, **חַיִּין** (Job, xxiv. 22.) for **חַיִּים** *life*, &c. &c.: nouns also which in Hebrew end in **ה**, close with **א** in the Chaldee and Syriac; thus, **תַּהֲרָא** (Exod. xxviii. 32. and xxxix. 23.) for **תַּהֲרָה** (Ruth, i. 20.) **שָׁנָא** (Pl. cxxvii. 7.) for **שָׁנָה**, &c. &c.; the Chaldee **חֲרָ** occurs (Ezek. xxxiii. 30.) for the Hebrew **אָחַר**, &c. Chaldaic affixes are also joined to Hebrew nouns, as **תַּנְכּוּלוּהִי** (Pl. cxvi. 12.) for **תַּנְכּוּלִי**, where the affix **והי** is used for **ו**: the characteristic of the conjugations Hiphil and Hithpaal, which in the Hebrew is **ה**, is in the Chaldee and Syriac **א**: hence **אֲנֵאלְתִּי** (Is. lxiii. 3.) for **אֲנֵאלֵתִּי**, &c.: and the characteristic of the future in Hebrew destroys the characteristic of the conjugation Hiphil, which is not the case in Chaldee and in Syriac; thus we read **יִהְיֶילִי** (Is. lii. 5.) for **יִהְיֶה**, &c.: the middle radical of the verbs **עָן** in Chaldee and Syriac is often changed into **א**; thus **וְקֵאֵם** (Hos. x. 14.) for **וְקֵאֵם**, &c.: among the Hebrews the preterite participle, or "Paoul," has **ן** for the penultimate; but among the Chaldeans and Syrians, it has **י**, and is therefore called "Pehil;" hence **קְרִיאִי** (Numb. i. 16.) for **קְרִיאִי**: the Chaldee and Syriac join **ל** to the **מ** of the gerund, thus **מַלְכּוּא** (Amos, vi. 14.) for **מַלְכּוּא**: the Chaldeans and Syrians insert the letter **נ** in final words borrowed from the Hebrews, e.g. of **אֵת**, *thou*, they make **אֵתְנִי**; and read **קִנְיִי** (Job, xviii. 2.) for **קִנְיִי**, &c. See *Maclef's Gram. Heb.* vol. i. cap. xxiii.

CHALDEE, or **CHALDAIC language**, that spoken by the Chaldeans or people of Chalda; which was anciently used throughout all Assyria, Babylonia, Mesopotamia, Syria, and Palestine, and is still the language of the churches of the Nestorian and Maronite Christians in those eastern parts, in the same manner as the Latin is the language of the popish churches in the west. The Chaldee is a dialect of the Hebrew, and so nearly allied to it, that the forms, names, pronunciation, and divisions of the letters are the same; and, therefore, this language is easily acquired by those who are acquainted with the Hebrew. See **HEBREW**.

CHALDEE Paraphrase, in the Rabbinical style is called *Targum*.

There are three Chaldee paraphrases in Walton's *Polyglot*; viz. that of Onkelos, that of Jonathan son of Uzziel, and that of Jerusalem. See **PARAPHRASE**.

CHALDESAYGUES, in *Geography*, a town of France, in the department of the Cantal; 4 leagues S. of St. Flour.

CHALDONE, in *Ancient Geography*, a promontory of Arabia Felix, near the place where was the ancient mouth of the Euphrates, according to Pliny.

CHALDRON, **CHALDER**, or **CHAUDRON of coals**, a dry English measure, consisting of thirty-six bushels heaped up, according to the sealed bushel kept at Guildhall, London.

The chaldron should weigh about 28 cwt. or 3136

pounds. On ship-board, twenty-one chaldrons of coals are allowed to the score. By act of parliament a Newcastle chaldron is to weigh $52\frac{1}{2}$ cwt. or 3 waggons of $17\frac{1}{2}$ cwt. or 6 carts of $8\frac{3}{4}$ cwt. each, making $52\frac{1}{2}$ cwt. to the chaldron. The statute London chaldron is to consist of 36 bushels heaped up; each bushel to contain a Winchester bushel and one quart, and to be $19\frac{1}{2}$ inches diameter externally. And as it has been found by repeated trials, that 15 London pool chaldrons are equal to 8 Newcastle chaldrons, if we reckon $52\frac{1}{2}$ cwt. to the latter, we shall have 28 cwt. to the former, or 3136 pounds to the London chaldron. Dr. Hutton found this estimate nearly confirmed by experiment. For weighing one peck of coals, he found that it amounted to $21\frac{3}{4}$ lbs. and $4 \times 21\frac{3}{4}$ gives 87 lbs. for the weight of the bushel; and 36×87 gives 3132 for the weight of the chaldron; to which if the weight of the odd quart be added, or 3 lb. nearly, we shall have 3135 lbs. for the weight of the chaldron, or only one pound less than that which is given by statute. But the chaldron, or chaldron, ultimately delivered to the consumer, is still less than the chaldron in the pool, and hence it appears that the word chaldron conveys very different ideas, and that this confusion in the use of the term must open a door to deception and fraud. The monthly supply of coals for the metropolis is estimated at 300 cargoes, of 220 chaldrons each, or 66,000 chaldrons: and it has been alleged as no improbable supposition, that (with some exceptions) 50,000 chaldrons, on an average, remain exposed to depredations in open craft on the river all the year round. See Macnab's Letter to John Whitemore, Esq. on the Coal-Trade.

CHALEF, in the *Botanical* writings of the ancient Arabs, the name of a tree often occurring, and seldom explained. The best account we have of the *chalef* or *chalef*, is in the writings of Prosper Alpinus on the Egyptian plants, who tells us, that it is a kind of willow, growing in Egypt and in Mesopotamia. It is probably a species of *elzagnus*.

CHALENCEY, in *Geography*, a town of France, in the department of the Upper Marne, and district of Langres; 13 miles S.S.W. of Langres.

CHALEOS, in *Ancient Geography*, a town of Greece, situated in the gulf of Corinth, in the country of the Locrian Ozoles, according to Ptolemy.

CHALES, **CLAUDIUS FRANCIS MILLIET DE**, in *Bio-graphy*, was born of an ancient and illustrious family at Chambery, in Savoy, in the year 1621, and belonged to the society of Jesuits. In early life he applied to the study of the belles lettres, and acquired a considerable knowledge of the Latin and Greek languages; but his favourite studies, and those in which he eminently excelled, were mathematics, mechanics, and astronomy. He was appointed by Lewis XIV. royal professor of hydrography at Marseilles, and he gained great reputation as a teacher of mathematics at Trinity College in Lyons. It was probably on account of his distinguished reputation that the superior of his order appointed him teacher of theology in the same college, for which office he was less qualified than for any other. Charles Emanuel II., duke of Savoy, remarked on this appointment, that it was unwisely made, and that the attention of such a person as Chales should never have been diverted from the course of study and employment to which he was attached. Accordingly, he was called off from this situation to Paris, where he was engaged for several years in teaching the mathematics. He died at Turin in 1678, and the following eulogy was inscribed on his monument: "Hic jacet Claudius Franciscus Milliet de Chales, genere, sapientia, virtute notus omnibus; ignotus sibi." His works are "Cursus seu Mundus Mathematicus," first printed in 1674, at Lyons, in 3 vols.

vols. fol. and afterwards in 4 vols. in 1680, by Amati Varcin, who augmented and improved this edition by several valuable treatises found among his MSS. To this edition is prefixed an historical account of the progress of mathematical science from the age of Thales the Milesian to the author's own time. De Chales's "Treatise of Navigation," and "Researches on the Center of Gravity," are much esteemed. See the funeral oration of father Hyacinth Ferrerius prefixed to Varcin's edition.

CHALESTRA. See CHALASTRA.

CHALETTE, in *Geography*, a town of France, in the department of the Aube, and district of Arcis; 12 miles S.E. of Arcis.

CHALEURS, a deep and broad bay on the W. side of the gulf of St. Lawrence. From this bay to that of Verte, on the S. in the S.E. corner of the gulf is the N.E. sea-line of the British province of *New Brunswick*; which see.

CHALI, in *Ancient Geography*, a people of Germany, placed by Ptolemy on the eastern coast of the Cimbric Chersonesus.

CHALI, a town of Asia, in Phœnicia, placed, in the book of Joshua, in the tribe of Asher.

CHALIA, a town of Greece, in Bœotia, near Hyria.

CHALIAT, a town of Asia, in the Corduene, situate on the bank of the lake Arsissa, at the extremity of the N. and W. parts.

CHALICE, the cup or vessel used to administer the wine in, in the eucharist; and by the Romanists, in the mass.

CHALIDRIS, CHALIDRIS NIGRA, in *Ornithology*, the name given by Aldrovandus and others to *tringa littorea*; which see.

CHALIGE, *Canal of*, in *Geography*. See CAIRO.

CHALIGNY, a town of France in the department of the Meurthe; 5 miles S.W. of Nancy.

CHALIM, a town of Portugal, in the province of Trás-os-Montes; 20 miles S. of Bragança.

CHALIM-POU, a town of Chinese Tartary. N. lat. $41^{\circ} 12'$. E. long. $121^{\circ} 54'$.

CHALIN, a river of Russia, which runs into the Karskoi sea. N. lat. $73^{\circ} 5'$. E. long. $71^{\circ} 14'$.

CHALINAQUES, a town of France, in the department of the Cantal; 12 miles N. of St. Flour.

CHALINDREY, a town of France, in the department of the Upper Marne, and district of Langres; 5 miles S.E. of Langres.

CHALINOS, in *Antiquity*, the bit, or that part of a bridle which is put into the mouth of a horse. But it was, among the ancient physicians, also used to express that part of the cheeks, which, on each side, is contiguous to the angles of the mouth.

CHALISCUTELI HILLS, in *Geography*, hills of Hindoostan, which lie between the western desert and the Setlege.

CHALISIA, in *Ancient Geography*, a maritime town of Africa, in Libya.

CHALIZA, in the *Jewish Customs*, the ceremony whereby a woman who is left a widow, pulls off her brother-in-law's shoes, who should espouse her, and by this means is allowed to be at liberty to marry whom she pleases. The word signifies *extrahio vel exuvia*.

CHALK. The colour of this mineral is yellowish white, more rarely snow-white, or greyish white: when contaminated with iron it has more or less of an ochery tinge. It occurs generally in mass, sometimes disseminated, or investing other minerals. It is without lustre, is opaque, has a fine

earthy fracture, and breaks into blunt-edged angular fragments. It stains the fingers, gives a white streak, and, when pure, is very soft, and almost friable. It has a meagre feel, and adheres to the tongue. Sp. gr. 2.3. It effervesces violently with acids. When mixed with iron it is both harder and heavier.

In a state of purity, chalk appears to be composed only of water, lime, and carbonic acid; but Mr. Kirwan obtained from the analysis of a specimen,

53	Lime
42	Carbonic acid
3	Water
2	Alumine
<hr/>	
100	

Chalk, considered geologically, is among the most recent in formation of the several varieties of carbonate of lime. It occurs in thick beds nearly horizontal, alternating with thin layers of flint nodules, and with the same irregularly dispersed through its substance. It contains in abundance the relics of marine organized bodies, such as echinites, gloiopetræ, pectinites, &c.; and also, not unfrequently, the hard parts of amphibious and land animals, such as the heads and vertebræ of crocodiles, and teeth of elephants.

Beds of chalk are of frequent occurrence in the east and south parts of England, also in the north-east of France, Chalk is also met with in some of the Danish islands in the Baltic, and in Poland.

The uses of chalk are very great. The more compact varieties are employed as building-stone, and are burnt to quicklime: it is also largely used in polishing metals and glass, in constructing moulds to cast metals in; by carpenters and others as a material to work with, and by starch-makers and chemists to dry precipitates on.

CHALK, in *Agriculture*, is a calcareous substance, which, when pure, is of a white colour, moderate consistence, and dusty surface; stains the fingers; adheres slightly to the tongue; does not harden when heated, but; on the contrary, in a strong heat burns to lime, and loses about four-tenths of its weight. It effervesces with acids, and dissolves almost entirely in them. It may also be added, that this solution is not disturbed by caustic volatile alkali, as this is a circumstance that distinguishes it from magnesia. It has the property of promoting putrefaction. In its native state it is useful as a manure, upon the same principle as limestone; but it is more easily pulverized, and lighter, or more porous in its nature. Nearly the whole of this material is calcareous earth, whereas none of the marles contain more than a fourth part of that substance. It is in high esteem in the more southern counties of England, where it abounds very much. Its best effects are produced upon deep soils which contain no calcareous earth. It is observed to have but very little effect upon lands where the substratum is chalk; and if the soil be thin, it does mischief in such cases. When used upon light thin soils, it is mostly made into composts with earth and dung, or some other similar material. When these are well mixed together, and duly proportioned, they produce valuable crops; and their influence is said to continue many years, in such instances.

The common method of using this sort of compost is either by laying it upon fallows for wheat, and mixing it intimately with the soil by ploughing and harrowing, or upon grass as a top-dressing: in both cases it has been found to answer well; and in the latter it is found capable of destroying moss, rushes, and all coarse aquatic plants that grow in

in heavy, four, or wet lands; while, in the former, it opens and pulverizes the soil, and never fails to produce good crops of that grain, or other kinds.

In making use of it, it has been recommended that it should be broken as small as possible. It should be dug from the pit near the end of autumn, and be laid on the land immediately; as at that season the air is generally moist, the moisture will of course be absorbed by the chalk. This will occasion it to swell, and break down into pieces; and if frost should come on, it will much accelerate the business: but when it is dug in summer, it loses its moisture, and acquires a hardness, which in a great measure prevents it from being of any use. It should in no case be ploughed in till its parts are properly broken down and separated, and then it should be completely harrowed in and mixed well with the soil, or mould of the land.

If the soil be thin and light, a certain proportion of dung will, it is said, be useful; but if it be heavy, the dung is asserted to lessen the operation of the chalk. It is generally thought that lands which have been completely chalked will not bear a repetition of it for some time. A compost of it, however, may be used to great advantage. In the southern counties a field has been, it is observed, chalked, and dressed with chalk and dung mixed, in portions alternately; and the former has been found to produce very bad crops, but the latter very good ones. It is asserted, that laid on beyond a certain quantity, it will not only cease to operate as a manure, but even prove hurtful to the land. It ought, therefore, to be used with caution, and due pains be taken not only to ascertain the strength of the chalk, but the quality of the soil on which it is to be laid, before the application is made.

But there can be no doubt that chalk is a lasting manure, when applied on suitable soils; which are those of a cold, four nature, such as stiff untractable clays. Pliny has remarked that it was the custom of the ancient Britons to chalk their lands, by which they received a great and lasting improvement in the fertility of them.

In regard to the different kinds of chalk which should be distinguished by the farmer, the hard, dry, and firm sort is much the fittest for burning into lime; but that of the fat and unctuous kind by far the best to be used in the crude state.

It has been stated that in some parts of Essex they lay from five to eight waggon loads of chalk on an acre, either upon a clover lay while feeding, or on a summer fallow; and that the effect of a very thin dressing of it is seen immediately to an inch, like that of rotten dung, and lasts twenty years, fifteen in good heart. The soil is a loam; they have also a little clay, and no sand: on gravels the effect is but slight. They bring the chalk from Malden, whither it is brought by sea from Kent, and a waggon load costs mostly ten shillings at the quay. It is rather hard; the sharpest frosts leave many lumps unbroken; these they break with pick-axes. The effervescence with vinegar is pretty considerable, but in water it scarcely falls at all. It is also a general opinion in that county, that land which has been once chalked will not take it again; they acknowledge, however, that when mixed with earth and dung it is then excellent. They observe, that laying a slight dressing of chalk and earth, or dung, on a field never chalked, will take so much effect, that the same field will not answer to chalk completely. They observe also, that the chalk presently gives the land a red colour: And they are of opinion, that chalk is a great enemy to good grass; and affirm, that a field which, before chalking, will run of itself to a fine head of white clover, no longer does it after chalking.

There is no saying any thing against experience: we should not, however, draw general conclusions from partial experiments. Much of the effect of manures depends upon the soil on which they are laid. About Enfield, as observed in a paper in the Annals of Agriculture, the same chalk does wonders, which at North Mims has very little effect: the one is a rich loam, the other a poor gravel. And near Sandwich, in Kent, chalk has been found in a very high degree to improve a sandy soil, giving it tenacity, and totally exterminating that pernicious weed the corn marigold, which is provincially called *yellow bottle*, *buddle*, or *golds*, and so abundant in sandy soils. They lay on forty loads of forty bushels each to an acre. Upon pasture land they think it does nothing. In Hertfordshire it is thought that chalk makes the land plough much better, and renders all manures much more effectual. If a field be divided into parts, one chalked, a second chalked and manured with dung or soot, ashes, &c. and a third dunged or ashed without chalk; although chalk alone has no effect, yet the other manure on the chalked part will have a much greater effect than on the part where no chalk is laid. Facts of this sort are highly interesting, but want to be more correctly made.

It has been remarked by the author of the Synopsis of Husbandry, who has had much experience in a district where it abounds, that this manure, though it falls infinitely short of marl in its fertilizing quality, is nevertheless possessed of virtues which deservedly entitle it to the esteem of the farmer. By a proper application of this substance, the most tenacious clays are, he says, rendered friable and mellow; and thus, their native stubbornness and adhesion being overcome, the several particles of the soil are enabled to imbibe the full benefit of the different changes of the atmosphere; and hence they are brought to work kindly under the several operations of the plough, harrow, &c. and to produce ample crops of grass or corn, which, before the application of this manure, they were incapable of bringing to perfection. So great are the benefits accruing from this manure, when laid on a stiff clayey soil, that the Essex farmers find their account in freighting barges from the chalk cliffs in Kent, and afterwards carrying it with their teams several miles up the country; all which, though attended with a heavy expence, is found to answer the purpose extremely well, as it would, he think, be impossible to reduce these stubborn clays to a proper tilth without the previous application of this manure. Nor is it on clays only where chalk may be laid to advantage: gravels, especially those which lie near the springs, and all wet soils, may, he supposes, be dressed with this manure, which will never fail to meliorate and sweeten the ground, and enable it to retain longer the virtues of the dung that may be applied, which, on these hungry soils, is liable to disappear in a short time: nay, so partial are some farmers to the use of this manure, that he has known it carried on soils where the chalk lay within a few inches of the surface.

It has been stated, that the action of chalk on the soil is either chemical or mechanical. It acts chemically as an absorbent, contributing to preserve dry those lands which are poachy and wet; and by its attraction for acids it may hasten the putrefaction of vegetables. It acts mechanically, by entering into the composition, and totally altering the nature of clay, converting it by proper pulverization into a species of marl. By insinuating itself between the particles of clay, it destroys their adhesion; thus preventing it from becoming too hard in summer, and too wet in the winter season.

It is observed by Mr. Bannister that there are two methods of obtaining chalk. The first is by uncallowing a piece of ground,

and making it convenient for a pit, where the carts may be drawn into it, and filled: this is on a presumption that the chalk lies near the surface, and that the pit is within a small distance of the field on which the manure is to be laid. The other method is to sink pits in the field where the chalk is intended to be laid as a manure, and which, in his opinion, is far preferable to that of drawing it in carts as before mentioned. In this case, a number of pits are to be sunk according to the extent of the field. These pits are to be made in the form and circumference of a well, with an apparatus at the top, and a bucket to draw up the chalk. The people who undertake this business, having been brought up to it from their infancy, perform it, he says, with great facility, and without any timidity, though attended with much danger. A person is employed at the top to draw up the contents of the pit, shoot the chalk into the cart, and wheel the same on the land. When the labourer has arrived at the chalk, which takes up a longer or less interval of time according to the depth at which it lies, and has dug some little time therein in the perpendicular form wherein he began the pit, he proceeds to form apertures in different horizontal directions: so that where the chalk is good, and the pit stands firm, large tracts of ground are undermined for this purpose. The price for digging chalk is, he says, 1s. per foot till the chalk be found, after which for the chalk 1s. per load, which is twelve baskets; and a penny per load for wheeling the chalk on the land, the farmer providing a horse and cart for that purpose. The quantity usually laid on an acre is from eighty to a hundred loads.

From this description of chalk-drawing, he says, "it is evident that much care and circumspection are required to prevent any deceit being imposed on the farmer by the workmen, to which their eagerness of acquiring large wages will be a powerful inducement."

He adds, that "the best chalk is that which is white and hard; and the deeper it lies beneath the surface, the more efficacious is the dressing supposed to be, as partaking less of the nature of the soil whereon it is to be applied as a manure; indeed on a clayey soil it is seldom to be met with, but at a considerable distance beneath the surface of the field. The most eligible season, he says, for the performance of this work is in the early part of the winter, as the chalk which is laid out at that season will, by aid of the succeeding frosts, be, in a great measure, meliorated and reduced to crumbs at the time of mowing in April; whereas, should the business be deferred till the spring, no inconsiderable portion of the chalk will remain in lumps till the next winter. From this neglect, a twelvemonth will be lost in point of time, as this manure will lie on the ground without answering any good purpose till the lumps shall have been slackened by moisture and frosts; and that chalk is always most highly esteemed which yields soonest to the effect of the weather in falling into crumbs. This manure may be laid on the ground in the summer, without any other inconvenience than what has been before mentioned; contrary to the opinion of some people, who think that such chalk, having remained on the surface during the summer months without rurning, will, on that account, be less susceptible of the frosts in the succeeding winter: but this idea is erroneous; and as it may often suit the economy of the farmer to lay this chalk out in the summer, either from a neighbouring draw-pit, having at that time little other employment for two men and horses, or if he may be inclined to sink a pit in the field at that time; in either of these contingencies, the business may, he thinks, be safely ventured upon in that season; and it would be far better to suffer the ground, which is thus summer chalked, to lie unploughed till the succeeding spring, than

to crop it with wheat at the autumn after the manure is applied; for, having enjoyed the benefit of the frosts in the following winter, the ground will come in properly for a wheat season in the next year: and this may be generally effected, he says, where a person is inclined to lay on his chalk in the summer. For instance, suppose a lay ground be intended for a fallow the next year, this may be chalked in the summer time, with very little inconvenience or injury to the farmer, as the grass which would have been produced from it between midsummer and the following spring could have turned to little account."

It is conceived by the same writer, "that when land is dressed with chalk, the surface ought to be pretty thickly covered over, otherwise it will fail to answer the end of pulverization, in which consists the chief virtue of this manure: and though the expence of chalking may appear considerable to those who are unacquainted with its effects, the good consequences accruing to the future crops will be found in the end amply to compensate the primary charges, and from whatever cause this improvement arises, whether an immediate fertility be conveyed to the soil by the chalk, or whether this dressing acts on the soil by destroying its adhesion, and thus disposes it to work more kindly, and to part with its vegetative particles, which were before so closely united as not to be drawn forth by any other means: in whichever of these ways the chalk acts upon the land it matters, he thinks, very little to the farmer, so that the intention be accomplished, namely, the acquisition of a more abundant crop. For his own part, he is inclined to think that the chief virtue of the chalk resides in its power of correcting the adhesion of stiff soils, and in its meliorating quality, and that it is much inferior to dung, in point of accelerating the growth of the crop; so that where a field has been well dressed with this manure, which is said to be of so lasting a nature as to shew its good effects at the distance of twenty years, it is by no means to be under stood, that this field is not to be dunged, or to have any further addition of manure during this interval: on the contrary, such ground ought never to lose its turn of the dung-cart; and, indeed, on farms of a clayey soil, those fields only can be dunged to advantage which have been previously chalked; for experience hath demonstrated, that, without the application of this manure, dung will be of but small avail on these stiff soils."

It is remarked further by the same practical writer, "that on gravelly soils, where the springs lie within a small distance of the surface, it often happens that the water flows in before the chalk is found, and thus all further endeavours at that spot are rendered abortive, and another pit must be sunk in a different part of the field. Obstacles to this work sometimes, he says, fall out from the light contexture of the soil, which does not unfrequently give way to the destruction of the chalk-drawer. To the farmer, it may be of some consequence to consider the nature of his land, ere he embarks in this scheme of husbandry; as, if from circumstances above-mentioned, he may have reason to think that his pit will not stand firm, it would be a matter of prudence to desist from any further thoughts of sinking a perpendicular pit, and change the mode of operation, by bringing his chalk from an uncalled pit: but where it can be obtained at a moderate expence, and with a tolerable certainty of success, the preceding method is, he thinks, certainly the most eligible." See *CALCAREOUS Earth*, and *MANURE*.

In the chalking of land, the method pursued in Herefordshire, where the persons employed in it follow it as a trade, is the following, according to Mr. Walker: "a spot is fixed upon, nearly central to about six acres of land,

to be chalked. Here a pit, about four feet in diameter, is sunk to the chalk, if found within twenty feet from the surface; if not, the chalkers consider that they are on an earth pillar, fill up the pit, and sink in fresh places, till their labour is attended with better success. The pit from the surface to the chalk is kept from falling in by a sort of basket-work, made with hazel or willow rods and brushwood, cut green and manufactured with the small boughs and leaves remaining thereon, to make the basket-work the closer. The earth and chalk are raised from the pit by a *jack-rowl* on a frame, generally of very simple and rude construction. To one end of the rowl is fixed a cart wheel, which answers the double purpose of a fly and a stop. An inch rope of sufficient length is wound round the rowl, to one end of which is fixed a weight, which nearly counterbalances the empty basket fastened to the other end. This apology for an *axis in peritrochio*, two wheelbarrows, a spade, a shovel, and a pick-axe are all the necessary implements in the trade of a company of chalkers, generally three in number. The pit-man digs the chalk and fills the basket, and his companions alternately wind it up and wheel its contents upon the land; when the basket is wound up to the top of the pit, to stop its descent till emptied, the point of a wooden peg, of sufficient length and strength, is thrust by the perpendicular spoke in the wheel into a hole made in the adjoining upright standard of the frame to receive it. The pit is sunk from 20 to 30 feet deep, and then chambered at the bottom; that is, the pit-man digs or ruts out the chalk horizontally, in three separate directions; the horizontal apertures being of sufficient height and width to admit of the pit-man's working in them with ease and safety. One pit will chalk six acres, laying 60 loads on an acre. If more be laid on, and to the full extent of chalking, viz. 100 loads, then a proportionable less extent of land than six acres is chalked from one pit. Eighteen barrow-fulls make a load, and the usual price for chalking is 7d. per load, all expences included; therefore the expence of chalking at 60 loads per acre is 1l. 12s. 6d.; and at 100 ditto, 2l. 18s. 4d. As the chalk is considered to be better the deeper it lies, and the top chalk, particularly if it be within three or four feet from the surface, very indifferent, and only fit for lime, or to be laid on roads, gateways, &c. the chalkers must be directed to lay by the chalk for the first three or four feet in depth, to be applied to the above purposes; or, if not wanted, to be again thrown into the pit when filled up; and also to pick out the flints from the chalk before it is carried on the land, for, if they are not narrowly watched, they will chalk with both."

It is added, that "Mr. John Hill of Coddicott farms upwards of 1200 acres in the adjoining parishes of Coddicott and Kimpton, a considerable part of which is his own estate. He has chalked many acres of land, and approves much of the practice. He chalked a field of strong clay land in the autumn of 1793, laid on sixty loads to an acre, and the chalk where the pits were sunk lay about ten feet from the surface. Mr. Walker viewed the field the 7th of August 1794; it had borne a crop of peas since it was chalked, and was then under the plough, preparatory for a crop of wheat. The chalk was good, and the land appeared to work well, though the chalk was not then thoroughly incorporated with the soil. Mr. Hill never lays more than 60 loads of chalk on an acre; this he finds will not only make the land work much better, with less strength of cattle, but also, with a light coat of dung, or spring dressings occasionally laid on to quicken the vegetation, produce abundant crops for ten years; he then chalks again with equal success."

This sort of work should proceed with dispatch during the summer months in all cases, and in the autumnal ones in many situations where there is no danger of poaching the

ground. Mr. Young suggests, that much advantage may be derived, in performing this sort of business, from the use of small three-wheeled carts, as the third wheel affords a support for the cart and load while filling, without the fill horse, and of course one horse may be sufficient for two carts, one being discharged upon the land while the other is loading. See MANURE.

CHALK, *black*. See SLATE.

CHALK, *brown*. See TRIPOLI.

CHALK, *French*. See STEATITE.

CHALK, *fungous*. See AGARIC mineral.

CHALK, *red*. See Ores of IRON.

CHALK, *silver*. See AGARIC mineral and ARGENTARIA creta.

CHALK, *Spanish*. See STEATITE.

CHALK, *yellow*. See TRIPOLI.

CHALK-drawings. See DRAWING and ENGRAVING.

CHALK-stone, in *Medicine*, a white chalky substance which is secreted in the inflamed joints and ligaments in inveterate gout. It is one of the peculiarities of gouty inflammation to terminate by the production of this substance (where it does not end in resolution), and not in suppuration; or the production of *pus*, like the common species of inflammation.

The chalk-stone (as its name imports) was formerly considered as composed of some calcareous matter, and in particular of phosphat of lime; but accurate chemical analysis has now proved that it does not contain lime in any form, but is a neutral insoluble salt, consisting of the *lithic* or *uric* acid saturated with soda. Dr. Wollaston has proved this point by the following experiments. If a small quantity of dilute sulphuric acid be added to gouty chalk-stone, part of the alkali is separated from its combination, and crystals of sulphat of soda are produced. Muriatic acid in a similar way produces common salt. A greater quantity of either acid totally separates the alkali, and leaves an insoluble matter, which is found to be lithic acid by the following characters; viz. when distilled *per se* it yields a little ammonia, some prussic acid, and an acid sublimate similar to the sublimed lithic acid; when dissolved in dilute nitric acid, it tinges the skin of a rose colour, and leaves, on evaporation, a rose-coloured residuum; when thrown into caustic pot-ash it dissolves therein, but is separable thence by an acid. The chalk-stone, when calcined, gives the usual products of animal matter, and leaves a white salt, which is carbonat of soda. Caustic pot-ash dissolves the chalk-stone entirely. Boiling water dissolves a small portion of the stone, and the solution is lithiat of soda. When a little muriatic acid is added to this solution, as it cools it deposits lithic acid in minute red crystals.

The analysis of this concretion by Fourcroy, agrees very closely with that of Dr. Wollaston. M. F. remarks, that a hundred parts of water dissolve nine-tenths of the chalk-stone by boiling, forming a saponaceous liquor, of a faint animal smell, from which sulphuric acid precipitates brilliant needled crystals of lithic or uric acid.

To the solubility of these arthritic concretions in the alkalies, chemists have attributed the great relief often experienced by gouty persons from a course of alkaline remedies long continued; and it certainly remains an interesting question to determine whether this disease is attended with any defect or excess in the natural quantity of uric acid in the urinary secretions. (For a fuller account of the properties of the lithic or URIC acid, see this article.) See Phil. Transf. for 1797, pt. 2. Fourcroy *Système des Connoiss. Chim.* &c.

CHALKI, in *Geography*, an island of the Grecian Archipelago, visited by Spallanzani, where he made known to the

Turks a mine of copper, the existence of which they had never suspected.

CHALKING, in the *Arts*. See **DRAWING**.

CHALKING, in our *Old Laws*, seems to be some duty laid on merchandize; what it was particularly we do not find: but in the rolls of parliament it is said the merchants of the staple require to be eased of divers new impositions, as *chalking*, ironage, wharfage, &c.

CHALKY LAND, in *Agriculture*, denotes such sorts of land as are much impregnated with the chalky material, and which from their white appearance are sometimes denominated white lands.

It has been remarked, by the author of the Synopsis of Husbandry, that "chalky lands or soils differ from each other very essentially in point of fertility: for as there are some of them which, by good husbandry, may be brought to produce large crops, and do with great reason take the lead in point of fertility of every other light soil; so there are others which, from the superficial depth of mould over the chalk, are of the most barren species, and scarcely worth the expence of tillage. A chalky soil (says he) with a due covering of mould, so as to admit the plough to enter a reasonable depth, is perhaps the most kindly one to work upon, except a loam, and capable of the greatest improvement from the several operations of husbandry; having neither the tenaciousness of the clay, the burning quality of the gravel, nor the extreme porous texture of the sand: as it possesses a much greater share of humidity than the two latter soils, free from the inconvenience of springs, so will it be less injured by a dry summer, whilst a moist and dripping season will be most favourable to the crops growing on it, when those on a clayey soil are in that case too frequently destroyed or rendered of little worth." And Lord Dundonald, in his Treatise on the connection of Agriculture with Chemistry, remarks, that a pure unmixed chalky soil, like a pure or lean clayey one, is unfertile; and that the fertility of this sort of land, like all others, depends on its containing a due admixture of other earths, with the requisite quantity of vegetable or animal matter. A chalky loam, or mixture of chalk with clay, is frequently a very fertile soil, and well adapted to the culture of beans and wheat.

Such, says the writer we have first quoted, "are the advantages attending these soils, where the chalk is not mixed in an undue proportion with the mould: but it rarely happens that a farmer is possessed of any great quantity of land of this description: for, in countries where chalky land abounds, there is on every farm a larger proportion of poor land than of that which he has described; and the management of these thin chalks will demand the highest exertion of industry and skill in the husbandman; for although the crops raised on these soils are less subject to be injured by the scorching heat of the sun than those on gravels, yet where there is but a small proportion of mould, so that the chalk forms the greatest part of the cultivated soil, with a bed of the same hard substance for its under stratum, intermixed with large flints and chalk stones scarce less solid; on such grounds, the crops (he says) suffer greatly in a dry summer, and for this reason, an early Lent season is always to be preferred on these soils, in order that the surface of the ground may be covered before the dry weather sets in." And he adds that "these chalky soils possess another very material advantage over gravels, namely, the power of resisting longer the heat of the summer; and therefore the crops on this soil often recover after a kindly rain, when those on the gravels, unable to withstand the preceding drought, are burnt up; indeed, on a chalky soil, the crops, when injured by the parching heat of the weather, cannot so properly be said to burn, as to die away. To the evil propensities incident to chalks of every

kind, may (he says) he subjoined their disposition to blast, a misfortune not easily to be guarded against; and in this respect they differ materially from gravels, where the corn generally yields well, if not injured by the dry weather during its growth. To this may be added (he says) another defect attached to chalky soils, which is their hilly situation, since in a tract of land of 200 acres, it is odds but many of the fields are mountainous and uneven." The ingenious nobleman just mentioned further remarks, that chalky lands produce a short sweet herbage, and for the most part are more proper for a sheep pasture than for tillage. There are no soils that receive more benefit from artificial watering, as they are apt at certain seasons to be parched by drought. Chalky soils that produce short sweet herbage, should not (he thinks) in general be broken up, or converted into arable lands; a practice which will be attended with injury to the soil, and loss to the farmer, unless they are cropped with moderation, well-manured, and afterwards properly laid down with pasture-grass.

And Mr. Bannister further well observes that "there is one species of grass which may be raised to great advantage on a chalk, and this is saintfoin, cinquefoil, or holy grass. The small expence required in the culture of this grass, its natural relation to a chalky soil, the constant demand for the hay at market, and the small charges required in making it, (says he) all combine to enforce its cultivation on the most barren chalks: which, by any other course of husbandry, could not have been brought to pay the expence of tillage: by these means the farmer will (he thinks) have it in his power to bestow a greater attention on the more fertile part of his land, will require a less number of horses and servants, and will generally insure to himself plentiful crops of grain from that part of the farm which is kept in constant tillage; whilst the most barren spots will produce a yearly increase from the saintfoin at a trifling expence in the culture."

Chalks are (he thinks) of all other lands least subject to be molested with couch-grass; and hence a person who hath not been accustomed to this kind of land is often deceived on a cursory view of the surface, which being totally free from couch-grass, and not greatly infested with weeds of any denomination, he is led to conceive that the ground is in good heart, and disposed for the reception of any kind of grain; whereas the contrary is often the fact; for a soil of this description, especially the more barren species, which, with a very slight proportion of earth, is made up of a crumbly kind of chalk, and when wet wears the appearance of mortar, will not naturally produce couch; and perhaps on this sort of ground it would be no easy task to make this grass thrive in it though the experiment were attempted; and even on the best and most kindly chalks, couch-grass is an enemy not to be dreaded. The weeds which seem indigenous to this sort of land are poppy, bare-bind, crow-foot, charlock, cadlock, or kilk, cammock, and thistles. Where the last-mentioned weed prevails it is a manifest indication that the ground is not of itself unkindly to the growth of corn; and that when the crops turn defective, this proceeds less from any defect in the land, than an improvident management in the cultivation of it."

In what regards the tillage on this sort of land, "though chalk may, he says, be numbered among the lighter kinds of soil, a much greater strength of horses, he says, is required in the tilling of them, than either on gravels or sands; not only on account of their hilly situation, the superior depth of mould, and of the large flints which are generally to be met with beneath the surface, but from the impenetrable quality of the under stratum, which deadens the draft of the plough, and causes it to work much heavier; to which may be added, the resistance from the roots of the cammock, which

which is so powerful as frequently to obstruct the course of the plough. For these reasons, a six-horse team, on a chalky soil, is of great utility; nor, indeed, can the business be advantageously prosecuted with four horses to a plough. Another reason why a more powerful strength of cattle is requisite on this than on any other light soil, is its disposition to hang to the gears; so that in wet weather the plough is increased to nearly double its own weight, by the additional load of mould adhering to it. These are circumstances which do not immediately strike the attention of a farmer, whose knowledge in husbandry has been acquired by working on a kindly loam. On the first view of a chalky soil, he concludes that little strength of cattle is required; for, having been accustomed to land where the staple is much deeper, he rationally infers, that more work may be done, in a given distance of time, with a less number of horses on a chalk than on a loam; of this truth, he is, in his own mind, so thoroughly convinced, that nothing less than ocular demonstration can drive him from his opinion."

Having enforced the necessity of maintaining a sufficient strength of cattle for the tillage of this sort of land, he advises the ploughing it to a good depth, where the staple of the land will admit of the practice; "for on the very light chalky grounds which abound in many places, and of which some parts of every chalky farm consist, this caution is unnecessary;" such land being ploughed with little strength, the plough must necessarily be set to go shallow. But on his other grounds, where there is a thick covering of mould, the farmer, he thinks, will always find his account in ploughing it to its utmost depth, so that the ploughman may feel the point of the share grate on the chalk beneath, without bringing up any part of it to mix with the mould. On this soil the blacksmith is, he observes, a perpetual retainer to the farm. The vicinity of the chalk, together with the number of large flints usually met with on this kind of ground, operating very forcibly in his favour, the eye of the farmer is; therefore, on no occasion more necessary, he thinks, than in a strict and daily examination of the plough-irons, since he may be materially injured either by a too frequent application to the smith, or too great a neglect of him. The point of the share for ploughing chalks to advantage, especially when infested with thistles or cammocks, ought to be hammered to the breadth of four inches, which will tear the roots up at a considerable depth. As these grounds are seldom injured by wet, there is scarcely any part of the year but the plough may be kept at work, save only when the land is locked up by frost, or the surface covered with snow. The breaking up of clover lays in the summer, in order to sow with wheat in the autumn, is often attended with great inconveniences on chalky soils, as the drought of the season frequently causes the ground to be extremely hard, so as to render the operation of the plough a matter of great difficulty, and, in some instances, the soil is totally impervious at this season, and must remain to be softened by the autumnal rains. But, in this case, the farmer has generally other work to attend, and, therefore, need not suffer his men and horses to lie unemployed. But although, for these reasons, there is generally more perseverance required in breaking up a clover lay at Midsummer to sow at Michaelmas with wheat, than usually falls to the share of a common ploughman; yet the master ought not to be discouraged, since he will most assuredly reap the good effects of corn sown on a stale furrow, where the land is chalky, and, indeed, on any other land of a light texture."

Where folding is practised, it is added, that "a very judicious method at the breaking up of a clover lay, is to plough one day's work, which will employ a fold of 300

sheep eight nights; and when that is finished, to plough another day's work, and fold on the same, which course is to be pursued till towards autumn: by this mode the farmer reserves great part of the feed on the lay, which, though not very considerable, is, nevertheless, of some consequence, where a large flock is maintained; and, in truth, without a flock of sheep, little profit can be expected to accrue from the cultivation of these soils: besides which, he avoids the ill effects of ploughing up the whole field at autumn, and sowing it immediately with wheat; as he supposes, in this case, the greatest part of the field will have been folded on before seed-time, and the remainder may be finished after the corn is sown, or trodden with sheep, both of them instances of excellent husbandry. But though there be no folding flock kept on the farm, this method of ploughing up the clover-lays at Midsummer ought to be pursued for the reason above mentioned: and at this time the farmer is generally at leisure to prosecute this work, having completed his saintfoin harvest and turnip season, and not meeting with any hindrance from the stirring of summer fallows, a piece of husbandry which is rarely practised on these sorts of land."

And "the like method of ploughing should, (he says,) be pursued, in order to obtain a crop of turnips, on a chalky soil, as is recommended on a gravel; and though the land be of a very light texture, and not much infested with weeds, the several operations of the plough, harrow, and roll, ought by no means to be dispensed with, for the reason which is offered in treating of the tillage required on a gravelly soil. On a chalky soil, properly managed for turnips, and where a good crop of this root has been fed off, there need be no fear of a plentiful return of barley or oats, provided such corn be sown at an early period, which is particularly to be attended to at the spring season, as the crop of Lent corn on these soils will generally fail, if the seed-time be protracted so late as is usual on loams." And "on this kind of land, as on gravels, (says he) the farmer possesses the advantage of varying his manure as often as he chooses; having, besides yard dung, which may be styled a general dressing for every soil, the whole tribe of manures, except chalk, to select from. For wheat, there is no application so efficacious as the fold, which, when properly conducted, rarely fails of increasing the crop. For turnip ground, dung, mould, rabbit dung, woollen rags, &c. may be laid on to advantage; and to further the growth of clover, saintfoin, and meadow grass, coal ashes, soot, and malt dust, are very proper applications: of these the two last, if sown over the green wheat in the spring, or harrowed in with the barley at the time of sowing that grain, are excellent substitutes for the more lasting kind of manures, where these cannot be procured in a sufficient abundance."

It has been remarked by lord Dundonald, that clay is the fittest substance to be applied with a view to alter the arrangement of the parts of a chalky soil. Peat is a good application to lands of this nature, which are frequently termed hungry soils, and very deficient in vegetable matter. And as a sufficiency of dung is not to be procured to manure fully every part of a farm, peat may be applied in one or other of the states of preparation mentioned under that head. See PEAT. Unfortunately for the improvement of chalky soils, says he, neither clay nor peat is to be found but at the extremities or outskirts of the extensive tracts of chalky countries; but wherever they are to be had, the application of them should not be neglected. Calcareous or chalky lands, which have long been under the plough, contain a large proportion of phosphate or oxalate of lime. These insoluble saline matters may, he says, be rendered serviceable to vegetation by alkalies, vitriolic acid, vitriolic neutral salts,

salts, (especially if superacidulated), and by pyritous and aluminous substances. Even green vitriol, which has hitherto been considered as unfriendly to vegetation, will, when applied in a proper manner to lands like this, considerably improve and promote the growth of pasture-grass. More experiments are, however, wanting fully to ascertain the utility of these chemical substances on grounds of this as well as other kinds. The principal disadvantage, says he, attending chalky lands, is, that of their being too dry and parched at certain seasons; but possibly this defect, when they are under pasture, may be counter-balanced by the more early grass they produce in the spring, as well as the luxuriant herbage that succeeds the autumnal rains.

It has been remarked, that the best produce of the grain kind, in chalky lands, is barley and wheat; but oats will likewise do well on them. Their natural produce in weeds is *poppies*, *May-weed*, &c. For grass-seed, saint-foin, trefoil, and, if rich, clover. The best manure for these lands is rags, dung, folding of sheep, &c. as has been seen above. In these lands, if rain happen to fall on them just after sowing, before the corn gets up, it will frequently cause the earth to bind so hard, that it cannot get through it; but may be much helped by a light harrowing, or other means of a similar nature. In breaking uplands of this nature from grass, too great a depth of furrow should, in most cases, be avoided.

Under the class of chalky lands, a very large proportion of the grounds of this country may, it is observed, be comprehended.

The Hertfordshire farmers manage these lands for grain in the same manner as they do their clay-lands; but in Oxfordshire they commonly manure them with half-rotten dung, which, they say, prevents the binding of it; and some mix it with sand which causes it to work short, especially if in any degree dry. They commonly sow them with wheat, mislin, and barley; and, after wheat, pease, or vetches: in doing of which they are obliged particularly to take care to have fine weather, because of the lands binding so greatly. See SOIL.

CHALKY Soil, that sort of land which is principally constituted of chalky materials. Soils of this nature abound very much in different parts of the kingdom. See SOIL.

CHALLANS, in *Geography*, a town of France, in the department of the Vendée, and chief place of a canton, in the district of Les Sables-d'Olonne; 7 leagues N. of it. The place contains 3000, and the canton 16,362 inhabitants; the territory includes 292½ kilometres and 9 communes.

CHALLANT, a town of Piedmont, in the duchy of Aosta; 11 miles E.S.E. of Aosta.

CHALLENGE, a cartel, or invitation to a duel, or other combat. The word challenge was anciently translated *calumnia*. It may very properly be called a provocation or summons to fight, when an affront in derogation of honour has been offered.

Challenges to fight either by word or letter, or bearing such challenges, are punishable by fine and imprisonment, according to the circumstances of the offence; and barely endeavouring to provoke another to send a challenge, or to fight, as by dispersing letters full of reflections, and insinuating a desire to fight, &c. is a high offence. (1 Hawk. P. C. 135. 138.): and if challenges arise from gaming, the offender shall forfeit all his goods to the crown, and be imprisoned two years. 9 Ann. cap. 14.

It is now the customary and frequent practice of the court of King's Bench to grant informations against persons sending

challenges to justices of the peace, and in other heinous cases.

CHALLENGE, in *Law*, is an exception taken either against persons or things: in the former instance, against jurors, any one or more of them; and in the latter, as in the case of felony, by the prisoner against things, as a declaration, &c. *Terms de la ley*. 109. The former is the most frequent signification of the term.

Challenge to the jurors, is either made to the array, or to the poll to the array, as when the whole number is excepted against, as partially impanelled, or arrayed in the panel, or little square pane of parchment, on which the jurors' names are written. If the sheriff be of affinity to either of the parties; or if any one or more of the jurors are returned at the nomination, or under the direction of either party, or for any other partiality, the array shall be quashed. To the polls, or *in capita*, as when particulars are excepted against, as not indifferent. These may be challenged, 1. *Propter honoris respectum*, as when a lord of parliament is impanelled. 2. *Propter defectum*, as in the case of an alien born, which is defect of birth; or of a slave or bondman, which is defect of liberty; or in case of insufficient estate. This latter exception has undergone several alterations by different statutes: but by 4 and 5 W. and M. cap. 24. the qualification is 10l. *per annum*, in England, and 6l. in Wales, either of freehold or copyhold lands: and by 3 Geo. II. cap. 25. the holder of a lease on life or lives, or for the term of five hundred years absolute, of the clear yearly value of 20l. *per annum*, over and above the rent reserved, is qualified to serve on juries. 3. *Propter affectum*, or on suspicion of partiality: and this kind of challenge is *principal* or *to the favour*; in the former case the cause of suspicion is obvious, as, that a juror is of kin to either party within the ninth degree (Finch, L. 401.); that he has been arbitrator on either side; that he has an interest in the cause; that an action is depending between him and the party; that he has taken money for his verdict; that he has formerly been a juror in the same court; that he is the party's master, servant, counsellor, steward, or attorney, or of the same society or corporation with him:— and in the latter case, when only some probable circumstances of suspicion are pleaded, which are to be determined by triors. 4. *Propter delictum*, or on account of some crime, which disqualifies the juror, by affecting his credit, as conviction of treason, felony, perjury, or conspiracy; judgment of the pillory; branding or whipping, outlawry or excommunication; attain of false verdict, or forgery, &c.

Challenge to the jurors, is also divided into *challenge principal*, and *challenge pur cause*: i. e. upon cause or reason alleged.

Challenge principal, otherwise called *challenge peremptory*, is what the law allows without cause alleged; or farther examination: thus, a prisoner at the bar, arraigned on felony, may peremptorily challenge twenty, one after another, alleging no cause but his own dislike; and they will be set aside, and new ones chosen in their room. 22 Hen. VIII. cap. 14. and 1 and 2 Ph. and Mar. cap. 10. This privilege of peremptory challenges, distinguishing the tenderness and humanity of the English laws, though granted to the prisoner, is denied to the king by stat. 33 Edw. I. ft. 4. which enacts, that the king shall challenge no jurors without assigning a cause certain, to be tried and approved by the court. However it is held that the king need not assign his cause of challenge, till all the panel is gone through, and unless there cannot be a full jury, without the persons so challenged. And then, and not sooner, the king's counsel must shew the cause: otherwise the juror shall be sworn.

2 Hawk. P. C. 413. 2 Hal. P. C. 271. In case of high-treason, no challenge *peremptory* was formerly allowed; but by stat. 7 W. III. liberty is given *peremptorily* to challenge thirty-five.

Yet there seems to be a difference between challenge *principal* and challenge *peremptory*; the latter being only in matters criminal, and without any cause alleged; the former mostly in civil cases, and with assigning some such cause, as being found true, the law allows: v. g. if either party allege, that one of the jurors is the son, brother, cousin, or tenant, of the other, the exception is good. Also in the plea of the death of a man, or in any action real or personal, where the debt or damages amount to forty shillings, it is a good challenge to a juror, that he cannot dispend forty shillings *per annum* of freehold.

Challenge is also a term given or applied to an objection made to a member of a court martial on the score of either real or presumed partiality. The prisoner, however, must in this case assign his reason for or cause of challenge, of the relevancy, propriety, and validity of which the members are themselves the judges. Peremptory challenges, then, though practised and admitted in civil cases, are not acknowledged by military law, or allowed at courts martial. The privilege of challenging is enjoyed equally by the prisoner and the prosecutor.

Challenge *upon reason or cause*, is when the party does allege some such exception as is sufficient upon acknowledgment of the truth of it; v. g. if the son of the juror have married the daughter of the other party, or the like.

Challenges to the polls, or exceptions to particular jurors, seem to answer the "*recusatio judicis*," in the civil and canon laws; by the constitution of which a judge might be refused upon any suspicion of partiality. By the laws of England, also, in the times of Bracton and Fleta, a judge might be refused for good cause; but now the law is otherwise, and it is held that judges and justices cannot be challenged. (Co. Litt. 294.) For the law will not suppose a possibility of bias or favour in a judge, who is already sworn to administer impartial justice, and whose authority greatly depends upon that presumption and idea. And should the fact at any time prove flagrantly such as the delicacy of the law will not presume before-hand, there is no doubt but that such misbehaviour would draw down a heavy censure from those to whom the judge is accountable for his conduct. Blackst. Com. vol. iii. p. 361.

CHALLENGE, in *Hunting*. When hounds, at first finding the scent of their game, presently open and cry, the huntsmen say, "they challenge."

CHALLIN, in *Geography*, a town of France, in the department of the Mayne and Loire; 5 leagues W. of Angers.

CHALLONOIS, the name of a small country of France before the revolution, in the environs of Châlons-sur-Saone.

CHALO, a river of Asia, which rises near Lassa or Bara-tola, in Tartary, passes through the province of Yunnan in China, the country of Laos and Tonquin, and discharges itself into the gulf of Cochin-China, in the Eastern sea, opposite the island of Hainan.

CHALONER, Sir THOMAS, in *Biography*, a learned writer and foreign minister in the reign of queen Elizabeth, was born in London about the year 1515, and educated at Cambridge, where he distinguished himself by his talent for Latin poetry. Having been sent by Henry VIII. in the train of the ambassador to Charles V. emperor of Germany, he accompanied that prince in his unfortunate expedition against Algiers, where he was shipwrecked and narrowly escaped drowning, by keeping hold of a cable with his teeth,

many of which he lost on the occasion. On his return, he became a favourite of the regent, duke of Somerset; and in consequence of his distinguished valour at the battle of Musselburgh, he received the honour of knighthood. When his patron was disgraced, and during the reign of queen Mary, he lived in retirement; but on the accession of Elizabeth, he was appointed, by the interest of Cecil, ambassador to Ferdinand, emperor of Germany; and having acquired great reputation in this office, he was sent in 1561 in a similar capacity to Philip, king of Spain. In this mission he encountered several difficulties, which, notwithstanding the relief derived from literary occupations, occasioned a fit of sickness that obliged him to request his recall; and this he is said to have obtained by addressing the susceptible heart of Elizabeth with an elegy written in the style of Ovid. Upon his return towards the close of the year 1564, he published the first part of his principal work "*On the right ordering of the English commonwealth*." But his constitution was so much impaired, that he died in October, 1565, at his house in Clerkenwell Close; and as he was equally great in arms, science, and arts, he was much lamented, and his funeral was honoured by an interesting and affectionate attendance to St. Paul's cathedral; Sir William Cecil officiating as chief mourner. He was no less distinguished for his talents and integrity as a statesman, than for his literary endowments. Of his writings the principal are, that already mentioned, which, in its complete form, was printed at London in 1579, 4to. under the title of "*De Republica Anglorum instituta, lib. x.*;" and a collection of his poetical pieces entitled "*De Illustrium quorundam Encomiis Miscellanea cum Epigrammatis ac Epitaphiis nonnullis*." Biog. Brit.

CHALONER, Sir THOMAS, a philosopher and technical chemist, was the son of the preceding by his wife Ethelreda, born in 1559, and educated under the care of lord treasurer Burleigh, first at St. Paul's school, and afterwards at Magdalen college, in the university of Oxford. At college, though he took no degree, he established his character for abilities and learning. About the year 1580 he visited several parts of Europe, and particularly Italy, where he prolonged his stay, and prosecuted many curious inquiries in natural philosophy and chemistry, together with a variety of experiments. On his return home some time before the year 1584, he was much noticed at court for his polite behaviour and accomplishments; and about this time married the daughter of sir William Fleetwood, recorder of London, by whom he had several children. In 1591 he was knighted; and some years afterwards discovered the first alum mines which were ever known to be in this kingdom, on his estate near Gisborough in Yorkshire. As during his foreign travels he had paid particular attention to the alum works at Puteoli or Puzzoli, he found means to introduce that profitable manufacture into England, much to the advantage of his country. The discovery of a mine in England was made about the year 1600, and for rendering it practically useful, workmen were brought from foreign parts; and at this period it was adjudged to be a mine-royal, and was taken possession of by the crown. It was then granted to sir Paul Pindar, at a rent of no less than 14,740 pounds sterling; nevertheless the undertaking proved extremely lucrative. By the long parliament it was voted to be a monopoly, and the alum works were restored to their original proprietors. In the latter end of queen Elizabeth's reign, sir Thomas Chaloner visited Scotland, and was favourably received by king James; so that in 1603, he was entrusted with the education of prince Henry. He was likewise confidentially employed by queen Anne. By a second wife he had children, to whom he is said to have left a considerable estate in Buckinghamshire. He died on the 17th of November, 1615, and was buried.

ried at Chiswick in Middlesex. His eldest son, William Chaloner, was created a baronet by king James in 1620; but the title became extinct in 1681. *Biog. Brit.*

CHALONITIS, in *Ancient Geography*, a country of Asia, the most southerly province of Assyria. It extended along the left bank of the Tigris, S.W. of mount Tagros, which separated it from Media. It is said to have derived its name from the town of *Chala*; and the inhabitants were called *Chalonites*. This province, from its situation, was at all times the seat of war between potent empires and nations; and it is now become a desert, excepting some few small spots that may be cultivated about the inconsiderable towns which stand within its borders.

CHALONNE, in *Geography*, a town of France, in the department of the Mayne and Loire, and chief place of a canton in the district of Angers, situated near coal-mines; 4 leagues S.W. of Angers. The place contains 4922, and the canton 10,883 inhabitants; the territory includes 115 kilometres and 15 communes.

CHALONNE, an island in the Loire, a little below the town of the same name, about 3 miles in length, with a village.

CHALONS-sur-Marne, or **CHAALONS**, a city of France, and capital of the department of the Marne; before the revolution, the see of a bishop, suffragan of Rheims, and chief place of the generality of Champagne; situated between two fine meadows on the river Marne, containing 13 parishes, and partly subsisting by its manufactures of shalloons and coarse woollen cloth. The place contains 11,120, and the canton 15,563, inhabitants; the territory comprehends 260 kilometres and 16 communes. Chalons, or Duro-Catalaunum, afterwards Catalauni, formerly made a part of the territory of Rheims, from which it is distant only 27 miles. It is famous for a battle between the Romans and Attila, king of the Huns, in which the former, after an obstinate and sanguinary contest, in which the number of the slain amounted, as some say, to 162,000, or, according to other accounts, to 300,000 persons, proved victorious, and Attila was obliged to retreat. At Chalons there is an academy of sciences, arts, and belles-lettres. It is 40 miles S.W. of Verdun, and 95 E. of Paris. N. lat. 48° 57'. E. long. 4° 22'.

CHALONS-sur-Saone, a city of France, in the department of the Saône and Loire, and principal place of a district, seated on the river Saone, and, before the revolution, the see of a bishop, suffragan of Lyons. It is surrounded by walls, and defended by a citadel. It is the staple of iron for Lyons and St. Etienne, and of wines for exportation, which, as well as corn and wood, form its principal commerce. The city contains the Old Town, the New Town, and the suburbs of St. Lawrence. In the first is the court of justice, a modern structure, the cathedral, and the hotel-de-ville. The great Roman way from Lyons to Boulogne passed by Chalons; and it exhibits various traces of Roman magnificence, particularly the ruins of an amphitheatre. N. lat. 46° 47'. E. long. 4° 57'.

CHALOSSE, a small country of France before the revolution, in the environs of St. Sever.

CHALTAPITES, or **CHALAPETES**, in *Ancient Geography*, a division of Susiana, according to Ptolemy.

CHALTARON, in *Geography*, a town of Asia, in the country of Thibet; 10 miles W.N.W. of Coucha.

CHALVANCA, or **CHUMBIVILCAS**, a town of South America, and principal place of the jurisdiction of Chumbivilcas, in Peru.

CHALUS, a town of France, in the department of the Upper Vienne, and chief place of a canton in the district of

St. Yrieux; 15 miles S.S.W. of Limoges. The place contains 1204, and the canton 6264 inhabitants; the territory includes 227½ kilometres and 7 communes. At this place Richard I. of England received a mortal wound, whilst he was reconnoitring it, previously to an assault for the purpose of recovering a treasure withheld from him by the viscount of Limoges.

CHALUS, in *Ancient Geography*, *Kocic*, a river of Asia, in Syria. Xenophon reports, that this river was full of large fishes, which the Syrians regarded as gods, and carefully preserved. It had its springs in the mountains W. of the town of Zengma, ran S.W. to Chalybon, and from thence S. till it discharged itself into a lake, on the banks of which was built the town of Chalcis. Xenophon places it at the distance of 25 leagues from the defile which lay between Syria and Cilicia.

CHALYBEATES, in *Medicine*. A chalybeate medicine is one in which iron or steel (*chalybs*) is a principal ingredient. See IRON (in *Medicine*).

Chalybeate waters form a very large and important class of mineral waters, which will be more fully described under the article **WATERS, mineral**. It will be sufficient here to observe, that there are two principal classes of chalybeate waters; 1st, those in which the iron is held dissolved by the carbonic acid, and, 2d, those in which the sulphuric acid is the solvent. The former class is by much the most frequent. Of these, some waters contain little other foreign, and no other medicinal ingredient than the carbonat of iron, of which kind is the Tunbridge water; but others contain several neutral purging salts, of which the Cheltenham spring is an example. In all, the iron is totally precipitated in the form of a yellow light ochre, by boiling for a few minutes. The chalybeate waters holding the sulphat of iron generally can be traced to some pyritical source, and very often also contain sulphat of alumine. They are more astringent to the taste than the former, and the oxyd of iron is only partially separable by boiling, which therefore forms a ready test to distinguish the two species.

The chalybeate waters are found to be highly valuable medicines, though the actual quantity of iron taken in the usual doses is much smaller than in any other form in which this metal is given.

CHALYBIANS, in *Ancient Geography*, a people of Scythia, who are said to have derived their name from Chalybs, the son of Mars. Others say, that they were so called from their iron manufactures. Strabo is of opinion, that they were the same with the Alyzonians, mentioned by Homer, and that the poet either wrote Chalybes, or that the inhabitants were originally called Alybians. If so, Homer leads us to imagine, that they were as famous for their silver, as they were, at that time, for their iron mines. They occupied that part which lay between the Taoëticans and Scythians. Diodorus Siculus calls them Chalcidians; and they were the most valiant people the 10,000 Greeks in Xenophon's retreat had to encounter with. They were fierce and warlike; equally able to engage on the plains as on the mountains; they followed the Greeks all the way through their country, and terribly annoyed them on their march. This powerful nation extended itself to other parts, and occupied part of Pontus, which lay between Armenia Minor, the Macrons, the Mosynæcians and Tibarenians. Their country was mountainous and barren; but furnished abundance of iron, which the inhabitants manufactured, and which, besides supplying their own wants, afforded a considerable article of commerce. In the time of Xenophon, this country was much reduced, and the Chalybians were subject to the Mosynæcians. But in more ancient times it extended

extended beyond the boundaries above-mentioned, between Amisus and Sinope, and comprehended a considerable territory on this side of the Halys. The Chalybes were the last people subjugated by Cræsus. See Herodotus, l. i. c. 28.

CHALYBIANS, an ancient people placed by Pliny in Africa, in the Troglodite territory.

CHALYBON, a considerable town of Asia, in Syria, situated in the midst of a large plain, on the bank of the river Chalus, N. of Chalcis. See ALEPPO.

CHALYBONITIS, a country of Asia, in Syria, which extended from Cælesyria to the Euphrates, and which was so called from Chalybon, the only city contained in it worthy of notice. Some supposing Chalep to be an abbreviation of Chalybon, conclude Aleppo, Chalep, and Chalybon to be the same city; but Chalybon is placed by Ptolemy at the 35th degree of latitude and 71st of longitude, and consequently far south of the present Aleppo.

CHALYBS, now *Cabe*, a river of Spain, the banks of which were occupied by a people called *Chalybes*, according to Justin. The waters of this river were reputed to give an excellent temper to steel.

CHAM, or KHAN, the title given to the sovereign princes of Tartary.

The word, in the Persian, signifies *mighty lord*; in the Slavonic, *emperor*. Sperlingius, in his Dissertation on the Danish term of majesty, *koning*, *king*, thinks the Tartarian *cham* may be well derived from it; adding, that in the north they say *kun*, *konnen*, *konge*, *konning*, &c. The term *cham* is also applied, among the Persians, to the great lords of the court, and the governors of provinces.

M. de Peyssonnel, in his *Strictures on Baron de Tott's Memoirs* (see vol. ii. p. 187.) observes, that no such word as *cham* exists; the true orthography being *Khan*. It is not, he says, a title exclusively assumed by the sovereign of the Tartars, since the Turkish emperors take it likewise. Of this the Ottoman money is a sufficient proof, the legend of which is "Sultan ibn el Sultan Abdulhamid, *Khan*, dame mulkhow," i. e. Sultan, son of Sultan Abdulhamid, *Khan*, whose reign be everlasting. The title of *Khan* is certainly equivalent in signification to that of *Shah*, which means king; and yet the most absolute Persian monarchs, who have never assumed any other title than that of *Shah*, have permitted the governors of provinces in their empire to take that of *Khan*. Even in our time the governors of the provinces of Guendja, Guilan, Mazanderan, &c. who have no more authority in Persia than the Pachas in Turkey, take the title of *Khan*.

CHAM, in *Geography*, one of the provinces of Cochinchina.

CHAM, a town or parochial village of Switzerland, in the Canton of Zug, on the S. side of the Lake of Zug.

CHAM, or *Chamb*, a town of Germany, in the circle of Bavaria, seated on the Regen, at its conflux with a river called Ampl or Kampl; 84 miles N. of Saltzburg.

CHAM de Couca, a town of Portugal, in the province of Ellramadura; 6 leagues N. of Thomar.

CHAMA, in *Conchology*, a genus of shells. The *Chamæ* are of the bivalve order, and are distinguished by having the shells rather rude or coarse; the hinge with a callous gibbosity, obliquely inserted in an oblique hollow; anterior slope of the shell closed. *Vulva clausa absque nymphis*. Linn.

The animal inhabitant of these shells is of the Tethys genus, having the body furnished with two small apertures on the left side of the neck: the body rather oblong, fleshy, without peduncles; and the mouth with a terminal cylindrical proboscis under an expanded membrane or lip.

SPECIES.

CHAMA *cor.* Shell roundish and smooth; beaks recurved; anterior slope with a gaping fissure.—*Testa subrotunda levi*; *natibus recurvatis, rima hiant*, Linn.

This shell when full grown is about the size of a large orange. It inhabits most of the seas in the S. of Europe, and is rarely discovered as far northwards as the British isles, one or two instances only of its having been found in our seas are on record. Donov. Brit. Shells. The French call it *Cœur de bœuf*, in allusion to its general figure, which bears some resemblance to that of a bullock's heart. The English collectors distinguished it by the name of heart Cockle. When in high perfection, this shell is of a delicate cream-coloured white, tinged and varied with pale reddish, and testaceous; and is covered with an epidermis of a dusky brown colour.

CHAMA *gigas*. Shell plaited, with arched scales; posterior slope gaping.—*Testa plicata fornicato-squamosa; ano hiant*. Linn. *Chama squamata*, Rumpf. *Imbricata*, Argenv.

There is much propriety in the specific name *gigas* assigned by Linnæus and other naturalists to this shell, for it is very much larger than the rest of the *Chamæ*, and is indeed of a size very far superior to any other of the testaceous productions hitherto discovered. Shells of this species weighing from one hundred to one hundred and thirty or forty pounds the pair are not very unusual; such occur in most public museums of Natural History in Europe. One individual of the *Chama gigas* is recorded by Conchological writers that weighed five hundred and thirty two pounds, including both the shells and the animal; and the latter was so large as to furnish one hundred and twenty men with food for a meal, and strong enough by the sudden collapsing or snapping its valves close, to cut asunder a cable rope, and lop men's hands off. This enormous species inhabits the Indian seas. Those of the largest size we are acquainted with, are from the seas contiguous to the island of Borneo, from whence they are occasionally brought as objects of curiosity into Europe, and kept as ornaments in gardens. During the early part of the last century they were in much request for the decorations of fountains, grottoes, and reservoirs of water, especially in Italy, the more modern Italians emulating in some manner the classic taste of the ancients. This gigantic shell was perfectly familiar to the poets, and sculptors of antiquity; Venus is fabled to have risen in one of them from the bottom of the sea, an allegory in itself extremely beautiful, and which has afforded matter for several of the most exquisite compositions of ancient, as well as modern artists; the former is obvious in a variety of remains of ancient sculpture, and of the latter we need only instance one, Barry's inimitable picture of "Venus rising from the sea," the impressive and sublime effect of which is recent in the mind of every admirer of the modern arts. On gems and cameos of antiquity, Venus under various characters, Amphitrite, Doris, and other goddesses and nymphs in the train of Oceanus, frequently appear upborne upon the waves, or driving through the foaming billows in a chariot formed of the *chama* shell.

CHAMA *antiquata*. Shell somewhat heart-shaped, grooved longitudinally and striated transversely. Linn. &c.

A native of the American, Atlantic, and Indian seas. This shell is inequilateral, and is marked with brown or ferruginous spots; the ribs are from nineteen to twenty-two in number; the margin of the shell toothed; beaks inflected back; anterior margin with a deep closed fissure.

CHAMA *hippopus*. Shell plaited, muricated; posterior slope.

slope retuse, closed, and toothed.—*Chama hippopus*, Linn.
Chama aspera obtusa, Rumpf. *Folium brassicae*, Argenv.

This is a broad, and towards the beaks gibbous shell, of a white or whitish colour varied with spots of red, or sometimes purple, and very rarely yellow, and at the hinge are yellow callosities. The size is various, but seldom exceeds six inches from the beak to the margin, and nine inches in breadth; commonly one fourth less in size. Inhabits the Indian Ocean.

CHAMA trapezia. Shell trapeziform, gibbous, with longitudinal crenulated grooves. Müll. Zool. Dan. A native of the Norway seas. This is of a gibbous form, about the size of a pea, of a white colour mixed with brown towards the margins, which last are crenated; the striae nearly twenty in number rugged with unequal obtuse knots; beaks rather recurved; posterior slope ovate, heart-shaped, the anterior slope oblong, flat, and crenated on the outside. Schroet. Gmel. &c.

CHAMA semiorbiculata. Shell somewhat orbicular, compressed, coarse, with striae crossing each other. Linn. &c. This shell is longitudinally striated and imbricated with scales; posterior slope with a whitish lobe; hind margin crenated. Country unknown.

CHAMA calyculata. Shell oblong, with imbricated grooves; anterior part retuse. Gmel. &c. *Feson*, Adanson. Found in the Atlantic, American and Indian seas. The colour is white, or when young, inclining to brownish; hinge with two teeth; exterior margin ferrated, interior smooth.

CHAMA gryphoides. Shell orbicular, muricated; one valve rather flattened, the other with a somewhat spiral produced beak. Linn. &c. *Concha rugata*, Rondel. *Jataron*, Adanson. Inhabits the Mediterranean, American, and Indian seas, where it occurs affixed to rocks. Authors enumerate six or more varieties of this shell, the colours of which are variable, as yellow varied with reddish or white; red varied with yellow and white, or white varied with red and yellow. The scales also in some specimens are more foliaceous, and sometimes are arched and muricated.

CHAMA cordata. Shell heart-shaped, and transversely striated; one side elongated and compressed. Linn. Inhabits the Red and Indian seas. Colour ferruginous, or chestnut. Obf. *Chama reniformis* of Knorr is considered as a variety of this shell.

CHAMA fatiata. Shell subrotund, with toothed grooves intermixed with dots; posterior slope retuse. Gmel. Native place unknown. Shell white, reddish on the outside; grooves elevated, longitudinally toothed, and alternately shorter; margin crenulated; posterior slope heart-shaped.

CHAMA oblonga. Shell oblong, the anterior part angular, with acute teeth in front. Linn.

Inhabits the shores of Guinea, where it is scarce; it resembles *mytilus modiolus*; the shell is somewhat diaphanous, white, with very fine striae crossing each other; the colour within citron; margin very entire; hinge with three middle teeth and an oblong acute lateral one locking into a hollow between two teeth on the opposite valve. Figured by Chemnitz, T. 7. 50.

CHAMA Lazarus. Shell imbricated, with jagged lamellae; beak a little spiral obliquely. Linn.—*Placenta foliacea*, Argenville.

Adheres to rocks. This shell is yellow, or white, with red beaks, and glabrous within; the upper valve is rather less and flatter than the lower, and in the hinge of the latter is an obtuse, thick, broad callosity crenated on each side, with an oblique contiguous hollow. A native of India.

CHAMA bicornis. Shell with conic valves, and horn-shaped oblique tubular beaks longer than the valve: Gmel. This bears a great affinity to *Chama gryphoides*; colour in general yellow, and red or white on each side, with imbricated lamellae. Inhabits the Indian and American Oceans, and also the Mediterranean sea.

CHAMA arcinella. Shell grooved, muricated, with excavated dots; hinge with a sessile callosity. Gmel.

Breadth two inches and nearly the same in length; colour white with sometimes rosy spines, within yellowish; margin crenated; posterior excavation large, heart-shaped, warty, wrinkled, with an appendage commonly on one side. A native of the American Ocean, but is rare.

CHAMA moltkiana. Shell obtusely triangular, equilateral, plaited; anterior slope elevated, with oblique plaits and striae. Chemnitz, &c.

This species, which is about the size of a hazel nut, resembles *Chama Cor*. It is milk-white and opaque; the beaks rather distant; hinge with a rounded narrow tooth under the beaks, and an adjoining hollow for the insertion of the tooth in the opposite valve; anterior to this is another long deep hollow between two teeth, and a little further back another round dilated tooth. Country unknown.

CHAMA concamerata. Shell with transverse wrinkles crossing the broad longitudinal striae; in the middle of each valve within an additional chamber. Walch. Gmel. &c.

This is a shell of small size, whitish, and very rare. Inhabits the American Ocean.

CHAMA foliacea. Shell white, with foliaceous ferrated transverse striae, the interstices crenated; beak recurved. Gmel. Inhabits the Mediterranean, and American seas; it is said to be found in a fossil state in Campania in France, but the latter is probably distinct though nearly allied to *Chama foliacea*.

CHAMA arata. Shell rounded, white undulated with brown; ribs triangular, perpendicular, and wrinkled; margin unequal. Bonann. Found on the shores of Syracuse. Gmelin supposes it may be of the *Cordium* instead of *Chama* genus.

CHAMA fusca. Shell wrinkled, oblong, narrow and brown; lower valve with a projecting, rounded, and somewhat incurved beak. Gualt. Country unknown.

CHAMA citrea. Shell roundish, ventricose, inequivalve, and muricated with scattered unequal scaly spines. Regenf. Conch. This is of a citron colour, and inhabits America.

CHAMA thaca. Shell roundish, longitudinally striated; posterior slope retuse. Gmel. &c.

Described in Molina's Natural History of Chili as a native of the Chilese shores, where it buries itself in the sands. The shell is white violet and yellow on the outside, within elegant purple; diameter about four inches. The animal rich and agreeable food.

CHAMA rugosa. Shell somewhat orbicular, and very deeply sulcated; the wrinkles slightly imbricated; margin doubly folded. Linn. Mant.

This is about the size of a man's finger, gibbous, and thick, with thirty grooves; the outer margin with concave prominent projections from the wrinkles, the inner margin obtuse plaited; hinge with two or three oblique grooves declining towards the anterior side. Native country unknown.

CHAMA gryphica. Shell oblique, with a lateral oblique depression or hollow: callosity of the hinge dentated. Linn. Mant.

Resembles *Anomia gryphi*. This species inhabits Barbary; the shell is ponderous and thick, about the size of a fist; beaks obliquely curved backwards; anterior slope longitudinally

usually grooved and oblique towards the beaks; posterior slope longitudinally concave.

CHAMA coralliophaga, Shell cylindrical, white, diaphanous, with decussating striae, the transverse striae arched and imbricated. Chemnitz. Country unknown.

CHAMADE, in *Military Language*, a conference or parley. *Battre la chamade*, is to beat a parley, or to make a signal by beat of drum, for a conference when any thing is to be proposed. This signal is sometimes made by sound of trumpet, as well as by beat of drum. When the besieged are hard pressed or reduced to extremity, they beat the *chamade*; and when either the besieged or besiegers wish for a truce or short cessation of arms, for the purpose of withdrawing their wounded, or burying their dead, or of any reclamation whatsoever, they beat the *chamade*: the besieged on the part of the rampart nearest to the attack, and the besiegers at the most advanced part of their approaches.

CHAMÆBALANUS, in *Botany*, Rumph. See *ARACHIS*.

CHAMÆPUXUS, Bauh. pin. See *POLYGALA chamæpuxus*.

CHAMÆCERASUS, Bauh. pin. See *LONICERA*.

CHAMÆCERUS, Fuchs. Bauh. hist. See *GLECOMA*.

CHAMÆCISTUS serpyllifolia, floribus carneis, Bauh. pin. See *AZALEA procumbens*.

CHAMÆCISTUS luteus, Pet. — *urtica folio*, Sloan. See *TURNERA pumilea*.

CHAMÆCISTUS caule hirsuto, Sloan. See *TURNERA oxioides*.

CHAMÆCISTUS hirsutifolius, Bauh. pin. — 8, Clus. See *RHODODENDRON Chamæcissus*.

CHAMÆCISTUS roris foliis foliis, Pet. See *ANDROMEDA droseroides*.

CHAMÆCISTUS friscus, Bauh. pin. See *SAXIFRAGA hirculus*.

CHAMÆCISTUS americana, Herm. See *TALINUM triangulare*.

CHAMÆCISTUS ericae folio humilior, Bauh. pin. — 6, Clus. See *CISTUS sumana*.

CHAMÆCISTUS foliis myrti, Bauh. pin. — 3, Clus. See *CISTUS canus*.

CHAMÆCISTUS repens, Bauh. pin. See *CISTUS serpyllifolius*.

CHAMÆCISTUS incanus, Barr. See *CISTUS glutinosus*.

CHAMÆCISTUS luteus thymi folio, Barr. See *CISTUS thymifolius*.

CHAMÆCISTUS foliis thymi incanis, Bauh. pin. — 4, Clus. See *CISTUS pilosus*.

CHAMÆCISTUS montanus, Rai. Syn. See *CISTUS polifolius*.

CHAMÆCLEMA, Hal. See *GLECHOMA*.

CHAMÆCRISTA, Comen. See *CASSIA chamæcrista*.

CHAMÆCRISTA, Breyn. See *CASSIA flexuosa*.

CHAMÆCHRYSOCOME, Barr. See *STÆHELINA dubia*.

CHAMÆCYPARISSUS. See *SANTOLINA*.

CHAMÆDAPHNE, Mitch. See *MITCHELLA*.

CHAMÆDAPHNE, Cateb. See *KALMIA*.

CHAMÆDAPHNE, Buxb. See *ANDROMEDA calyculata*.

CHAMÆDAPHNE vera Dioscoridis. See *RUSCUS aculeatus*.

CHAMÆDRIFOLIA, Pluck. See *FORSKOELIA tenacissima*.

CHAMÆDRYS alpina minima, Bauh. pin. See *VERONICA aphylla*.

CHAMÆDRYS alpina saxatilis, Bauh. pin. See *PÆDE-ROTA bonarota*.

CHAMÆDRYS spina, Bauh. pin. See *VERONICA Teucrium, trofistreta, Chamædrys austriaca, latifolia, biloba*.

CHAMÆDRYS 3, Clusii. See *DRYAS octopetala*.

CHAMÆDRYS major & minor repens, Bauh. pin. See *TEUCRIUM Chamædrys*.

CHAMÆDRYS spinosa, Bauh. pin. See *TEUCRIUM spinosum*.

CHAMÆDRYS, n. 289, Hall. — *laciniatis foliis*, Lob. Tourn. See *TEUCRIUM Botrys*.

CHAMÆDRYS annua, Morif. See *TEUCRIUM nissolianum*.

CHAMÆDRYS maritima, Tourn. See *TEUCRIUM marum*.

CHAMÆDRYS multiflora, Tourn. See *TEUCRIUM multiflorum*.

CHAMÆDRYS canadensis, Tourn. See *TEUCRIUM canadense*.

CHAMÆDRYS fruticosa insul. Stoeck. Tourf. See *TEUCRIUM massiliense*.

CHAMÆDRYS vulgari falsæ affinis, Bauh. hist. See *BARTSIA alpina*.

CHAMÆDRYS unicaulis spicata, Bauh. pin. See *RHINANTHUS trixago*.

CHAMÆFILIX, Morif. See *ASPLENIUM marinum*.

CHAMÆ-GENISTA, Bauh. Clus. Dalech. Cam. See *GENISTA*.

CHAMÆIASME, Amm. See *STELLERA chamaejasme*.

CHAMÆIRIS, Bauh. Clus. See *IRIS biflora & pumila*.

CHAMÆLARIX, Breyn. See *ASPALATHUS che-nopoda*.

CHAMÆLEA, Cam. — *triccocos*, Bauh. pin. Gært. See *CNEORUM trioccon*.

CHAMÆLEA foliis angustis, & folio subrotundo, Burm. See *PHYLICA stipularis*.

CHAMÆLEA foliis linearis, Burm. See *TRAGIA chamaelea*.

CHAMÆLEA foliis oblongis, Burm. See *CLUTIA alaternoides & polygonoides*.

CHAMÆLEAGNUS, Dod. See *MYRICA gale*.

CHAMÆLEON, in *Astronomy*. See *CAMELEON*.

CHAMÆLEON exiguus, in *Botany*, J. Bauh. See *CARDUUS acaulis*.

CHAMÆLEON salmanticensis, Clus. See *CARTHAMUS canescens*.

CHAMÆLEON albus, Clus. See *CARLINA acaulis*.

CHAMÆLEON albus Dioscoridis, Colum. See *ATRACTYLIS gummifera*.

CHAMÆLEON niger, Dalech. Dod. Bauh. pin. See *CARTHAMUS corymbosus*.

CHAMÆLEON non aculeatus, Lob. See *CENTAUREA conifera*.

CHAMÆLEON, or **CAMELEON**, in *Zoology*, a small and curious animal of the lizard tribe, celebrated from the remotest days of classical antiquity, for the faculty it was imagined to possess of changing its colours at pleasure, and assimilating to that of any situation, or object near it. In the Linnæan system of animals it stands in that particular tribe of the Lacerta (see article *LACERTA*), which have the feet furnished with five toes, some only of which are connected, and the tail short, rounded, and incurved; the *Chamæleontes* of Gmelin. The French naturalists, as Brongniard and Lacepede, separate the chamæleontes from the lacertæ, and constitute a new genus of this natural tribe of animals, under the name of *cameleo*, *caméléon*, in which they include six distinct varieties or species, as will appear in the sequel.

The only kind of Chamæleon with which the ancients seem to have been acquainted, is the common sort found in India,

CHAMÆLEON.

Africa, and the hotter parts of Europe; as for instance, Portugal and Spain. This is specifically distinguished by the cinereous colour of the body, and the head being flat. Of this species there are two, or more, supposed varieties, or, as the French writers believe them, distinct, though very analogous species. One of these varieties has the body white, which is the *Cameleo candidus* of Laurenti; and another, *Cameleo capite praegrandi*, has the head of a remarkably large size: this last is described by Dr. Parsons in the Philosophical Transactions for 1768. Besides these, the *Cameleo mexicanus* of Laurenti is considered only as a variety. Linnæus was induced to admit all the different races of the chamæleon tribe as varieties of this individual species; in the Gmelinian edition of the *Système Naturel*, the two kinds, *Africana* and *Pumila*, are very properly removed from the former, and described as distinct.

The general length of the common chamæleon is about ten or twelve inches, measuring from the tip of the nose to the beginning of the tail; and the tail is nearly of a similar length. Its figure and proportions are uncouthly singular. The head is large, flat above, and of a subtriangular form: the posterior part of its body seems crippled, and the legs ill-shapen and long. Its motions are slow, except when in the act of climbing trees in search of its prey, which consists of insects, when it ascends and descends with some facility, by means of its legs, which are well adapted for climbing, while at the same time it never fails to secure its hold more firmly by coiling its tail round the smaller branches. When it walks on the ground, it moves with a ludicrous air of gravity and circumspection, in a regular and even pace, which it will not hasten, even at the approach of danger. The fecundity of this animal is supposed to be very great, being, from the slowness of its motions and mode of life, incessantly exposed to the attacks of voracious birds, serpents, and various other animals, without any means of defence, and being yet found in vast numbers in the countries they naturally inhabit. The term of this animal's life is unknown; it thrives best in hot countries. Even in Lower Egypt, and on the coast of Barbary, when the weather is not very hot, the chamæleon seems to lose its ordinary share of activity, and oftentimes, in the winter season, they are found in those parts concealed under heaps of stones, where they lie overpowered by the cold in a perfectly motionless state, without being asleep. The Africans and Indians regard the chamæleon as a most useful animal; they see them enter their habitation with pleasure, and endeavour as much as possible to domesticate them, the chamæleon destroying mosquitos, ants, and a host of other winged insects, with which they are tormented.

The chamæleon by the power it possesses, like most of the amphibia, of inflating its lungs, and retaining the air for a considerable time, can alter the appearance of its body at pleasure; sometimes appearing of a plump or fleshy aspect, while at other times, upon expelling the air from the lungs, and keeping them in a collapsed state, the whole animal assumes the most lank and miserable aspect imaginable. At such times the skeleton seems scarcely more than covered with a thin skin, the back bone and ribs becoming distinctly visible on each side under the contracted skin. This inflation affects not only the body, but also the legs and tail, the tendons of which may be clearly traced in its attenuated state through the skin. When thus puffed out, the animal can remain so for the space of an hour or two, or even so long as six hours, the parts being speedily inflated, but the compression being effected gradually, and thus by an almost insensible linking of the parts, the dilated animal assumes the meagre condition before related. The skin in every part of

the animal is of a granulated structure, the granules differing in size on various parts, from that of a small pin's head to the diameter of the tenth of an inch, or more, especially about the projecting parts of the head and jaws, and on each side of the belly. Down the back is a series of obtuse denticulations, forming a subacute ridge from the head to the base of the tail, and decreasing in size towards the latter. The feet consist of five toes each, the anterior pair have the two outward toes united together by a common skin, and the three inner ones connected in a similar manner; the reverse of which is observed in the feet of the posterior legs, those having the three outer toes, and the two inner ones, connected.

The mouth is wide, and the bones of the jaws denticulated, so as to represent small teeth. Ælian mentions these osseous denticulations, and supposing they could be of no service to the creature in eating, since it subsists on flies, which it swallows whole, inters they must be intended by nature for its defence, and gravely affirms, that by means of these the chamæleon holds a stick crossways in its mouth to prevent its being swallowed by serpents! The tongue is of a very extraordinary form, being composed of a white solid flesh, about ten lines long and three broad, round, a little flattened towards the end, hollow, and open, somewhat like the end of an elephant's proboscis. This tongue is fastened to the os hyoides by means of a sort of trunk, shaped like an intestine, six inches long, and a line broad, having a membrane without, and a nervous substance within, which is solid and compact, though soft, and not easily divisible into fibres. This trunk serves to cast out the tongue, which is fastened to it, by extending it, and to draw it back by contracting it, which motion it is enabled to perform by a kind of cartilaginous stylus, to which its investing membrane is attached, and over which it is plaited like a silk stocking on the leg: this stylus is an inch long, and takes its origin from the middle of the base of the os hyoides, as in the tongues of several birds, and a number of blood vessels are distributed over it. This tongue is finely adapted for the purpose of seizing its prey, which consists of insects, forming a missile body with a dilated and somewhat tubular tip, by means of which the animal seizes them with the greatest ease, darting it out in the same manner as the wry-neck, or the woodpecker, and retracting it instantaneously with the prey secured at the tip. The structure, form, and motion of this creature's eyes are very peculiar: they are remarkably large, being nearly half an inch in diameter, of a spherical form, and projecting in the living animal full half of their diameter: these are covered with only a single eyelid or skin, pierced in the middle with a small hole, through which the bright and vivid pupil appears, surrounded by a golden yellow iris. The eyelid is granulated like the rest of the animal, and the fore part of the eye is attached to it in such a manner that the eyelid follows all the motions of the eye. The motions of the eye are not less singular than its structure, since it can turn them so as to see whatever passes either far backward, on either side, or directly behind it, without at all moving the head. Sometimes one of these eyes will move while the other is at rest, or turn forwards while the other is directed backwards; or upwards, while the other is turned downwards. By extending the skin of the orifice cross-ways, the chamæleon can close its eyes, the holes then becoming a longitudinal fissure. The brain is extremely small: the heart is also small, truncated at the tip, and furnished with large auricles, especially the left. The lungs are very large when inflated, and divided into several sacular subdivisions.

The Promethean-like faculty of the chamæleon, to change
its

its colour, has excited curiosity in all ages. That it depended in a very considerable degree on the will of the animal to exert this power was too apparent to be denied; but in what manner this effect was produced and operated on the frame of the chamæleon was reserved for the investigations of later naturalists to determine with competent accuracy. Seneca maintained it was effected by suffusion; Solinus, by reflection; and others, as the Cartesians, by the different disposition of the parts that compose the skin, which give a different modification to the rays of light. Kircher ascribes the change of colour in the chamæleon to the power of imagination in the animal, because it loses it when dead. Dr. Goddard attributes it to the grains in the skin; which, in the several postures, he thinks, may show several colours, and when the creature is in full vigour, may have, as he terms it, *rationem speculi*, or effect of mirrors, and reflect the colours of the bodies adjacent. That the colours are not by any means determined by surrounding objects, has been the aim of late observers to demonstrate; that they change with frequency and rapidity is admitted, but it is not true that they are influenced by the colour of any object in contact with it. The changes of colour which this animal exhibits vary according to the state of its health, the temperature of the weather, to age or sex, and a variety of other subordinate circumstances, all which tend to operate a change in the variable aspect of this singular creature. These transitions consist chiefly in the alteration of the shades from the natural green, or bluish-grey of the skin into pale yellowish with irregular spots and variegations of dull red; or dusky inclining to blackish. The epidermis of this animal is transparent, the skin beneath yellow, and the blood of a lively violet blue. The transitory combination of those colours therefore becomes apparent externally when the blood of the heart is impelled to the surface of the skin and the extremities, changing to violet, yellow, blue, and green, in a variety of hues as the blood circulates near the superficies. When the animal is sick it turns to a greyish dirty yellow, or brownish, like a decayed leaf, this being the true colour of the skin when the blood is withdrawn; but expose him to the rays of the sun, the genial heat revives and invigorates his whole system, and setting the blood, before torpid, in motion towards the skin, the violet and bluish prevail again, and by their intermixture with the yellowness of the skin the green will also re-appear. Return him again into the cold, the blood is withdrawn from the surface of the skin inwardly, and these colours, which depend on the immediate presence of the blood, will naturally fade away. Thus it happens also, that the colours of the chamæleon are palest in the night time, or in the dark, as Opsonville and Golberry have shewn. The same effect, and depending on the same causes as in the chamæleon, is also observable in the lizard called *Lacerta bullaris* by Gmelin and Linnæus, with this difference only, that the transitions of colour are not so decidedly evinced as in the chamæleon; but this latter animal which, exposed to the sun-shine is of a clear green, changes to a dusky blackish green, or yellowish, and in the cold to grey blending into brown; this animal, like the chamæleon, possessing the faculty of impelling its blood to the surface of the skin, or withdrawing it, and by that means of varying its tints at pleasure. The same circumstances are to be remarked in a still less degree in several other animals of the lizard tribe.

Chamæleons have been sometimes brought alive into this country. In the year 1780 a specimen of this animal was kept in a living state for some time in the company of apothecaries' phycic garden at Chelsea, which, though in a comparatively sickly state, exhibited those transitions of colour from bluish-ash to green, or yellowish spotted with brown before

mentioned. Several chamæleons have been preserved alive at different times in Paris. One of these afforded the French Academicians a favourable opportunity of investigating the manners and structure of this curious animal. The results of their inquiries are interesting, and serve to throw considerable light upon the history of the chamæleon. The following passages in particular seem to merit particular attention. "The colour of all the eminences (say those writers) of our chamæleon, when it was at rest in the shade, and had continued a long time undisturbed, was a bluish grey, except under the feet, where it was white inclining to yellow, and the intervals of the granules of the skin were of a pale and yellowish red. This grey, which coloured all the parts exposed to the light, changed when in the sun; and all the places of its body which were illuminated, instead of their bluish colour, became of a brownish grey. The rest of the skin, which was not illuminated by the sun, changed its grey into several brisk and shining colours, forming spots about half a finger's breadth, reaching from the crest of the spine to the middle of the back; others appeared on the ribs, fore legs, and tail. All these spots were of an isabella colour, through the mixture of a pale yellow, with which the granules were tinged, and of a bright red, which is the colour of the bottom of the skin, visible between the granules: the rest of the skin not enlightened by the sun, and which was of a paler grey than ordinary, resembled a cloth made of mixed wool; some of the granules being greenish, others of a minime-grey, and others of the usual bluish grey, the ground remaining as before. When the sun did not shine the first grey appeared again by little and little, and spread itself all over the body, except under the feet, which continued of the same colour, but a little browner; and when in this state some of the company handled it, there immediately appeared on its shoulders and fore legs several very blackish spots about the size of a finger nail, and which did not take place when it was handled by those who usually took care of it. Sometimes it was marked with brown spots, which inclined towards green. We afterwards wrapt it up in a linen cloth, where having been two or three minutes, we took it out whitish; but not so white as that of which Aldrovandus speaks, which was not to be distinguished from the linen on which it lay. Ours which had only changed its ordinary grey into a very pale one, after having kept this colour some time, lost it insensibly. This experiment made us question the truth of the chamæleon's taking all colours but white, as Theophrastus and Plutarch report; for ours seemed to have such a disposition to retain this colour, that it grew pale every night; and when dead it had more white than any other colour; nor did we find that it changed colour all over the body, as Aristotle reports; for when it takes other colours than grey, and disguises itself to appear in masquerade, as Ælian pleasantly says, it covers only certain parts of the body with them. Lastly, to conclude the experiments relative to the colours which the chamæleon can take, it was laid on substances of various colours, and wrapped up therein; but did not take them as it had done the white, and it took that only the first time the experiment was made, though it was repeated several times on different days. In making these experiments, we observed, that there were a great many places of its skin which grew brown, but very little at a time; to be certain of which, we marked, with small specks of ink, those granules which to us appeared the whitest in its pale state; and we always found that when it grew brownest, and the skin spotted, those grains which we had marked were always less brown than the rest."

The popular error, of the chamæleon living on air alone,

is thought to have arisen from the long abstinence which this animal can occasionally support; instances having, it is said, occurred of its passing several months without any apparent nourishment. This, though asserted by respectable writers, is contradicted by the observations of the ingenious Sonnini, who, during his travels in Egypt, had an opportunity of ascertaining this circumstance, and actually did bestow some pains, as appears from his writings, to determine this point to his satisfaction. "It is now well known (says Sonnini) that the changing of the colours in the chamæleons is not to be ascribed to the objects presented to them; that their different affections increase or diminish the intensity of the tints with which the very delicate skin which covers them, is, as it were, marbled; that they are not satisfied with nourishment so unsubstantial as *air*; that they require more solid aliment, and swallow flies and other insects; and that, finally, the marvellous stories which have been told respecting this species of lizard, are merely a tissue of fictions which have disgraced the science of nature down to this day. I have preserved some chamæleons, not that I was tempted to repeat the experiment of Cornelius le Bruyn, who, after having gravely assured us, that the chamæleons which he kept in his apartment at Smyrna, lived on air, adds that they died one after another in a very short space of time, but I wished to satisfy myself to what a point they would subsist without food. I had employed every precaution to prevent entirely their having any without ceasing to be exposed to the open air. They lived thus for 20 days; but what kind of life? From being plump as they were when I caught them, they soon became extremely thin. With their good plight they gradually lost their agility and their colours; the skin became livid and wrinkled; it adhered close to the bone, so that they had the appearance of being dried before they ceased to exist."

We shall now enumerate those species of the Linnæan lacertæ, which approach so near the common chamæleon as to have been confounded with its varieties.

AFRICAN CHAMÆLEON. *Lacerta africana*. Gmel. *Le caméléon d'Afrique*, of the French writers, is specifically distinguished by being of a blackish colour, and having the crown of the head carinated. *Chamæleo ex Africa colore nigricante, at pectine albo supra dorsum decoratus*, Seba.

This, according to Seba, is from the coast of Barbary, and is the largest chamæleon known: along the back to the end of the tail, runs a pure white stripe bounded by a blackish border or band; the rest of the animal is varied with pale cinereous undulations. In manners this resembles the last, and all the prominent parts are white.

LITTLE CHAMÆLEON. *Lacerta pumila*. Gmel. With the body bluish on the sides, and marked with two yellowish lines. *Le Caméléon nain* of Bosc and others. *Chamæleo Promontorii Bonæ Spei, caruleo alboque colore marmoris instar variegatus* of Seba.

This kind inhabits the Cape of Good Hope, and has the head somewhat flatter than the former, though still elevated towards the middle part, and has the margin on each side denticulated. The body is of a bluish colour, marbled or variegated with white.

Besides the common chamæleon, *Le Caméléon commun*, and the two last-mentioned species, the French admit three others as species of their genus caméléon; *Le Caméléon du Sénégal* *Le Caméléon du Cap de Bonne-esperance*, and *Le Caméléon Fourchu*. The first, or Senegal chamæleon, is smaller than the common chamæleon; the helmet or head-piece is ellipsoidal, and flat above; and the denticulations on the back and carina are less prominent. That from the Cape, the second species, has the head-piece almost flat above, with a

line of large tubercles behind each eye; and the denticulations of the back and ridge of the collar are more dispersed and are not continued so far under the belly and the tail. *Le caméléon fourchu* is certainly a very distinct species from the rest. This has the muzzle advanced or projecting and terminated in two lengthened compressed processes. The top of the head is flat, and is denticulated in its outline. In size and general aspect it resembles the common chamæleon. This was brought from Java, and was figured by Brongniard in the French *Bulletin des Sciences*, and is repeated in Latreille's recent *Hist. Nat. des Reptiles*.

In the year 1669, Claude Perrault published a work entitled "Description Anatomique d'un Caméléon." "Præfide, Dissertatio de Victu aëreo, seu mirabili potius inedia Chamæleontis," &c. by Hopfero appeared in 1681; and in 1707 "Dissertatio de Chamæleonte," by Kaalund. Besides these, and the works before mentioned, there are none of material interest on the chamæleon. The paper by Dr. Parsons in the 58th volume of the Philosophical Transactions entitled "An Account of a particular Species of Chamæleon," appeared again in French as the "Relation d'une Espece particuliere de Chamæleon," (*Journ. de Physique*) but contained nothing new. "Nachricht von einer besondern gattung des Chamæleons," and "Beschreibung eines Chamæleons," are tracts upon the same subject.

CHAMÆLEON, Mineral, in *Chemistry*, a substance produced by subjecting one part of black oxyd of manganese to ignition in a crucible with three parts of pure nitrat of pot-ash, until the mass ceases fusing, and assumes a dry earthy appearance. If a portion of this powder be put in a glass containing clear pump-water, the fluid becomes first green, then violet, afterwards reddish, and at last again totally discoloured: the metallic oxyd falling then to the bottom with a black colour. But if it be preserved in a bottle quite filled with boiled, distilled water, and well stopped, the green colour lasts longer, changes gradually to blue, and a yellow ochreous oxyd of iron precipitates. To explain these changes of colours, it may be observed, that the nitre is decomposed by the calcining heat, and alkaliized by the loss of its acid; that the black manganese oxyd is brought by ignition to the state of a mere imperfect oxyd, and that, therefore, its alkaline solution may appear blue. But as the black oxyd of manganese contains some admixed oxyd of iron, the blue colour of the solution is changed into a green by the yellow tint of the oxydized iron. The oxyd of iron subsides by repose, and then the blue colour re-appears. The manganese oxyd absorbs again, by degrees, more oxygen from the atmospheric air; it assumes, therefore, a brown red tinge, becomes at last black, and precipitates at this period. Gren's Principles of Modern Chemistry, vol. ii. p. 410.

CHAMÆLEONTES, one of the families into which late writers separate the lizard or lacerta tribe. The Chamæleontes are *Lacerta chamæleon*, *Africana* & *pumila*. See **LACERTA**.

CHAMÆLINUM, in *Botany*, Barr. See **LINUM catharticum**.

CHAMÆMELUM canariense, Moris. in *Botany*. See **CHRYSANTHEMUM frutescens**.

CHAMÆMELUM alpinum, Bauh. Pin. — *pallidum* & *montanum*, Barr. See **C. alpinum**.

CHAMÆMELUM alpinum abrotani folio, Vail. See **ANTHEMIS montana**.

CHAMÆMELUM inodorum, Moris. Rai. See **C. inodorum**.

CHAMÆMELUM inodorum, Bauh. Pin. See **ANTHEMIS arvensis**.

CHAMÆMELUM maritimum, Rai. See *MATRICARIA maritima*.

CHAMÆMELUM maritimum, J. Bauh. See *ANTHEMIS maritima*.

CHAMÆMELUM maritimum incanum, Bæth. See *A. tomentosa*.

CHAMÆMELUM vulgare, Bauh. Pin. See *MATRICARIA chamomilla*.

CHAMÆMELUM incanum, Tourn. See *M. argentea*.

CHAMÆMELUM aurum peregrinum, J. Bauh. See *COTULA aurea*.

CHAMÆMELUM æthiopicum, Breyn. See *C. turbinata*.

CHAMÆMELUM leucanthemum, Pluk. See *C. capensis*.

CHAMÆMELUM leucanthemum hispanicum, Bauh. Pin. See *ANTHEMIS altissima*.

CHAMÆMELUM foliis pinnatis, Tourn. See *ANACYCLUS orientalis*.

CHAMÆMELUM luteum, Bauh. Pin. See *A. aureus*.

CHAMÆMELUM annuum ramosum, Moris. See *ANTHEMIS cota* and *mista*.

CHAMÆMELUM chinum, Tourn. See *ANTHEMIS china*.

CHAMÆMELUM nobile, Bauh. Pin. ——— *odoratum*, Dod. — 102, Hall. See *A. nobile*.

CHAMÆMELUM fetidum, Bauh. Pin. — 104, Hal. See *A. cotula*.

CHAMÆMELUM fetidum maritimum, Vaill. See *A. valentina*.

CHAMÆMELUM specioso flore, Shaw. See *A. pyrethrum*.

CHAMÆMELUM tanacetii minoris folio, Vaill. See *A. tinctoria*.

CHAMÆMELUM pumilum, Burm. See *ARCTOTIS anthemoides*.

CHAMÆ-MESPILUS, Clus. Bauh. Pin. See *MESPILUS cotoneaster*.

CHAMÆ-MOLY, Colum. See *ALLIUM chamemoly*.

CHAMÆ-MORUS, Clus. See *RUBUS chamemorus*.

CHAMÆNERION, Bauh. Pin. Schreb. Scheuch. Scop. See *EPILOBIUM*.

CHAMÆ-ORCHIS, Bauh. Pin. See *OPHRYS alpina*.

CHAMÆPERICLEMUM, Clus. Ger. Park. Rai. See *CORNUS suecica*.

CHAMÆPEUCE, Alp. See *STÆHELINA chamæpeuce*.

CHAMÆPITYS incana, Bauh. Pin. See *CRESSA cretica*.

CHAMÆPITYS cerulea, Bauh. Pin. See *DRACOCEPHALUM austriacum*.

CHAMÆPITYS lutea vulgaris, Bauh. Pin. See *TEUCRIUM chamæpithys*.

CHAMÆPITYS spuria, Bauh. Pin. See *TEUCRIUM pseudo-chamæpithys*.

CHAMÆPITYS moschata, Bauh. Pin. See *TEUCRIUM iva*.

CHAMÆPITYS æthiopica, Pluk. See *ERICA plukenetii*.

CHAMÆRHODODENDRON exoticum, Breyn. See *AZALEA indica*.

CHAMÆRHODODENDROS pontica mesfolii folio, Tourn. See *AZALEA pontica*.

CHAMÆRHODODENDROS fusina, Bocc. See *AZALEA procumbens*.

CHAMÆRHODODENDROS pontica folio laurocerasi, Tourn. See *RHODODENDRON ponticum*.

CHAMÆRHODODENDROS folio glabro, Amm. See *RHODODENDRON dauricum*.

CHAMÆRIPHA peregrina, in Zoology, the name given by Clusius to the *gorgonia palma* of Pallas.

CHAMÆRIPHES, in Botany, Dod. Gært. See *CHAMÆROPS humilis*.

CHAMÆROPS, (from *χαμας*, and *ρως* implying a low shrub), Linn. Gen. 1289. Schreb. 1688. Juss. 39. Vent. vol. ii. 125. (*Chamæriphe*, Gært.) Class and order, *polygamia diœcia*. Nat. ord. *Palma*, Linn. Juss. Vent.

Gen. Ch. Hermaphrodite. *Cal* spathe universal, compressed, bifid; spadix branching; perianth proper, small, three-cleft, Linn. (six-leaved, Gært.) *Cor.* petals three, or one, longer than the calyx, egg-shaped, coriaceous, erect, acute, inflexed at the tip. *Stam* filaments six, (from six to nine, Gært.), awl-shaped, compressed, scarcely cohering at the base, didymous, adhering to the interior file of the filaments. *Pist.* germs three, roundish; styles three, distinct, permanent; stigmas acute. *Peric.* drupes three, globular, one-celled. *Seeds* solitary, globular. Male on a distinct plane. Calyx and corolla as in the hermaphrodite. Stamens six, not distinctly perforated, standing on a gibbous receptacle.

Sp. 1. *C. humilis*, dwarf fan-palm, or palmetto, Linn Sp. Pl. Savigny in Ercyc. Mart. Lam. Illust. Pl. 900. fig. 1. (*Palma minor*, Bauh. Pin. 506. *Chamæriphe*, Dod. Pempt. 820. Pont. Anth. 147. tab. 8. *C. major*, Gært. tab. 9. fig. 4.) "Fronds palmated, plaited, tips thorny." In its wild state generally without a trunk; but in Valentia wild plants are found with trunks from twenty to thirty feet high, their usual height in the Paris gardens. In its trunkless state, as the lower leaves of the plant decay, their vestiges remain, and form a short stump above ground, similar to that of *polypodium filix mas*, our common male fern, from which the spadix is produced. *Trunk*, when present, cylindrical, five or six inches in diameter, upright, quite simple; naked at its base, but marked with circular scars; beset upwards with triangular scales, which are the bases of the petioles of fallen leaves. *Leaves* from thirty to forty, on the crown of the root, or the top of the trunk, from nine to eighteen inches long, near a foot broad, digitated, or deeply palmated; outer ones horizontal, or reflexed, inner ones less expanding as they approach the center; divisions or leaflets from twelve to fifteen, narrow, and sword-shaped, keeled, acute, finely serrated, longitudinally nerved, smooth, or slightly pubescent, quite entire, of a rather glaucous green colour; at first closed together like a fan when shut, and fastened to each other by strong fibres, which run along their borders; afterwards, spread open, the broken fibres hanging from the sides and ends; stipules or petioles thick, smooth, flat, with two sharp edges; armed with strong, short, acute, oblique, lateral spines. *Spathes* from six to eight inches long, much compressed, ciliated, opening at one of their edges. *Spadix* paniced, thick, flat. *Flowers* small, yellow. *Fruit*, drupes nearly globular, obscurely trigonous at their base, dark brown; with pale, callous, elevated dots; rind thin, somewhat coriaceous; flesh thickish, fibrous, separate from the seed; when old, cork-like, hard, inodorous. *Seed* smooth, elliptic-spheroidal, with a small lateral papilla below the middle, which covers the embryo. A native of Italy, Sicily, and Spain, covering the ground in the same manner as fern does in the more northern part of Europe. The leaves are tied up into besoms for sweeping. They are also used for making baskets and thatching buildings. The pith near the root is sweetish and tender, and is sometimes eaten in deserts. *β. C. glabra*, Miller. "Leaves fan-shaped, very large; stipules smooth." A native of the West Indies, where it never rises with a stem; the stipules are rounder than those of the European fan-palm, and have no spines on their sides. It seems to be a distinct species. *γ. C. minor*, Gært. Drupe cylindrical.

lindrical-ovate, fleshy, smooth; rind very thin; flesh soft, easily yielding to the pressure of the finger even when old, fibrous within, adhering on all sides to the seed. *Seed* shorter and rounder than that of *C. major*, furnished with two papillæ; one superior, entirely solid; the other inferior, smaller, covering the embryo. 2. *C. excelsa*, creeping-rooted fan-palm, or ground-ratan, Murray Syst. 984. Mill. Thunb. Jap. 130. (*Rhapis flabelliformis*, Mart. Hort. Kew. vol. iii. 473. MSS. of Linn. jun. Salisb. Prod. 264. L'Herit. Stirp. Nov. tab. 100.) "Fronds palmated, plaited; plaits and edges serrated or prickly, with small teeth; stipules unarmed." A lofty tree. *Leaves* smooth, pale underneath; leaflets cohering at the base, linear, cloven at the end, serrated, with rugged veins; petioles three-cornered, entire, the length of the leaves. *Flowers* in a decòmpound spreading panicle, sessile on the outmost pedicels. A native of China and Japan. Introduced about 1774 by Mr. James Gordon. Beforems are made of the thin netted bark of the trunk. 3. *C. arundinacea*, simple-leaved fan-palm. (*Rhapis arundinacea*, Mart. Mill. Hort. Kew. vol. iii. p. 474.) "Fronds two-parted; lobes acute, plaited; plants somewhat rugged." A native of Carolina. Introduced in 1765. 4. *C. cochinchinensis*, Mart. Lour. Cochin. 657. "Fronds palmated, plaited; stipules thorny; spathe partial; corollas monopetalous." *Trunk* eight feet high, an inch in diameter, straight, equal. *Stipules* long, slender, with short, straight, scattered spines. *Fronds* turbinate; segments small, oblong, blunt, many-plaited. *Spadix* short, upright. *Spathe universal* none; *partial* lanceolate, shorter than the spadix; calyx three-leaved; leaflets short, upright, acute, curved; corolla monopetalous, cup-shaped, three-cornered; border very small, trifid, inflexed; filaments very short, placed on the border of the corolla; anthers roundish, minute. *Drupe* egg-shaped, small, juiceless, not eatable. A native of the woods of Cochin-China. The fronds are used for covering houses and making umbrellas.

Obs. Although a new genus has been formed for the second and third species, and adopted by very high authorities; yet, as nothing is known of their fructification, besides a one-leaved trifid perianth, a one-petalled trifid corolla, and six filaments, there seems no sufficient reason for separating them from *chamærops*.

CHAMÆROPS, in *Gardening*, comprises a plant of the perennial exotic kind; of which the species cultivated is the dwarf fan palm or palmetto, (*C. humilis*), which never rises with an upright stem, but the foot-stalks of the leaves proceed immediately from the head of the root, and are armed on each side with strong spines; are flat on their upper surface, and convex on their under side: the centers of the leaves are fastened to the foot-stalk, and spread open like a fan, having many foldings, and at the top are deeply divided like the fingers of a hand: when they first come out they are closed together, like a fan, when shut, and are fastened together by strong fibres, which run along the borders of the leaves; and when the leaves spread open these fibres or strings hang from the sides and ends: the borders of the leaves are finely sawed, and have white narrow edgings; they are from nine to eighteen inches long, and near a foot broad in their widest part: from between the leaves comes out the spadix or club, which sustains the flowers. This is covered with a thin spathe or hood, which falls off when the bunches open and divide. It grows naturally in Italy, &c.

Method of Culture. These plants may be raised by seeds, and side slips from the head of the roots. In the first method, the seeds procured from abroad should be sown in pots of light sandy earth, and plunged in a hot-bed of tan-

ner's bark, occasional waterings being given. In the autumn or spring following, the plants will be in a proper state to be pricked out in separate pots. In this culture much depends on having good seeds, as when these are not well prepared they often fail.

In the second mode, the slips of the crown of the roots or side offsets, must be separated with the root fibres, and planted out in pots filled with sandy earth, and plunged in a hot-bed. But the plants are stronger from seeds than when raised in this way. Mostly in ten or twelve months the plants will be fit to be removed into other pots, which should be done in such a manner as not to injure their roots, as when that is the case they are liable to be destroyed or become feeble in their growth.

These plants mostly require the protection of a stove while in their young growth; but when become hardy by gradual exposure to the air, they are capable of succeeding in a full exposure in summer, and in a green-house in winter; but must always be kept in pots of light sandy earth, and be frequently watered in summer, but more moderately when the weather is cold than in the summer season.

In stove-collections they have a good effect by their curious appearance.

CHAMÆRUBUS, in *Botany*, Bauh. Pin. See *RUBUS saxatilis* and *Chamæmorus*.

CHAMÆSYCE, Bauh. Pin. Clus. See *EUPHORBIA chamæsyce*.

CHAMÆSYCE, Sloan. See *EUPHORBIA maculata*.

CHA-MA-HI, in *Geography*, a town of Asia, in the island of Formosa. N. lat. 22° 10'. E. long. 120° 44'.

CHAMAILLER is to fight against an enemy armed cap-a-pé.

CHAMAILLERE, in *Geography*, a town of France, in the department of the Puy-de-Dome, and district of Clermont; 1 mile S.W. of Clermont.

CHAMANA, in *Ancient Geography*, a country of Asia, in Cappadocia, according to Ptolemy.

CHAMANIM, in the *Jewish Antiquities*, is the Hebrew name for that which the Greeks call *pyraia*, or *pyrateria*; and St. Jerom in Leviticus (ch. xxvi. 30.) has translated *simulachra*, in Isaiah (ch. xxvii. 9.) *delubra*.

These *chamanim* were, according to rabbi Solomon, idols exposed to the sun upon the tops of houses. Abenezra says, they were portable chapels or temples, made in the form of chariots in honour of the sun.

What the Greeks call *pyraia*, were temples consecrated to the sun and fire, wherein a perpetual fire was kept up. They were built upon eminences, and were large enclosures, without covering, where the sun was worshipped. Herodotus (lib. i. p. 87.) and Strabo (lib. xv.) speak of them; and the *guebres*, or worshippers of fire, in Persia and the Indies, have still these *pyraia*. Strabo says, that in his time there were many of these temples to be seen in Cappadocia, consecrated to the goddess Anaita, and the god Homanus. Anaita is, in all probability, the moon, and Homanus the sun.

The word *chamanim* is derived from *chaman*, which signifies to warm. Calmet.

CHAMARANDE, in *Geography*, a town of France, in the department of the Seine and Oise, and district of Estampes; 5 miles N.N.E. of it.

CHAMARIM, a word mentioned in several places of the Hebrew Bible, and generally translated the priests of the idols, or priests clothed in black, because *chamar* signifies black or blackness.

Camar, in Arabic, signifies the moon; Isis is the same deity. Grotius thinks the Roman priests called *samilli*, came

came from the Hebrew *chamarim*. They, among the heathens, who sacrificed to the infernal gods, were dressed in black.

"Vidi egomet nigrâ succinctam vadere pallâ
Canidiam pedibus nudis, passoque capillo."

HOR. lib. i. sat. 8. v. 23.

CHAMAVI, in *Ancient Geography*, a people of Lower Germany, placed by Ptolemy to the south of the *Brudarii*. M. d'Anville places them N.E. of the *Teufterii*. They occupied the parts adjacent to the Rhine.

CHAMAZE, in *Geography*, a town of France, in the department of the Mayenne, and district of Château Gouthier; 4 miles S.W. of it.

CHAMBE, a town of Armenia; 120 miles S.E. of Erivan.

CHAMBER, in *Architecture*, a member of a lodging, or piece of an apartment, ordinarily intended for sleeping in; and called by the Latins *cubiculum*.

The word comes from the Latin *camera*; and that, according to Nicod, from the Greek *καμαρα*, vault or curve; the term *chamber* being originally confined to places arched over.

A complete apartment is to consist of a hall, antechamber, *chamber*, and cabinet.

As to the proportions of *chambers*, their length should be to the breadth as $1\frac{1}{2}$ to 1, or some small matter less, but ought never to exceed that proportion; and, as for the height, it should be three-fourths of the breadth. The height of the chambers of the second story, should be a twelfth part less than the height of those below: thus, if the height of the first story be sixteen feet, that of the second will be fourteen feet eight inches. As to the height of the third story, it should be only three-fourths of the second.

In building bed-chambers, regard should be had as well to the situation of the bed, as to that of the chimney. For which reason, the chimney ought to be placed just in the middle, but distant from it about two feet, or two and an half, in order to make room for the bed, which prevents this inequality from being discerned. See *BED-CHAMBER*.

CHAMBER *Musical*, compositions for a small concert-room, a small band, and a small audience; opposed to music for the church, the theatre, or a public concert-room. See *Musica di CAMERA*.

CHAMBER, *privy*.—*Gentlemen of the Privy-CHAMBER* are servants of the king, who are to wait and attend on him and the queen at court, and in their diversions, progresses, &c.

Six of these are appointed by the lord-chamberlain, together with a peer, and the master of the ceremonies, to attend all ambassadors from crowned heads in their public entries. Their number is fifty.

Their institution is owing to king Henry VII. As a singular mark of favour, they are empowered to execute the king's verbal command, and without producing any written order; their person and character being deemed sufficient authority.

Mr. Pegge (in his "*Curialia*," 4to. 1782) has a dissertation on the original nature, duty, &c. of the king's most honourable privy chamber. From this we learn, that the most ancient mention of "gentlemen" of the privy-chamber, is said to be in the "*Liber Niger domus Regis Angliæ*," in the time of Edward IV. They are called "esquires of household," in number 40.; "20 of them to be continually at court, in riding and going, at all times,

and to help to serve his table, &c." A salary was appointed of $7\frac{1}{2}d.$ daily, while in waiting, and clothing winter and summer, or else 40s. The salary, afterwards enlarged, was taken off, early in the reign of James I., from which time the office appears to have been merely a post of honour. It is conjectured their title was changed from "esquires of the household" to that of "gentlemen of the privy-chamber" in the reign of Henry VII., or early in that of Henry VIII. "From being anciently near, and almost," says Mr. Pegge, "companionable officers to the royal person, they are now become the most remote, and seldom visible in their proper sphere, and scarcely distinguishable as such, above *thrice* in a reign." As no salary or emolument whatsoever attends the post at present, it may be asked, why it is so much sought after? The answer, as Mr. Pegge, observes, is very easy, and almost in *omnium ore*. "It is an exemption from serving the office of sheriff, and also from an arrest, without leave first obtained, together with other like immunities belonging to the royal servants."

CHAMBER, in *polity*, is used for the place where certain assemblies are held; also for the assemblies themselves.

Of these there are various kinds; some established for the administration of justice; others for matters of commerce, &c. Of the first kind among us was the

Star-CHAMBER. See *COURT of Star-Chamber*.

CHAMBER, *Imperial*, is a court or jurisdiction held anciently at Spire, but since transferred to Wetzlar; in which are determined the differences arising among the princes and cities of the empire.

It was at first ambulatory: in 1473, it was fixed to Augsburg, then removed to Frankfort on the Maine, and thence to Worms, in 1495, where a diet was held by Maximilian I. to which period some have referred the institution of the Imperial Chamber, possessing supreme jurisdiction to judge without appeal in every question brought before it, and established with these powers, in order to terminate the right of private war: afterwards it was removed to Nuremberg and Ratibon; again to Worms and Nuremberg; and from this last to Esslingen; thence, in 1527, to Spire; where Charles V. rendered it sedentary, in 1530: and here it continued above a century and a half. It is now fixed at Wetzlar.

At its first institution by Maximilian, it consisted of a president, who was always a nobleman of the first order, one of 16 assessors, or judges. The president was appointed by the emperor, and the judges partly by him, and partly by the states, according to forms which it is here unnecessary to describe. A sum was imposed, with their own consent, on the states of the empire, for paying the salaries of the judges and officers in this court. In consequence of the reformation, the number of assessors was increased. By the treaties of Westphalia, particularly that of Osnabrug, in 1648, it was decreed, that the Imperial Chamber should be composed of a Catholic judge, and four presidents, named by the emperor, two of each religion, and 50 counsellors, 26 of whom are Catholics, and the rest Protestants. But this chamber has been since reduced to a much smaller number of officers, being composed of the Elector of Triers, who is judge as bishop of Spire, of one Catholic and one Protestant president, and eight Catholic and seven Protestant counsellors. This court takes cognizance of all questions concerning civil right between the states of the empire, and passes judgment in the last resort, and without appeal. To it belongs likewise the privilege of judging in criminal causes, which may be considered as connected with the preservation of the public peace. Although the sentences of this, and also of the Aulic council, are final, there are, nevertheless, some cases in which the parties may appeal to the emperor, and

and demand a revision of the process, particularly in those causes which regard to duchies, principalities, counties, and other immediate fiefs of the empire. In both these tribunals the emperor presides as sovereign judge, and when he is present, pronounces sentence; and in his absence, he, who represents his person as judge, has a right to wear an imperial sceptre as a badge of his dignity. Processes in the Imperial Chamber are almost endless, on account of the infinite number of ceremonies and formalities with which they are embarrassed. This court is frequently afraid to pronounce sentence, for fear of exposing its awards to some disgrace: the princes sometimes not permitting such to be executed as displease them.

CHAMBER of accounts, a sovereign court in France before the revolution, where accounts were rendered of all the king's revenues; inventories and avowals thereof registered; oaths of fidelity taken, and other things relating to the finances transacted. The French had also

CHAMBERS, ecclesiastical, which judged, by appeal, of differences arising on the raising of tithes: of these ecclesiastical chambers there were nine; viz. at Paris, Bourdeaux, Rouen, Lyons, Tours, Tholouse, Bourges, Pau, and Aix: they usually consisted of the archbishop of the place, as president; other archbishops and bishops, a deputy of each of the dioceses, and three counsellors of parliament. The chamber chose as many counsellors out of the clergy as it thought proper; as also a promoter.

CHAMBER, apostolical, at Rome, is that wherein affairs relating to the revenues and domains of the church and the pope are transacted.

CHAMBER of audiences, or grand CHAMBER, a jurisdiction that subsisted in each parliament of France. At the first institution of their parliaments, there were two chambers, and two kinds of counsellors; the one the *grand chamber* for audiences, the counsellors whereof were called *jugeurs*, who only judged; the other the *chamber of inquests*, the counsellors whereof were called *rapporteurs*, who only reported processes by writing.

CHAMBER, direction, is a court instituted in Old Spain, for the regulation of divers affairs relating to their commerce to the Spanish West Indies.

CHAMBER of the edict, or My-parti, was a court established by virtue of the edicts of pacification, in favour of those of the reformed religion: wherein the number of judges of either religion was the same; and to which recourse was had in all affairs wherein any of the protestants were concerned. This chamber is now suppressed.

CHAMBER of London. See *CHAMBERLAIN*.

CHAMBER of assurance, in France, denoted a society of merchants and others, established by a decree of the council of state in 1668, for conducting the business of insuring: but in Holland, it signifies a court of justice, where causes relating to insurances are tried.

CHAMBER of bookfellers, in Paris, denoted a society consisting of a syndic and assistants, elected by four delegates from the printers, and twelve from the bookfellers, whose business it was to superintend and regulate the trade of printing and selling books, prints, &c. In the visitation of books, performed by at least three persons of the society, all libels against the honour of God, and the welfare of the state, and all books printed in violation of their regulations and privileges, were suppressed.

CHAMBERS of commerce, are assemblies of merchants and dealers, where they treat about matters relating to commerce. Of these there were several, established in most of the chief cities of France, by virtue of an act of the 30th of August, 1701. Indeed there were some before this

general establishment, particularly one at Marseilles, and another at Dunkirk.

CHAMBERS of the king, regia camera, in our old records, are used for the havens or ports of the kingdom.

CHAMBER, in French, *chambre*, of a battery, in Fortification, is a dry place sunk under ground, and secured against rain or moisture, for holding and preserving powder, loaded shells, and fuses.

CHAMBER of a mine, is, strictly speaking, the place where the powder is lodged for springing it with. There one end of the faucillon, by means of which the powder in the mine is fired, terminates. There are mines, that have only one chamber; and there are others that have several. The chamber of a mine has a platform (ceiling or top) of strong planks, supported on four upright timbers or posts, behind which planks are also fixed, for shutting up the sides and preventing the earth from tumbling down. A mine is sometimes excavated into the form of a parallelepipedon, but generally into one resembling that of a cube; and it is not, perhaps, improper to observe, that there should not be any vacant or open spaces left in it, or any vent communicating with it, for these would occasion a great diminution of the effect of the powder employed for springing the mine.

CHAMBER of a port, is that part of the basin of a seaport, which is the most retired, and of the least depth, and to which disarmed or dismantled vessels are carried in order to be repaired.

CHAMBER of a cannon, in Military Language. See *CANNON*.

CHAMBER of a mortar, is the place which contains the charge of powder. The chambers of mortars are of various and very different forms as well as dimensions, for an account of which see the article *CANNON*.

CHAMBERS, iron, in a Fire ship, are ten inches long, and 3.5 in diameter. They are breeched against a piece of wood fixed across the ports, and let into another a little higher. When loaded, they are almost filled with corned powder, and have a wooden tompon well driven into their muzzles. They are primed with a quick match thrust through their vents into the powder, with a part of it hanging out. When the ship is fired, they blow open the ports; and the port-lids either fall downward, or are carried away, and thus give vent to the fire out of the sides of the ship.

CHAMBER of a lock, in Inland Navigation, is the space within the gates, through which a boat rises or sinks, from one level to another of a canal or river. See *Plate of Canals*, V. fig. 36 and 37.

CHAMBERS of the eye, in Anatomy, are those spaces in front of the eyeball, which contain the aqueous humour.

The *anterior chamber* is the interval between the posterior surface of the cornea, and the iris.

The *posterior chamber* is the interval between the uvea and the front of the crystalline lens. For a further description of these, see *EYE anatomy of*.

CHAMBERDEKINS, in our Old Statutes, a denomination for certain Irish beggars, which by statute 1 Hen. V. cap. 7 and 8. were to leave England within a certain time. They were called in the statute *chamberdeakynz*, and said to be clerks mendicants. Bount says they are called *chamber-deacons* in the parliament-roll.

CHAMBERET, in Geography, a town of France, in the department of the Correze, 15 miles N. of Tulle.

CHAMBERLAIN, an officer who has the management or direction of a chamber.

The word *chamberlain*, according to Ragueau, originally signified a gentleman who was to sleep in the king's bed-chamber, at his bed's feet, in the absence of the queen. There

There are almost as many kinds of *chamberlains* as chambers: the principal are as follow:

CHAMBERLAIN of England, Lord Great, an officer of great antiquity and honour; being ranked the sixth great officer of the crown: a considerable part of his function is at the coronation of a king; when he dresses him, carries the cōif, sword, and gloves, to be used on that occasion; the gold sword and scabbard to be offered by the king; and the robe royal and crown; he also undresses him, and waits on him at dinner; having for his fee the king's bed, and all the furniture of his chamber, the night-apparel, and the silver basin wherein the king washes, with the towels.

To him likewise belongs the provision of every thing in the house of lords, in the time of parliament; to which end he has an apartment near the lords house. He has the government of the palace of Westminster, and issues out warrants for preparing, sitting out, and furnishing Westminster-hall, against coronations, trials of peers, &c.

He disposes of the sword of state, to be carried by whom he pleases; and when he goes to parliament, is on the right hand of the sword, the lord marshal being on the left. On all solemn occasions, the keys of Westminster-hall, of the Court of Wards, and Court of Requests, are delivered to him.

To him belong livery and lodging in the king's court; and he has certain fees from every bishop at his doing homage to the king, and from every peer at his creation. Under his command are, the gentleman-usher of the black rod, the yeoman-usher, and door-keepers.

The office of lord great chamberlain of England is hereditary; and where a person dies seised in fee of this office, leaving two sisters, the office belongs to both sisters, and they may execute it by deputy; but such deputy must be approved of by the king, and must not be of a degree inferior to a knight. 4 Bro. P. C. 146, 8vo.

This honour was long held by the earls of Oxford; viz. from the time of Henry I. by an estate-tail, or inheritance; but in later coronations by the marquis Lindsey, afterward duke of Ancaster, by an estate or inheritance from a daughter and heir general: and settled in that family.

CHAMBERLAIN of the household, Lord, an officer who has the oversight and direction of all officers belonging to the king's chamber, except the precinct of the *bed-chamber*, which is absolutely under the groom of the stole.

He has the oversight and direction of the officers of the wardrobe, of the removing wardrobes, beds, tents, revels, music, comedians, hunting, messengers, trumpeters, drummers, handicrafts, and other tradesmen retained in the king's service: as also of all sergeants at arms, physicians, apothecaries, surgeons, barbers, the king's chaplains, &c. and administers the oath to all officers above stairs. Under him is a vice-chamberlain; and both are always privy-counsellors. There is also a *Lord Chamberlain* of her majesty's household.

There were formerly *CHAMBERLAINS of the king's courts*, 7 Edw. vi. c. 1.; and there are *chamberlains* of the Exchequer, who keep a controlment of the pells, of receipts and exitus: they also have in their custody the leagues and treaties with foreign princes, many ancient records, and the two famous books of antiquity, called Domesday Book, and the Black-Book of the Exchequer; and also the standards of money, and weights and measures are kept by them. There are also *Under-chamberlains* of the Exchequer, who make searches for all records in the treasury; and are concerned in making out the tallies, &c. The office of chamberlain of the Exchequer is mentioned in the stat. 34 and 35 Hen. VIII. c. 14. Besides these, we read of a *chamberlain*
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of *North Wales*, Stowe, p. 641. There is also a *chamberlain of Chester*, to whom it belongs to receive the rents and revenues of that city; and when there is no prince of Wales, and earl of Chester, he hath the receiving and returning of all writs coming thither out of any of the king's courts. See *COUNTY-palatine*.

CHAMBERLAIN of London. This officer keeps the city-money, which is laid up in the chamber of London, an apartment in Guildhall: he also presides over the affairs of masters and apprentices; and makes free of the city, &c.

His office lasts but for a year, being chosen annually on Midsummer-day: but the custom usually obtains to re-choose the same person; unless he has been chargeable with any misdemeanor in his office.

CHAMBERLAIN, vice. See *Vice-Chamberlain*.

CHAMBERLAYNE, EDWARD, in *Biography*, the descendant of a good family at Odington, in Gloucestershire, was born in 1616, and educated in St. Edmund's Hall, Oxford, where he was graduated M. A. in 1641. During the civil wars, he travelled through most of the countries of Europe; and after the restoration was made one of the fellows of the Royal Society, then founded. In 1669 he was secretary to the earl of Carlisle, and sent to Stockholm with the order of the garter to the king of Sweden: in the following year he was graduated LL.D. at Cambridge; and in 1679 he was appointed to instruct George prince of Denmark in the English language. He died at Chelsea in 1703. Dr. Chamberlayne was the author of several pieces, political and historical, relating to the circumstances and events of his time; but he has been principally known by his "*Angliæ Notitia*, or the Present State of England, with divers reflections upon the ancient state thereof;" Lond. 1668, 8vo.; of which a second part was published in 1671, 8vo. This was a popular work, and often reprinted during the author's life. It was enlarged by his son, and has been occasionally reprinted, so as to have arrived several years ago, at the 36th edition. A harmless instance of the author's vanity was recorded on his monument, viz. "That he caused some of his own books wrapped in cere-cloth to be buried with him, as they might possibly be of use to a remote age." The son of the former, *John Chamberlayne*, was educated at Trinity-college, Oxford, and became an industrious translator of works from foreign languages, of which he is said to have understood sixteen. His principal translations were "*Ostervald's Arguments of the Books and Chapters of the Old and New Testament*;" "*Fontenelle's Lives of the French Philosophers*;" "*Nieuwentyt's Religious Philosopher*;" "*Brandt's History of the Reformation*;" "*The Lord's Prayer in 100 Languages*;" "*Dissertations, historical, critical, theological, and moral, on the most memorable events of the Old and New Testament*." To the Royal Society, of which he was a member, he communicated those pieces, which are inserted in the *Philosophical Transactions*. After an useful and well-spent life he died in 1724.

CHAMBERLEN, HUGH, a celebrated accoucheur, was a native of London, and born about the middle of the 17th century. His father, Paul Chamberlen, and two of his brothers, were also practitioners in midwifery. They invented among them an instrument, the obstetric forceps, with which they were enabled to deliver women with safety, in cases where, before this discovery, the life of the child was usually lost. Of this invention Dr. Hugh Chamberlen gives the following account. "My father, brothers, and myself, (though none else in Europe that I know) have, by God's blessing, and our industry, attained to, and long practised a way to deliver women,

when the head, on account of some difficulty, or disproportion, cannot pass, without any prejudice to them or their infants; though all others (being obliged, for want of such an expedient, to use the common way) do and must endanger, if not destroy, one or both with hooks. By this manual operation, a labour may be dispatched, on the least difficulty, with fewer pains, and sooner, to the great advantage, and without danger, both of woman and child." Pref. to Chamberlen's Transl. of Mauriceau.

But though he attributes the merit of the discovery to his father and brothers conjointly with himself, yet as the father did not appear to have been acquainted with the instrument in the year 1665, when he published his "Midwives' Guide," a very indifferent performance; and the brothers have left no memorials of themselves; their names are little noticed. After establishing the reputation of the instrument here, Dr. Hugh went, in the year 1672, to Paris, expecting to gain equal éclat there, and intending, it is supposed, to sell the invention; but undertaking to deliver a woman whose pelvis was too narrow to admit the head of the child to pass, without mutilating it, and the woman dying, as Mauriceau, who had seen her before, had predicted, he found himself so degraded, that he thought it advisable to quit Paris, and go to Holland. Mauriceau was not a little pleased at his discomfiture, of which he gives an account in the 2d vol. of his "Obs. sur la Grossesse," Obs. 26. Addressing himself to Dr. Chamberlen, he tells him, "he must not think the Parisian women were to be delivered with the same ease as the English." "Lui faisant entendre qu'il s'étoit bien trompé, en croyant trouver autant de facilité à accoucher les femmes à Paris, comme il avoit pu trouver à Londres." In Holland he is supposed to have been more successful, and to have imparted the secret to Ruysch and Roonhuysen, then in high reputation at Amsterdam, and to have received for his invention a considerable reward. He now returned to London, where he soon acquired a considerable fortune. "Not so much, Mauriceau says, from the use of his forceps, as from the information he had obtained by reading, and translating his "Observations sur la Grossesse." We have no doubt but Chamberlen obtained much information from Mauriceau's book, which was the best treatise then extant on the subject of midwifery; but his forceps had its share in raising him to the high rank he attained in his profession, and which he continued to enjoy to the end of his days. In 1683, he published his translation of Mauriceau's observations, which was received with great avidity, and has since been frequently reprinted. We have not been able to learn at what time Dr. Chamberlen died. His forceps, simplified, and improved by Smellie, and further varied and altered by other teachers, continues to be esteemed as one of the most valuable instruments used in the practice of midwifery, and deservedly gives the inventor a distinguished rank among the improvers of the art. Haller Bib. Chir. Sur Essais sur l'art des accouchemens.

CHAMBERRY, or CHAMBERY, in *Geography*, formerly the chief city of Savoy, now the capital of the department of Mont Blanc, and principal place of a district, is situated in a pleasant valley on the river Leife. It has a castle seated on an eminence, and is surrounded with mountains, but not fortified. Under most of the houses are piazzas, where people may walk without being incommoded in the worst weather. Its suburbs are large and handsome, and in the center of the town is the ducal palace. It contains two parochial churches, and 10,300 inhabitants: the north canton contains 14,965, and the south 14,989; the former contains $147\frac{1}{2}$ kilometres and 12 communes, and the latter 195 kilometres and 17 communes. This town was taken by

the French in 1792. The height of the first floor at St. Jean Baptiste is 352 feet below the lake of Geneva, or 878 feet above the Mediterranean. It is 27 miles N.E. of Grenoble, and 85 N.W. of Turin. N. lat. $45^{\circ} 35'$. E. long. $5^{\circ} 50'$.

CHAMBERS, EPHRAIM, in *Biography*, a person whose name deserves to be particularly recorded in a work of this kind, as he was the first, who, in this country, formed the plan, and undertook the execution of a scientific dictionary, that might be said to comprehend the whole circle of the arts and sciences; and in this respect it differed from Harris's *Lexicon Technicum* which preceded it, and which furnished many of the mathematical articles. The few particulars that are known concerning him are collected and arranged by Dr. Kippis, in the last edition of the *Biographia Britannica*. The place of his nativity was Kendal, in the county of Westmoreland; but the time of his birth and the duration of his life, cannot, from any documents that remain, be precisely ascertained. His parents were Quakers; but when he came into the world, he does not seem to have manifested any attachment to their profession. In his education he probably enjoyed no advantages besides those that were necessary to qualify him for trade. At a proper age he was bound apprentice to Mr. Senex, the globe-maker; and during his residence with this skillful mechanic he acquired that taste for literature and science, which marked the progress and directed the occupation of his future years. At this early period he formed the design of his grand work, the "Cyclopædia;" and it is said, that some of the first articles of it were written behind the counter of Mr. Senex. Apprised that the execution of the plan which he had conceived was incompatible with the avocations of trade, he quitted business; and having made such arrangements as were necessary to procure for him a subsistence in the prosecution of it, he took chambers at Gray's-inn, where he chiefly resided during the remainder of his life. The first edition of the *Cyclopædia*, which must have been the result of many years' intense application, appeared in 1728, in two volumes, folio. It was published by subscription, at the price of four guineas, and the list of subscribers was very respectable. The dedication to the king is dated Oct. 15th, 1727. The reputation which Mr. Chambers acquired by the execution of this undertaking, procured him the honour of being elected into the Royal Society, Nov. 6, 1729.

In less than 10 years, a second edition became necessary, which was accordingly printed, with corrections and additions, in 1738. Instead of a new edition, the proprietors had proposed to give a new work. Mr. Chambers had actually prepared a considerable part of the copy with that view; and more than 20 sheets were printed off. In pursuance of this plan, it was their intention to have published a volume in 1737, and to have proceeded annually in supplying an additional volume, till the whole was completed. But they were diverted from executing their purpose, by a bill which passed in the House of Commons, though it was rejected in the House of Lords, and which obliged the publishers of all improved editions of books, to print the improvements separately. Whilst this edition was in agitation, Mr. Bowyer, the learned printer, had formed some extensive ideas of improving the dictionary; but the plan, whatever it was, did not appear to have been reduced to practice. About this time Mr. Bowyer had a dispute with Mr. Chambers concerning the title of the work, proposing to substitute "Encyclopædia" for "Cyclopædia." Mr. Chambers vindicated the title he had adopted, and persevered in retaining it. See the article CYCLOPÆDIA. The second edition of Mr. Chambers's dictionary was so favourably received by the public,

lie, that a third was called for in the very next year, 1739; a fourth, in 1741; and a fifth, in 1746. This rapid sale of a work, so large and expensive, must be considered, not only as a striking testimony of the general estimation in which it was held, but likewise, as a strong proof of its real utility and merit.

Although the *Cyclopædia*, denominated by Mr. Bowyer, "the pride of booksellers, and the honour of the English nation," was the grand business of Mr. Chambers's life, and may be regarded as almost the sole foundation of his fame, his attention was not wholly confined to this undertaking. He was concerned in a periodical publication, entitled "the Literary Magazine," which was begun in 1735; and he also engaged, in conjunction with Mr. John Martyn, F.R.S. and professor of botany at Cambridge, in preparing a translation and abridgment of the "Philosophical History and Memoirs of the Royal Academy of Sciences at Paris." This work, which was comprised in 5 volumes, 8vo., did not appear till the year 1742, some time after our author's decease. Mr. Martyn, in a subsequent publication, has severely censured Mr. Chambers's part in this abridgment. The only other work ascribed to Mr. Chambers, is a translation of the "Jesuit's Perspective," from the French, in 4to., which has been several times reprinted. The indefatigable industry which Mr. Chambers employed in his literary and scientific collections, may be inferred from the account given by Mr. Airey, his amanuensis, who asserts that, between the years 1728 and 1733, he copied nearly 20 folio volumes, so large as to comprehend materials, which, if they had been printed, would have formed 30 volumes of the same size. Mr. Chambers, however, acknowledged, that, if they had been printed, they would neither have been sold nor read. Mr. Chambers, by his incessant application, so far impaired his health, that he was obliged to retire, occasionally, to a lodging at Canonbury-house, near Islington; and to make an excursion to the south of France. At his return to England, he died at Canonbury-house, and was buried in Westminster Abbey, where the following inscription, written by himself, is placed on the north side of the cloisters of the abbey:

"Multis pervulgatus,
Paucis notus;
Qui vitam; inter lucem & umbram,
Nec eruditus, nec idiota,
Literis deditus, transegit; sed ut homo
Qui humani nihil à se alienum putat.
Vita simul, & laboribus functus,
Hic requiescere voluit,
EPHRAIM CHAMBERS, R.S.S.
Obiit XV. Maii, M.DCC.XL."

"Heard of by many,
Known to few;
Who being neither very celebrated nor yet obscure,
Neither very learned nor yet ignorant,
Passed a life devoted to study;
And passed it as a man
Who was not inattentive
To any of the offices of humanity;
Having ended his days and his labours together,
Here wished to repose,
EPHRAIM CHAMBERS, F.R.S.
He died on the XVth of May,
M.DCC.XL."

The above narrative supplies us with no facts by which we may fix the age of Mr. Chambers. Supposing him to have been apprenticed at the age of 14, and to have quitted his service at 21; and conjecturing that he might be 60

years old when he died, there will remain a chasm of 27 years, from the termination of his apprenticeship to the year 1728, of which we have no account; but we may infer, from the extent of his work, which occupied his attention during this period, that he was fully employed. The intellectual character of Mr. Chambers seems to have been sagacity and attention. Indefatigable as a man of business, he had no leisure to pursue discoveries with the ardour of a philosopher. The whole occupation of his life seems to have consisted in collecting and communicating knowledge; and he undoubtedly possessed distinguished talents for the arrangement and illustration of the materials which he collected. His temper was cheerful, but impetuous; his mode of life reserved, solitary, economical, and regular. His literary labours unquestionably entitled him to more than he received; but the compensations which authors received from booksellers, were, at that period, far inferior to what, in certain instances, they have lately risen.

It may not be improper, for gratifying the curiosity of the readers of this article, to terminate it with a brief account of the "*Cyclopædia*," or the effects which it has produced in the literary world. Whilst a sixth edition was preparing, the proprietors thought that the work might admit of a supplement in two additional folio volumes. This business was committed to the late George Lewis Scott, esq.; but he was prevented from proceeding far in it, by being appointed sub-preceptor to his present majesty, when Prince of Wales. The chief management was then committed to Dr. John Hill, so well known by his voluminous and hasty publications. In his name, together with that of Mr. Scott, the supplement was published; and though it contained a number of valuable articles, it was far from being uniformly conspicuous for judgment and due selection. The proprietors afterwards determined to combine the whole into one work; and after several ineffectual efforts for accomplishing their plan, the business devolved on the editor of this *Cyclopædia*, who derived from the favour of the public, and the singularly rapid and extensive sale of the work, a recompence, which, independently of every other consideration, he reckoned amply adequate to his labour. This edition began to be published in weekly numbers, in 1778, and the publication was continued without a single interruption, till it was completed in the year 1785. The work was dedicated and presented to his majesty. The popularity of the "*Cyclopædia*," gave rise to a variety of similar publications; of many of which it may be truly said, that most of the articles which compose them, are extracted verbatim, or at least with very few alterations and additions, from this dictionary; and that they manifest very little labour of research, or of compilation. One defect seems to have been common to them all, with hardly any exception; and that is, that they do not furnish the reader with references to the sources from which their materials are derived, and the authorities upon which they depend. This charge was alleged by the editors of the French *Encyclopédie*, with some justice, but at the same time with unwarrantable acrimony against Mr. Chambers. The editors of that work (see *ENCYCLOPÆDIA*) while they pass high encomiums on Mr. Chambers's *Cyclopædia*, blend with them censures that are unfounded. They say, e. g. that the "merited honours it hath received would, perhaps, never have been produced at all, if, before it appeared in English, we had not had in our own tongue those works, from which Chambers has drawn without measure, and without selection, the greatest part of the articles of which his dictionary is composed. This being the case, what must Frenchmen think of a mere translation of that work? It must excite the indignation of the learned, and

give just offence to the public, to whom, under a new and pompous title, nothing is presented but riches of which they have a long time been in possession?" They add, however, after appropriate and justly deserved commendation; "We agree with him, that the plan and the design of his dictionary are excellent, and that, if it were executed to a certain degree of perfection, it would alone contribute more to the progress of true science, than one-half of the books that are known." However, what their vanity has led them to assert, viz. that the greatest part of Chambers's Cyclopædia is compiled from French authors, is not true. When Mr. Chambers engaged in his great undertaking, he extended his researches for materials to a variety of publications, foreign and domestic, and in the mathematical articles he was peculiarly indebted to Wolfius: and it cannot be questioned, that he availed himself no less of the excellent writers of his native land than those of France. As to the imperfections of which they complain, they were, in a great measure removed, as science advanced, by subsequent improvements; nor could the work, in its last state, be considered as the production of a single person. Nevertheless it cannot be conceived, that any scientific dictionary, comprised in four volumes, should attain to the full standard of human wishes, and human imagination. The proprietors, duly sensible of this circumstance, and of the rapid progress of literature and science in the period that has elapsed since the publication of Chambers's Cyclopædia, have undertaken a work on a much larger scale, which, with the encouragement already received and further reasonably expected, will, it is hoped, preclude most of the objections urged against the former dictionary. We shall here only add, that the compilers and editors of the French Encyclopédie, in their relative capacity, have produced a work, which, though entitled to the highest praise, is very far from being exempt from the imperfections of every human production. Of this the French themselves have not been unapprized: for notwithstanding the improvements successively made in the Paris Encyclopédie since its first appearance, it has been thought necessary to adopt a new plan, and to form upon it a work of immense bulk, which is gradually proceeding, and is not likely to be soon completed. See ENCYCLOPÆDIA and CYCLOPÆDIA. Biog. Brit.

CHAMBERSBURG, in *Geography*, a port-town of America, and the capital of Franklin county, in Pennsylvania. It is situated on the eastern branch of Conogochegue creek, through which might be opened an easy communication with the Potomac river; and principally consists of two large streets, intersecting each other at right angles, and leaving a public square in the center. It contains about 250 houses, handsomely constructed of brick or stone, two Presbyterian churches, a brick court-house, and a stone gaol. There is a printing-office in the town, and a paper-mill in its vicinity. The situation is favourable to trade and manufactures, and it has a lively and thriving appearance. The adjacent land is rich and fertile, and is highly cultivated. It is 157 miles W. of Philadelphia. N. lat. $39^{\circ} 53'$. W. long. $77^{\circ} 30'$.

CHAMBLEE, or **CHAMBLY**, a handsome and well-built fort on a river of the same name in Canada, about 12 or 15 miles S.W. from Montreal, and N. of St. John's fort. This castle, built by the French, stands close to the rapids on the river, and at a little distance has a grand appearance; the adjacent country being very beautiful, and the whole together forming a most interesting scene. It is in tolerably good repair, and a garrison is constantly kept in it. It was taken by the Americans in 1775, and retaken by the British in 1776.

CHAMBLEE, or *Sorelle River*, a river of Canada, issuing from lake Champlain, and running to the river St. Lawrence near the island of St. Peter; 300 yards wide when lowest, shoal in dry seasons, and yet of sufficient breadth for rafting timber, &c. at the spring and fall.

CHAMBLIS, or **CHAMBLY**, a town of France, in the department of the Oise, and district of Senlis; 13 miles W.S.W. of Senlis.

CHAMBOIS, a town of France, in the department of the Orne, and district of Argentan; 2 leagues N.E. of Argentan.

CHAMBON, a town of France, in the department of the Creuse, chief place of a canton in the district of Bouffiac; 8 miles E. of Gueret. The place contains 1482, and the canton 7143 inhabitants; the territory includes 255 kilometres and 16 communes.

CHAMBRON, **LE**, a town of France, in the department of the Loire, and chief place of a canton, in the district of St. Etienne; 1 league S.W. of St. Etienne. The place contains 1245, and the canton 9805 inhabitants; the territory comprehends $137\frac{1}{2}$ kilometres, and 12 communes.

CHAMBONLIVE, a town of France, in the department of the Correze, and district of Tulle; 5 miles E. of Uzerche.

CHAMBOSE, a town of France, in the department of the Rhone and Loire; 7 miles W. of Villefranche en Beaujolois.

CHAMBRANLE, in *Architecture* and *Joinery*, the border, frame, or ornament of stone, or wood, surrounding the three sides of doors, windows, and chimneys.

The chambranle is different in the different orders: when it is plain, and without mouldings, it is called, simply and properly, *band*, *case*, or *frame*.

The chambranle consists of three parts; the two sides, called *ascendants*; and the top, called the *traverse*, or *super-cilium*.

The chambranle of an ordinary door is frequently called *door-case*; of a window, *window-frame*.

CHAMBRE, **LA**, in *Geography*, a town of Savoy, or of the department of Mont Blanc, and chief place of a canton, in the district of St. Jean-de-Maurienne, seated on the Isere; 23 miles N.E. of Chamberry. The place contains 430, and the canton 4308 inhabitants, who are very subject to the goitre, or swelling of the neck; the territory includes 110 kilometres, and 9 communes.

CHAMBRE, in *Military Language*, a defective concavity sometimes found in the thickness of the metal in pieces of ordnance. *Un canon chambré* is a cannon badly cast, and liable to burst when fired.

CHAMBRER, or *faire chambrée*, is to put or collect together several soldiers or military people in one and the same chamber, in the same tent, or in one and the same barrack, for the purpose of eating, sleeping, and reposing themselves there.

CHAMBROIS, in *Geography*, a town of France, in the department of the Eure, and chief place of a canton, in the district of Berny; 5 miles W. of Berny. The place contains 1000, and the canton 11,262 inhabitants; the territory includes 225 kilometres, and 26 communes.

CHAMBRON, a town of the Netherlands, in the county of Hainaut, on the Dendre; 8 miles S.E. of Ath.

CHAM-CHOU-POU, a town of Chinese Tartary; 8 miles N.N.E. of Ning-yuen.

CHAMCHOZ, a town of Armenia; 145 miles E. of Erivan.

CHAMEAU, in *Zoology*. The Bactrian camel is described

scribed under this name by Buffon. See *CAMELUS Bactrianus*.

CHAMEAU-Léopard, the French name of the camel-leopard, *CAMELOPARDALIS Giraffe*, which see; called also by some late French writers *Chameau moucheté*.

CHAMEAU-Marin, in *Ichthyology*, the French name of *OSTRACION Turrilus*, Linn. which see.

CHAMEIASME, in *Botany*, Pluk. See *HOUSTONIA cœrulea*.

CHAMEIRAT, in *Geography*, a town of France, in the department of the Corrèze, and district of Tulle; 3 miles S.W. of Tulle.

CHAMELET, a town of France, in the department of the Rhône, and district of Villefranche; 3 leagues W. of Villefranche.

CHAMELOT, in *Commerce*. See *CAMBLET*.

CHAMFER, or *CHAMFERET*, in *Architecture*, an ornament consisting of half a scotia; being a kind of small furrow, or gutter, on a column; called also *strix*, and *stria*.

CHAMFERING, or *CHAMFRAINING*, is used for cutting the edge, or end of any thing aslope, or BEVEL.

CHAMFRAIN, in *Military Language*, a sort of armour, that served as a defence for a horse in combats. It was made of metal or boiled leather. It covered the fore part of the head, in the form of an adjusted mask. The chamfrain had on the middle of it an adjusted piece of iron, round, and sufficiently large, terminating in a point, for piercing every thing opposed to it. The chamfrain of the count de St. Pol, at the siege of Harfleur in 1449, under Charles VII. was valued at fifty thousand crowns of the money of that time; and that of the count de Foix, at the taking of Bayonne, was valued at fifteen thousand crowns of gold.

CHAMIER, DANIEL, in *Biography*, a French protestant divine, was a native of Dauphiné, and, after having been long minister of Montelimart, went, in 1612, to occupy the post of professor of theology at Montauban. He was much employed by his party in political negotiation with the court, and on all occasions manifested inflexible resolution. He is said to have drawn up the famous edict of Nantes, and he presided in several synods, having an excellent talent for the conduct of public business. Nor was he less distinguished for learning. Among his works we may enumerate a treatise, "*De Oecumenico Pontifice*," commended by Scaliger; and his "*Jesuits' Letters*," or epistles addressed to him by fathers Coton and Armand, with his observations. But his greatest work was entitled, "*Catholica Panstratia, or the Wars of the Lord*," in 4 vols. 4to., left incomplete, and containing a detailed view of the controversies between the Papists and Protestants, and a refutation of cardinal Bellarmine. It was printed at Geneva, with a preface by Turretin; and an abridgment of it was published by Spanheim in 1643, in one vol. fol. He also wrote a "*Corpus Theologicum*," printed at Geneva in 1653. He united the functions of the divine and of the soldier, and was killed by a cannon ball at the siege of Montauban, in 1621. Gen. Dict.

CHAMIL, in *Geography*. See *HAMI*.

CHAMILLARD, STEPHEN, in *Biography*, an eminent antiquarian, was born at Bourges in 1656, entered among the Jesuits at Paris in 1673, and took the vows in 1690. He was for some years a teacher of the belles lettres and philosophy in the schools of the society, and a distinguished preacher for 20 years. His erudition in the science of medals is certified by two judges of unquestionable authority, viz. Vaillant and Ezechiel Spanheim. He wrote several dissertations on particular medals preserved in his own

and other cabinets, some of which were inserted in the *Mémoires de Trevoux*, and some collected in a volume, entitled "*Dissertations sur plusieurs Medailles, Pierres gravées, & autres Monuments d'Antiquités*," Paris, 4to, 1711. He is said, however, to have been imposed upon with respect to two medals, a Pacatianus and an Anna Faustina, which, after exercising his erudition and talent at conjecture in two elaborate dissertations, were proved to be fictitious. Father Chamillard published a learned edition of "*Prudentius, in Usum Delphini*," Paris, 1687, 4to. Moreri.

CHAMIR, in *Geography*, a fortified town of Arabia, in the country of Yemen; 50 miles N.E. of Loheia. It is situated in the middle of the territories of the confederates of Hachid-u-Bakil, and it has cost the Imam no small trouble to retain possession of it. N. lat. 17° 15'. E. long. 43° 5'.

CHAMIRA, in *Botany*, Thunb. See *HELIOPHILA circaeoides*.

CHAMITIS, Gært. from the MSS. of Solander, in the possession of Sir Joseph Banks. Class and order, *pentandria digynia*. Nat. ord. *Umbellatæ*, Linn. *Umbelliferae*, Juss.

Gen. Char. *Umbel* none, or simple. *Invol.* none, or about eight-leaved. *Cal.* superior, five-toothed, permanent. *Cor.* petals five, ovate-oblong, obtuse, quite entire. *Stam.* filaments five. *Pist.* styles two, filiform; stigmas thickish; *Peric.* none. *Fruit* inferior, crowned with the calyx; divisible into two. *Seeds* two, egg-shaped, with three elevated lines on one side, flat on the other.

Sp. 1. *C. integrifolia*, Gært. tab. 22. fig. 4. Herb. of Sir Joseph Banks. "Leaves entire." *Stems* very short, branched, forming dense tufts. *Leaves* crowded, sheathing, linear-lanceolate; upper ones ovate-acuminate; sheaths egg-shaped, open, two-awned. *Flowers* white, solitary, terminating the little branches; peduncles capillary. *Fruit* small. Gærtner observes that this genuine umbelliferous plant is singular, not only on account of its solitary flowers, but also of its fruit, which is frequently divisible into three; as if the author of nature had compensated the defect of its umbel by the unusual number of its seeds. 2. *C. trifurcata*, Gært. tab. 22. fig. 4. Banks's Herb. "Leaves three-forked." *Leaves* crowded about the root, broad-linear, three-forked at the summit; segments divaricated, mucronate; sheaths broad, embracing the base of the stem. *Scapus* quite simple, about two inches high, naked, or furnished with one sessile tricuspidate leaflet. *Invol.* shorter than the umbel; leaflets six or eight, linear, acuminate, permanent. *Umb.* simple, equal; rays from eight to ten. *Fruit* four times larger than that of the preceding species, narrowed above, somewhat compressed. Both species are natives of Terra del Fuego.

CHAMITSCHÉ, in *Geography*, a town of Russia, in the government of Mogilev, on the borders of Poland; 40 miles S.S.W. of Mogilev.

CHAMKA, or *TCHAMKA*, a town of Asia, in the country of Thibet; 220 miles S.E. of Lassa.

CHAMMANENA, or *CAMMANENA*, in *Ancient Geography*, a district of Cappadocia Minor, which lay towards the west, and was watered by the river Halys.

CHAMNEISKOI, in *Geography*, a fortress of Russia, on the confines of China; 168 miles S.W. of Versch-Udinskoi.

CHAMOIS, in *Zoology*, a species of antelope, *Antilope rupicapra* of Pallas, Schrebers, Erxleben, and Gmelin; *Capra rupicapra* of Linnæus; *Rupicapra* of Pliny; *Le Chamois* of Buffon; *Gems* of Gefner; *Cemas Aeliani* at *Herodici Bochart*; and *Chamois Antelope*, Pennant. This animal is specifically known by having the horns erect, round, smooth, with the tips hooked backwards.

The chamois is about the size of the common goat. The head is of a whitish fawn colour, with a black, or brownish band, on each side. The hair of the body is short, like that of the stag, except in winter, when it becomes longer and thicker. It varies in colour according to the seasons of the year; in spring it is of a greyish ash-colour, in summer of a reddish fawn colour, in autumn of a fallow-brown mixed with black, and in winter of a blackish brown: the cheeks, chin, throat, outer parts of the ears, and the belly, whitish in general; and along the back is a narrow line of a blackish colour. The horns are about six inches long, or rather more, of a slender form, and placed nearly upright, with the tips uncinated, or bent backwards; these horns are slightly wrinkled towards the base, but have no appearance of annulations as in the rest of the antelope tribe. At the base of each horn, at the back part, is a longitudinal orifice in the skin, or lachrymal pit similar to that observed under the eyes of the common antelope. The tail is short, like that of the goat, and of a blackish colour.

Buffon's opinion of the chamois is well known. He believed the chamois, the wild, and the domestic goat to be only constant varieties of a single species, but all the later writers concur in separating the chamois from the goat; they have not only separated them as species, but divided them into two distinct genera, and not without sufficient reason. The chamois differs from the goat in having the horns small, almost smooth, and resembling that of the antelope in being destitute of the longitudinal ridge, so conspicuous in the horns of the goat tribe. The horns of the female goat are sometimes smaller than those of the chamois, but still possess the same longitudinal ridge or angle as those of the male. The lachrymal openings in the skin behind the horns distinguish it also from the goat. The goat, in a state of nature, inhabits the very summits of the highest mountains; the chamois is an inhabitant of alpine regions, but only those of the second stage, and is rarely found in the loftier elevations. The chamois is also rather smaller, and less active than the goat; it is destitute of the beard, which in the goat is very long; and the hair of the goat is always long and thick, or bushy, while the chamois is very bare of hair, like the antelope during the summer season.

The chamois is the only species of antelope, except the saiga, that is found in Europe. It inhabits the mountains of Dauphiny, Piedmont, and Germany, the alps of Switzerland and Italy, the Pyrenean mountains, several parts of Greece, and the mountains Caucasus and Taurus. It is an animal of a social nature, as four, five, or six are usually found in company together. Sometimes it appears in troops of fifteen or twenty together. There are certain times when they assemble in still greater numbers, and then again disperse in small parties over the mountains. The full-grown males have a strong and unpleasant odour, which is yet more powerful than that of the male goat during the coupling season, which is in September and October: the female brings forth its young in April and May. A young female chamois is in maturity at the age of eighteen months: they bring forth two or rarely three at a birth. The small ones follow the mother till September, or sometimes longer, if the hunters or the wolves do not disperse them. They are supposed to live 20 or 30 years.

During the summer the chamois prefers the sides of the more inaccessible mountains that are thickly clothed with forests, and which, by that means, are protected from the heat of the sun; it goes to pasture early in the morning, or in the evening only. It is also said to be an extremely timid animal, for when several of the chamois are as-

sembled together, one is placed as a centinel to warn the herd of the approach of any danger. Those who have observed the manners of the chamois attentively, affirm that it is only while they eat, that one of the herd is on the watch for this purpose, and in that case they agree with the mountain sheep, and various other animals; the centinel chamois gives the alarm of danger with a sharp hiss, upon which the whole herd flies off with the utmost rapidity. The sight of the chamois is very penetrating, and his scent remarkably acute. When it sees a man, it fixes its eyes upon him for an instant, and then flies off immediately. If the situation will admit, the animal retreats to the rocks, or some elevated point from which it can observe the objects of its apprehension, and again pursues its course, pausing at intervals, again to look back and notice the route of its pursuers, till it effects its escape, or is either overtaken or shot. In the chase it evinces every mark of extreme agitation and timidity. It feeds on herbs, making choice of the most delicate and tender parts, such as the flowers and young buds, especially those of an aromatic nature.

The flesh of the chamois is tolerable as an article of food, when in season: but is said, by its great heat, to engender fevers. The blood is extremely hot: they pretend that it possesses the same medicinal virtues as the blood of the ibex; the hunters sometimes mix the blood of the two animals together, and sell it for that of the ibex, which is in much request; or often sell that of the chamois alone for the blood of the latter. The skin of the chamois, when dressed, forms a kind of strong and supple leather of considerable utility for wearing apparel, as it takes a good dye either of yellow, brown, or black, and is remarkably durable.

The chase of the chamois is yet more dangerous than that of the ibex; even the mountaineers, who are accustomed from their infancy to climb the Alps, pursue them over the most desperate precipices at the peril of their lives, and accidents often happen to them, either in falling from the crags, or slipping on the ice in the pursuit. The hunters sometimes follow them with dogs; but the chamois often retreats to the rocky eminences sheltered with woods, where it would be impossible for the dogs, and difficult for the men, to approach them. The hunters occasionally assemble together, and dividing themselves into small parties, betake themselves to different stations; one party ascending the rocks by means of scaling ladders in the most convenient places near the steeper eminences, while another party is waiting in the route it is supposed the chamois will take when disturbed from its more inaccessible position; and other parties are again stationed in different avenues to intercept the animals, should they attempt to deviate from their usual track. In this manner many of the chamois are taken. They likewise kill them in the night time, or early in the morning when they quit the shelter of the woods to go out to graze. Most commonly, however, in the Alps, when the hunters discover a troop of the chamois, they fall out armed with their carbines, which they handle with much more facility than the fusil of the common huntsman, and pursuing the most secret ways over the rocks in different directions towards one rallying point, they come upon the herd by surprise, and kill them with little difficulty.

CHAMOMILE, in *Botany*. See **MATRICARIA** and **ANTHEMIS**.

CHAMOMILE, in *Gardening*. See **ANTHEMIS**.

CHAMOND, *St.*, in *Geography*, a town of France, in the department of the Loire, and chief place of a canton, in the district of St. Etienne. The place contains 4997, and the canton 14,930 inhabitants. The territory includes 187½ kilometres, and 8 communes.

CHAMONIX,

CHAMONIX, a town of the department of Lemane, and chief place of a canton, in the district of Bonneville. The place contains 1511, and the canton 3426 inhabitants; the territory includes 38½ kilometres, and 4 communes.

CHAMOS, or **CHEMOSH**, the idol or god of the Moabites.

The name of *Chamos* comes from a root, which, in Arabic, signifies *to make haste*; for which reason many believe *Chamos* to be the sun, whose precipitate course might well procure it the name of swift or speedy.

Farther particulars may be seen in Calmet's Dissertation on Baal Peor and *Chamos*, prefixed to his comment on the Book of Numbers.

CHAMO-TAO, in *Geography*, a small island, near the coast of China, in the Eastern Sea. N. lat. 37° 58'. E. long. 120° 50'.

CHAMOUNY, or **CHAMOUNI**, a valley, and also a town or village, that lie at the foot of **MONT BLANC**, which see. The inhabitants of this valley still retain a considerable share of that peculiarity in their manners, for which they have long been noted. The men are solely employed in hunting the wild-goat, in searching for crystals, and in acting as guides to strangers, whose curiosity leads them to ascend and explore the eminences of **Mont Blanc** and its adjacent summits; while all other work, domestic and agricultural, is left to the women. Since this valley has attracted so many travellers, the inhabitants of "Prieuse" affect genteel expressions in conversation, which form a glaring contrast with their natural rusticity. They load the stranger with civilities; and it is surprising to hear these rough mountaineers make use of the politest language. Almost a century has elapsed since the famous Pocock first visited the valley of Chamouny. The inhabitants were then wild and rough as the mountains surrounding them; but purity of manners and innocence graced their unfrequented huts: now, it is said, gold and vice have found their way to them. The ground-floor of the inn at Chamouny, near the foot of **Mont Blanc**, is elevated 3367 feet above the Mediterranean. For an account of the glaciers of Chamouny, see **MONT BLANC** and **GLACIERS**.

CHAMOUX, a town of Savoy, or department of **Mont Blanc**, in the county of Maurienne; 4½ miles N.W. of **Argentina**.

CHAMP DE BATAILLE, *Field of Battle*, in *Military Language*, is the ground on which an action is fought. The enemy, who obliges his adversary to quit this ground and abandon it to him, obtains the victory.

A good general must be sensible that the victory depends, in a great measure, on the nature of the field of battle; he is, therefore, always studious to derive primary advantages from the ground. The army that enjoys a superiority of position can act with so much the greater impetuosity against the enemy, who has to contend both with it and the advantages of ground.

A general who reckons chiefly on his infantry, against troops superior in cavalry, should choose positions that are broken, uneven, mountainous, steep, above all, enclosed; but if, on the other hand, he wishes to oppose his cavalry with advantage to infantry, he should endeavour to find ground a little elevated, but smooth, open, and not embarrassed or interrupted with woods, morasses, ditches, or enclosures.

CHAMP Clos. This was, from the commencement of modern history, and long afterwards, a place authorized by the laws made by sovereigns for the purpose, and consecrated to particular combats between those who wished to determine, in that manner, either a law-suit or dispute of

honour. This name was also given to the place destined or set apart for tournaments.

CHAMP de Mars, the *Field of Mars*, an open place or field in the neighbourhood of Paris, where the kings of France used frequently to review their troops, and where the French held their festivals after the revolution.

CHAMPS de Mars et de Mai, *Les*, in *Antiquity*, denoted those annual assemblies, which were held in the early period of the French monarchy, and in which whatever related to the general welfare of the nation was submitted to public deliberation, and determined by the suffrage of the people. These assemblies were called "Champs," because, according to the custom of all the barbarous nations, they were held in the open air, in some plain capable of containing the vast number of persons who had a right to be present: and they were denominated "Champs de Mars and de Mai" from the months in which they were held. Every freeman seems to have had a right to be present in these assemblies. In them every thing that concerned the happiness of their country, every thing that could be of benefit to the Franks, was considered and enjoined. Clotharius II. describes the business and acknowledges the authority of these assemblies; "they are called," says he, "that whatever relates to the common safety may be considered and resolved by common deliberation; and whatever they determine, to that I will conform." The statutory clauses, or words of legislative authority in the decrees issued in these assemblies, run not in the name of the king alone. "We have treated," says Childbert, in a decree A. D. 532, "in the assembly of March, together with our nobles, concerning some affairs, and we now publish the conclusion, that it may come to the knowledge of all." "We have agreed," says he elsewhere, "together with our vassals." Again, "it is agreed in the assembly in which we were all united." The Salic laws, the most venerable monument of French jurisprudence, were enacted in the same manner. In their charters, the kings of the first race are careful to specify that they were granted with the consent of their vassals. The historians likewise describe the functions of the king in these national assemblies in such terms, as imply that his authority there was extremely small, and that every thing depended on the court itself. These general assemblies also exercised supreme jurisdiction over all persons, and with respect to all causes. Moreover when any extraordinary aid was granted by freemen to their sovereign, it was purely voluntary. In the annual assembly of March or May, it was the custom to make the king a present of money, of horses or arms, or of some other thing of value. This custom was ancient, and derived from their ancestors the Germans. These gifts were considerable, and seem to have made no small part of the royal revenue. See on this subject the authorities cited by Dr. Robertson in his Hist. of Ch. V. vol. i. p. 431. &c.

CHAMPA, in *Geography*. See **CIAMPA**.

CHAMPACAM, in *Botany*. Rumph. See **MICHELIA**.

CHAMPADA, in *Natural History*, the name of a tree common in the woods of Malacca, and bearing a fruit much valued by the natives. It is a large tree, very full of branches, and these are very knotty, and, when cut, throw forth a thick and acrid juice like that of the tithymal. The fruit grows on the trunk and thick branches of the tree: the first appearance toward this is a large button or bud; this by degrees opens into a flower consisting of a great number of leaves, among which, when open, are seen the rudiments of the fruit; this appears very small at first, but it soon grows to a very considerable bigness, being, when ripe, twelve or fourteen inches long, and as much in circumference; it is shaped much like a melon. The rind is green, and is all

over,

over divided into small pentagons, in the center of each of which is a small black spot. The pedicle is thick and woody, and entering into the substance of the fruit, it divides itself into several branched fibres, which run through the whole substance of it, and meet in a point at the end. Within this large fruit there are contained a large number of kernels of the size of our common chestnuts, all hanging together in bunches, so as to resemble a cluster of grapes; these are confined in a narrow compass, being pressed firmly upon one another while the fruit is whole, but as soon as this is cut or burst open, they fly farther asunder, and hang to the stalks like grapes that are placed at a distance on the bunch, as some of our oblong kinds are. The people of Malacca are very fond of this fruit; they suck the pulpy matter which surrounds the kernels, and which is of a sweet and luscious taste, but of a disagreeable raw smell. The Indians are very fond of this fruit, as well for its qualities as its taste, for it is very heating, and when taken in large quantities, will inebriate people in the same manner as strong liquors. The kernels are much of the nature of our chestnuts, but of a less agreeable taste; they are eaten by way of food rather than as a delicacy, and the common way of eating them is boiled in water. Mem. Acad. Scienc. Par. 1699. p. 640.

CHAMPAGNAC-DE-BELAIR, in *Geography*, a town of France in the department of the Dordogne, and chief place of a canton in the district of Nontron; 12 miles N. of Périgueux. The place contains 784 and the canton 6117 inhabitants; the territory includes 107½ kilometers, and 12 communes.

CHAMPAGNE, PHILIP DE, in *Biography*, an eminent painter of history, portrait, and landscape, was born at Brussels in 1602, and received his earliest instructions from Bouillon and Michael Bourdeaux, two ordinary painters, and afterwards became a disciple of Fouquieres, under whose tuition he studied landscape. At the age of nineteen he visited Paris in his proposed journey to Rome, and by the practice of portrait painting with one L'Alleman, he made great progress in that branch of his art, as well as in history and landscape. During his residence at Paris, he formed an acquaintance and friendship with Nicolo Poussin, which were of great importance to him; and these artists were conjointly employed in painting the ornaments of the Luxembourg palace. On the death of Duchesne, whose daughter he married, he was appointed director of the queen's paintings, with a pension of 1200 livres a year, and apartments in the palace. At and near Paris he painted several historical pieces for churches and palaces, and several times took the portraits of the royal family, and of cardinal Richelieu. At the establishment of the Academy of Painting in Paris in 1648, he was one of the original members, and afterwards became professor and president. His assiduity in the exercise of his profession was such, that he arose at 4 in the morning, and in the course of the day allowed himself very little time for recreation. He painted with great facility, and paid particular attention to the subsequent correction of his pieces. Upon the arrival of Le Brun from Italy, though he had previously entertained the expectation of being first painter to the king, he manifested no dissatisfaction; but retiring from public business, indulged himself in the practice of his favourite art for his own amusement. He died in 1674. Champagne was correct in his designs, agreeable in his colouring, though it wants brilliancy, and well acquainted with the principles of perspective and architecture: nevertheless he partook of the coldness of his country, which had not been animated with the fire of Italy. De Piles observes, that all his knowledge consisted in a servile imitation,

in the performance of which he neither followed his genius, nor obtained the rules of art. His moral and sober character prevented his painting naked figures, indulging freely in fable, and painting even the portraits of the first nobility in France on a Sunday, though at other times he was very fond of getting money. His works, several of which have been engraved by the best masters, are very numerous in France; but a most capital picture of Champagne is Lewis XIII. kneeling before the Virgin and offering his crown. Pilkington. D'Argenville.

The nephew of the former, *John Baptist Champagne*, was born at Brussels in 1645, or, as some say, in 1643, and died in 1688. Having received instruction from his uncle, he visited Italy for the advantage of studying the works of the great artists. He adopted the style and manner of his uncle without deviating from them; but was inferior to him in design and execution. While he possessed many of his excellencies, he had also many of his defects. Pilkington.

CHAMPAGNE, in *Geography*, a town of France, in the department of the Ain, and chief place of a canton, in the district of Belley, 10 miles N. of Belley. The place contains 375, and the canton 6629 inhabitants: the territory includes 155 kilometres and 19 communes.

CHAMPAGNE, a town of France in the department of the Dordogne, and district of Riberac; 10 miles N. of Riberac.

CHAMPAGNE, before the revolution, a province of France, bordered on the E. by Lorraine and Franche Comté, on the S. by Burgundy and Nivernois, on the W. by the Isle of France and Picardy, and on the N. by Flanders; about 65 leagues long, and 45 broad: the land is fertile, and produces the celebrated wine called after its name, with much grain and pasturage. It contained two archbishoprics, Reims and Sens, and four bishoprics, Langres, Chalons, Troyes, and Meaux. The principal rivers are the Seine, the Marne, the Aube, the Meuse, and the Aisne. The capital was Troyes. Champagne now comprehends the departments of Marne, Ardennes, Aube, and Haute Marne.

CHAMPAGNE, in *Heraldry*, a name given by Ferne, and some other writers, to the line differing from the common lines, and called also *urdie*, and by Upton *vere*, from its resemblance to the ends of the figures of that sort of fur which is called *vair* by heralds.

CHAMPAGNE-Mouton, in *Geography*, a town of France, in the department of the Charente, and chief place of a canton, in the district of Confolens; 10 miles W. of Confolens. The place contains 1155, and the canton 6584 inhabitants: the territory includes 300 kilometres and 8 communes.

CHAMPAGNEY, a town of France, in the department of the Upper Saone, and chief place of a canton, in the district of Lure. The place contains 1968, and the canton 7691 inhabitants: the territory comprehends 180 kilometres and 9 communes.

CHAMPAGNOLE, a town of France, in the department of the Jura, and chief place of a canton, in the district of Poligny; 3 leagues S. E. of Poligny. The place contains 1474, and the canton 9906 inhabitants: the territory includes 300 kilometres, and 31 communes.

CHAMPAIN. See CAMPAIGN, and CHAMPION.

A Point CHAMPAIN, in *Heraldry*, is a mark of dishonour in the coat of arms of him who kills a prisoner of war after he has cried quarter.

CHAMPANS, in *Navigation*, are small flat-bottom vessels, used by the Chinese and Japanese. They have one mast rigged in the same manner as the main-mast of a junk, with a single sail made of cane; they seldom exceed 80 tons burthen; are constructed without iron or nail, and are unfit

tnst for rough weather. See *Sampans* under the article *Boat*.

CHAMPART, in our *Old Customs*, a duty, or tenure by which the tenant was to pay part of the fruits of the ground to the lord. It is also written *chaumpert*, and in the middle age Latin is called *campipars*, *camparcium*.

CHAMPARTORS, or **CHAMPERTORS**, are those who move pleas, or suits, or cause them to be moved, either by their own procurement or others; and sue them at their proper costs, to have part of the land, or other matter in variance: against whom lies a writ of *champarty*.

CHAMPARTY, or **CHAMPERTY**, *campipartitio*, in *Law*, a maintenance of any man in his suit, upon condition of having part of the thing in question, be it lands or goods; in case it be recovered.

The word comes from the French, *champ*, *field*, and *parti*, *divided*; the field, or thing contested for, being supposed to be divided between the *champartor* or maintainer, who carries on the party's suit at his own expence, and the person in whose right he sues. 1 Hawk. P. C. 257.

Thus, *champart*, in the French law, signifies a similar division of profits, being a part of the crop annually due to the landlord by bargain or custom. In our sense of the word, it signifies the purchasing of a suit, or right of suing:—a practice so much abhorred by our law, that it is one main reason why a *chose* in action, or thing of which one has the right but not the possession, is not assignable at common law; because no man should purchase any pretence to sue in another's right. These pests of civil society, says judge Blackstone, that are perpetually endeavouring to disturb the repose of their neighbours, and officiously interfering in other men's quarrels, even at the hazard of their own fortunes, were severely animadverted on by the Roman law: "qui improbe coeunt in alienam litem, ut quicquid ex condemnatione in rem ipsius redactam fuerit inter eos communicaretur, lege Julia de vi privata tenentur;" (Ff. 48. 7. 6.) and they were punished by the forfeiture of a third part of their goods and perpetual infamy.

This seems to have been an ancient grievance; for notwithstanding several statutes against it, and a form of writ accommodated to them in the time of Edward I. yet in that of Edward III. and also of Hen. VIII. it was enacted, that whereas redress on the former statute was only to be had in the King's Bench, which then followed the court: for the future it should likewise be cognizable by the justices of the Common Pleas, justices of assize, and justices of peace in their quarter-sessions: and this offence is punishable by common law and statute: the stat. 33 Edw. I. tit. 3. makes the offenders liable to three years imprisonment, and a fine at the king's pleasure. By stat. 28 Edw. I. c. 11. it is ordained, that no officer, nor any other, shall take upon him any business in suit, to have part of the thing in plea; nor shall any upon covenant give up his right to another; and if any do, and be convicted thereof, the taker shall forfeit to the king so much of his lands and goods as amounts to the value of the part purchased. The giving part of the lands in suit, after the end of it, to a counsellor for his reward, is not *champarty*, if there be no preceding bargain relating to such gift; but if it had been agreed between the counsellor and his client before the action brought, that he should have part for his reward, then it would be *champarty*. Bro. Champert. 3. And it is dangerous to meddle with any such gift, since it carries with it a strong presumption of *champarty*. 2 Inst. 564.

To this head may be referred the provision of the statute 32 Hen. VIII. c. 9. that no one shall sell or purchase any pretended right or title to land, unless the vendor hath re-
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ceived the profits thereof for one whole year before such grant, or hath been in actual possession of the land, or of the reversion or remainder; on pain that both purchaser and vendor shall each forfeit the value of such land to the king and the prosecutor. Bl. Com. vol. iv. See *MAINTENANCE*.

CHAMPÇON, in *Geography*, a town of France, in the department of the Mayenne; 2 leagues N.E. of Mayenne.

CHAMPDENIERS, a town of France, in the department of the Two Sèvres, and chief place of a canton, in the district of Niort; 10 miles N. of Niort. The place contains 1193, and the canton 6410 inhabitants; and the territory includes 160 kilometres and 13 communes.

CHAMPDIEU, a town of France, in the department of the Rhone and Loire; one league N. of Montbrison.

CHAMPEAUX, WILLIAM DE, Lat. *Campellensis*, in *Biography*, a famous scholastic philosopher and divine, was born in the 17th century, at Champeaux, a village of Bril near Melun, and studied under Anselm of Laon at Paris, in the church of which metropolis he was made archdeacon and scholastic. His reputation in teaching philosophy attracted many scholars, and particularly the celebrated Abelard. For an account of the jealousy excited by the merit of Abelard, see the article *ABELARD*. When the contentions occasioned by this jealousy terminated, De Champeaux retired, in 1113, to his bishopric of Chalons-sur-Marne. Soon after his removal to this see, he was called upon to give his benediction as abbot to St. Bernard, with whom he contracted an intimate friendship. He was present at many councils, and distinguished himself by his religion, zeal, and knowledge of the scriptures. He died in 1121. He wrote several treatises on logical and theological subjects, and also a book of sentences; but the only work which has been printed was a small tract on the "Origin of the Soul," published in the 5th volume of D. Marten's *Treasure of Anecdotes*. Moreri.

CHAMPEAUX, in *Geography*, a town of France, in the department of the Seine and Marne; 7 miles N.E. of Melun.

CHAMPEIX, a town of France, in the department of the Puy-de-Dôme, and chief place of a canton, in the district of Issoire; 2½ leagues N.W. of Issoire. The place contains 1924, and the canton 10,762 inhabitants: the territory comprehends 155 kilometres, and 17 communes.

CHAMPIER, SYMPHORIEN, called also *Camperius*, and *Campegius*, in *Biography*, was born, as he informs us in one of his numerous productions, at St. Saphorine, a castle in the Lyonnais, in the year 1472. Of the course of his studies we have no information, but that he early attached himself to books, and that he was versed in the works of Plato, Aristotle, and the most abstruse of the writers then in vogue, the titles of many of his works shew. Such as "Symphonia Platonis cum Aristotele, Galeni cum Hippocrate," &c. "Cribratio, Lima, et Annotamenta in Galeni, Avicennæ et conciliatoris Opera," and many similar trises, which serve to shew the bad taste of the writer, and that he fell in with the humour of the times in which he lived. Champier took his degree of doctor in medicine at Pavia in the year 1515, and in 1520, he was made consul at Lyons, an honour he again enjoyed in the year 1533, on returning from Italy, where he had been attending on Anthony duke of Lorraine. That he was in great credit at this time, is shewn by his having for his correspondents the principal physicians and philosophers of the age, and by his having sufficient interest to found a college of physicians at Lyons, which was existing at the time of the revolution

in France. He died in 1535. For the titles of his works, and little more than the titles are now known, see Haller Bib. and Eloy. Dict. Histor. His son Claudes was author of a work "*Sur les Singularités des Gaules*."

CHAMFIGNELLE, in *Geography*, a town of France, in the department of the Yonne, and district of Joigny; 9 miles N. of St. Fargeau.

CHAMPIGNON, in *Gardening*. See **AGARICUS**.

CHAMPIGNY SUR VEUDE, in *Geography*, a town of France, in the department of the Indre and Loire; 2½ leagues S. of Chinon.

CHAMPION, properly signifies a person who undertakes a COMBAT, in the place or quarrel of another: though the word is also sometimes used for him who fights in his own cause.

Hottoman defines *champion*, *certator, pro alio datus in duello à campo dictus, qui circus erat decertantibus definitus*: hence also the word *camp-fight*.

Du-Cange observes, that champions, in the strict and proper sense of the word, were persons who fought in lieu of those who, being obliged by custom to accept the duel, had yet a just excuse for dispensing with it, as being too old, or infirm, being ecclesiastics, or the like. He adds, that the champions were usually retained or hired for sums of money, and were held infamous. There were also some vassals, who, by the faith and homage sworn to their lord, were obliged to fight for them in case of necessity.

Some authors maintain, that any person was allowed the benefit of a champion, excepting parricides, and those accused of very heinous offences.

This custom of deciding differences by combat, was derived from the northern parts of Europe; whence it passed into Germany, and, with the Saxons, into England, and insensibly through the rest of Europe. See **DUEL**.

When two champions were chosen, the one on the part of the accuser, and another on that of the accused, it was always required there should be a decree of the judge to authorize the combat. When the judge had pronounced sentence, the accused threw a gage, or pledge, ordinarily a glove, or gauntlet; which being taken up by the accuser, they were both taken into safe custody till the day of battle appointed by the judge. If either of them fled after this, he was declared infamous, and deemed to have committed the crime in question. Nor were the accuser and accused now allowed to make up the matter; at least, not without the consent of the judge; which was never granted, without making the lord satisfaction for the right of inheritance to the effects of the vanquished.

Before the champions took the field, their heads were shaved, and they made oath, that "they believed the person who retained them was in the right; and that they would defend his cause to the utmost of their power." Each of them also swore with his hand on the crucifix "on his faith in baptism, on his life, on his soul, and on his honour, that he verily believed he had good and just cause of quarrel, and that he had not besides either on himself, or on his horse, or in his arms, any herbs, charms, paroles, supplications, conjurations, pacts, or incantations, of which he wished to avail himself." The weapons they generally used in a combat were a sword and buckler; some say, in England, only a club and buckler: when on horseback, they were armed at all points. In a civil combat, on a writ of right, the only weapons allowed them were *batons*, or staves, of an ell long, and a four-cornered leather target. Their weapons were blessed in the field by the priest, with great ceremony.

On the morning of the day appointed for the combat,

the two combatants set out on horseback with the visier taken off, and made their arms, both offensive and defensive, be carried before them. They proceeded softly and slowly, having each of them in his hand the image of the saint, to whom he addressed his devotion, and in whom he placed confidence. Philippe-le-Bel, in authorizing combats, ordered the lists to be eighty paces long and forty broad. But in civil combats it was customary to make them only about sixty feet square. On one side of the list, a court was erected for the judges of the court of common pleas, who attended in their scarlet robes. That court was to sit by sun-rising; and proclamation being made, the champions were introduced by two knights, and were dressed in a suit of armour, with red sandals, bare-legged from the knee downwards, bare-headed, and with bare arms to the elbows.

The action then began; at the sound of a trumpet they were to go to blows; after the number of blows or rencounters expressed in the cartel, the judges of the combat threw a rod into the air, to advertise the champions that the combat was ended. If it lasted till night, or ended with equal advantage on either side, the accused was reputed victor.

The punishment of the vanquished was that which the crime merited, whereof he was accused: if it were a capital crime, the vanquished was disarmed, led out of the field, and immediately executed, together with the party whose cause he maintained. If the conquered champion fought in the cause of a woman, she was burnt.

In civil combat, the combatants were bound to fight till the stars appeared in the evening; and if the champion of the tenant was able to defend himself till the stars appeared, the tenant prevailed in his cause; or if victory declared itself for either party, by the death of the other, which seldom happened, or by his proving *recrunt*, and pronouncing the word *craven*, judgment was finally given in his favour. Black. Com. book. iii. p. 339, &c.

Combats, from the very commencement of the French monarchy, and for a number of centuries afterwards, were lawful acts, ordered by their kings, demanded and solicited by bishops, or prescribed by the same bishops, who had courts *ad hoc* within the interior of their cloisters, ornamented and prepared for each combat at the expence of the champions, whilst the same prelates excommunicated kings and whole families for marriages contracted in even the seventh degree of consanguinity. Pope Eugenius III. when consulted respecting these combats, answered by a bull, that ancient usage must be complied with and submitted to. It can therefore hardly be supposed, that such pontiffs, though the successors of St. Peter, were much guided or directed by the Holy Spirit.

CHAMPION of the king, is an officer, whose business is, at the coronation of the king of England, to ride into Westminster-hall, armed cap-a-pié, when the king is at dinner, and throw down his gauntlet by way of challenge; pronouncing by a herald, "That if any man shall deny, or gainsay the king's title to the crown, he is there ready to defend it in single combat, &c." Which done, the king drinks to him, sending him a gilt cup with a cover, full of wine; which the champion drinks, and has the cup for his fee.

This office, ever since the coronation of Richard II. has been continued in the family of Dymocke, who held the manor of Scrivelsby in Lincolnshire, hereditary from the family of the Marmions, who had it before, by grand serjeanty; on condition that the lord thereof should be the king's champion. Accordingly, Sir Edward Dymocke performed

performed this office at the coronation of king Charles II. And a person of the name of Dymocke performed it at the coronation of his present majesty George III.

CHAMPION de Justice, a military order called *Angeliques Dorés de Saint Georges*. This order owed its institution to Constantine the Great, converted to the Catholic faith after a great victory, which he gained over the enemies of the Christian religion near *Masence*. Wishing to confide the care of the *labarum*, which he had adopted for a banner, in place of the eagle of the former Romans, to intrepid defenders, he chose from amongst those of his officers, who had distinguished themselves most in that celebrated battle, fifty gentlemen, who were to constitute the number of knights or chevaliers, that were by his regulation to be charged with the care of the *labarum*, when he took the field. The mark of the order was a golden cross with eight points hemmed and enamelled with gules, marked with flower-de-luces, and carrying on one side of it these four letters, I. H. S. V. in *hoc signo vinces*, and on the reverse the image of Saint George piercing the dragon. The knights were subject to the same rules and restrictions as those of the order of Malta, except in the article of celibacy. This order rendered itself so celebrated by its exploits, and particularly at the battle of Lepanto in 1571, that it had thirty grand masters of the imperial house of Comnenus. A good many kings and sovereign princes requested to become knights, among whom were John Sobiesky, king of Poland; Ferdinand Marie, elector of Bavaria, the Emperor Leopold First, and the Emperor Charles the Fifth, who declared himself chief of that body, and chose that his son should carry the banner at the battle of Lepanto, in which the Mahometans lost thirty thousand men, and had 400 galleys sunk.

CHAMPION, or rather *CHAMPAIN-lands*, are lands not inclosed; or large fields, downs, or places without woods or hedges.

CHAMPL, in *Geography*, a river of Germany, in the circle of Bavaria, which runs into the Regen at Cnam.

CHAMPLAIN, SAMUEL DE, in *Biography*, the principal founder of the province of Canada, was a native of Saintonge, and made his first voyages in the reign of Henry IV., as lieutenant to the Sieur de Monte. He visited all the harbours of Acadia, ran up the river St. Lawrence, gave a beginning to Quebec and Montreal, advanced to the lake still called by his name, and assisted the neighbouring savage tribes against the Iroquois. In another voyage he proceeded further up the river, and defeated the Iroquois in their own country. After his return to France in 1611 for the purpose of obtaining succours, he was sent back with the commission of king's lieutenant in 1613, and with proper requisites for fortifying Quebec. Here he remained, and was continued in his office under the associated company of Canada formed in 1628. But, in 1631, he was expelled with his other countrymen by the English; but, upon its being restored at the peace, he returned thither as governor-general in 1634, in which year he died. He maintained the character of an upright, courageous, active, and zealous officer in promoting the interest of his country, and of the settlement. He wrote, "*Voyages and Travels in New France, called Canada*," 4to. 1632, in which are many curious observations intermixed with instances of credulity. *Nouv. Dict. Hist.*

CHAMPLAIN, in *Geography*, a lake of North America, so called from the name of the subject of the preceding article, who first discovered it in 1603, whereas it was before his time called Corlaer's lake. This lake is next in size to lake Ontario, and lies nearly east from it, forming part of the line that

divides the states of New York and Vermont. The length from N. to S., says Morfe, is 80 miles; its breadth, where it is widest, 14; but according to Mr. Weld, (*Travels through North America*, vol. i. p. 299.) it is about 120 miles long, and of various breadths: for the first 30 miles, that is from South River to Crown Point, it is nowhere more than two miles wide; beyond this, for the distance of 12 miles, it is five or six miles across; then again it narrows, and at the termination of a few miles, again expands. That part called the "Broad Lake," because it is broader than any other, commences about 25 miles N. of Crown Point, and is 18 miles across in the widest part. Here the lake, which is said to occupy about 500,000 acres, is interspersed with a great number of islands, the largest of which, formerly called "Grand Isle, now "South Hero," says Weld, "North Hero," according to Morfe, is 15 miles long, and at a mean about four in breadth. The soil of this island is fertile, and it is said that 500 people are settled upon it. The other principal islands are North Hero, and Mitten island. They reckon in the whole not less than 60. The Broad lake is nearly 50 miles in length, and gradually contracts till it ends in a large river called Chambly, Richelieu, or South Sea Chamblee. The soundings of lake Champlain, except at the narrow parts which terminate its extremities, are generally very deep; in many places 60 and 70, and in some 100 fathoms. In proportion to its breadth and depth, the water is more or less clear; in the broad part it is as pure and transparent as possible. On the west side as far as Cumberland Bay, the lake is, for the greatest part, bounded by steep mountains, close to the edge of the water; at Cumberland Bay the ridge of mountains runs off to the N. W., and the shore becomes low and swampy. The east, or Vermont shore, is not, in general, much elevated: at the distance, however, of 12 miles from the lake, is a considerable mountain; the shores on both sides are very rocky; the islands are almost encompassed with rocks, so that it is dangerous to approach them within one or two miles in particular parts. In sailing along the shore when a breeze is blowing, a hollow murmuring noise is heard from the waters splashing into the crannies of the rocks. There are many streams which fall into the lake; the mouths of these on the western side are obstructed by falls, so that none of them are navigable; some few of these on the eastern or Vermont side, are navigable by small boats to a short distance. The scenery along various parts of this lake is extremely grand and picturesque, particularly beyond Crown Point; the shores are there beautifully ornamented with hanging woods and rocks; and the mountains on the western side rise up in ranges one behind the other in a very magnificent manner. This lake is well stored with fish, particularly salmon, salmon-trout, sturgeon, and pickerel; and the land on its borders, and on the banks of its rivers, is fertile and productive. At Ticonderago, which lies near the southern part of the lake, it receives the waters of lake George from the S.S.W., which is said to be 100 feet higher than this lake. The waters in lake Champlain generally rise from about the 20th of April to the 20th of June, from four to six feet, the greatest variation being not more than eight feet. It is seldom shut up with ice, until the middle of January, and the ice generally goes off very rapidly between the 6th and 15th of April.

CHAMPLAIN, the most northerly township of Clinton-county, in the state of New York, takes its name from the lake to which it is adjacent. It was granted to some Canadian and Nova Scotia refugees, who were either in the service of the United States during the war, or fled to them

for protection. The indigence or ill habits of these people occasioned the breaking up of the settlement; and it is now occupied by a better class of inhabitants. The lands are fertile; and through it run two rivers, well stored with fish. It has 575 inhabitants, and three slaves. By the state census of 1796, 76 of the inhabitants are electors.

CHAMPLEMY, a town of France, in the department of Nièvre, and district of Clamecy; four leagues S.S.W. of Clamecy.

CHAMPLITTE, a town of France, in the department of the Upper Saône, and chief place of a canton in the district of Gray; 12 miles N. of Gray. The place contains 2654, and the canton 9558 inhabitants: the territory includes 230 kilometres and 20 communes.

CHAMPROND, a town of France, in the department of the Eure and Loire, and district of Nogent-le-Rotrou; 15 miles W. of Chartres.

CHAMPROUENT, a town of Savoy; nine miles N. of Chambéry.

CHAMPS, a town of France, in the department of the Cantal, and chief place of a canton, in the district of Mauriac; the canton contains 5219 inhabitants; the territory comprehends 130 kilometres, and five communes.

CHAMPTERCIER, a town of France, in the department of the Lower Alps, and district of Digne; three miles W. of it.

CHAMPTOCE', a town of France, in the department of the Mayne and Loire, and chief place of a canton in the district of Angers; four leagues W.S.W. of Angers.

CHAMTOCEAUX, a town of France, in the department of the Mayne and Loire, and chief place of a canton in the district of Beaupreau; the place contains 1113, and the canton 8397 inhabitants; the territory includes 220 kilometres and 8 communes.

CHAMPVANS, a town of France, in the department of the Jura, and chief place of a canton in the district of Dole; one league S.W. of it.

CHAMPVANT, a town of France, in the department of the Upper Saône, and chief place of a canton in the district of Gray; one league south of it.

CHAMTA, or **T'CHAMTA**, a town of Asia, in the country of Thibet; 107 miles E. of Lassa.

CHAMTOA, a town of Asia, in the country of Thibet; 75 miles N.N.W. of Cont-choudfong.

CHAMUNY, a town, mountain, and valley of Savoy, in the lordship of Faucigny. See **CHAMOUNY**.

CHAMUSCA, a town of Portugal, in the province of Estramadura; three leagues N.E. of Santaren.

CHAMUTI, a river of Naples, which runs into the sea, six miles S.S.E. of Girace.—Also, a town of Naples, in the province of Calabria Ultra; five miles S.S.W. of Girace.

CHANA, or **CHANE**, in *Ancient Geography*, a navigable river of Asia, which discharged itself into the Cyrus, according to Strabo.

CHANAC, in *Geography*, a town of France, in the department of the Lozère, and chief place of a canton in the district of Marvejols, 2½ leagues S.W. of Mende. The place contains 1900, and the canton 5024 inhabitants: the territory includes 147½ kilometres and six communes.

CHANAID, a small island of Scotland, near the S.W. extremity of the island of Ila.

CHANAS, a town of France, in the department of the Isère, and chief place of a canton in the district of Vienne; four miles S.S.W. of Vienne.

CHANCAILLO, a sea-port of South America, in the Pacific Ocean, on the coast of Peru; N.W. of Lima. S. lat. 12° 5'.

CHANCAY, a town of South America in Peru, and principal place of a jurisdiction belonging to that of Guaura, in the archbishopric of Lima; situate about 10 leagues S. of Lima, in S. lat. 11° 33' 47". The town consists of about 300 houses and Indian huts: is very populous, and among other inhabitants, can boast of many Spanish families, and some of distinguished rank. Besides a parish church, it has a convent of the order of St. Francis, and an hospital chiefly supported by the benevolence of the inhabitants. The corregidor usually resides at Chancay, and appoints a deputy for Guaura. The adjacent country is naturally very fertile, and every where well watered by canals, cut from the river Passamayo, which runs about a league and a half to the southward of the town. These parts are every where sown with maize, for the purpose of fattening hogs, in which article is carried on a very considerable trade; the city of Lima being furnished from hence.

CHAN-CBAN, a town of Asia, in the kingdom of Corea; 12 miles S.W. of Long-Kouang.

CHANCE, a term we apply to events, to denote that they happen without any necessary foreknown or intending cause: or it is used to denote the bare possibility of an event, when nothing is known either to prevent or hinder it.

Our aim is, to ascribe those things to chance, which are not necessarily produced as the natural effects of any proper cause, which we can discover; but our ignorance and precipitancy lead us to attribute effects to chance, which have necessary and determinate causes.

When we say a thing happens by chance, we really mean no more, than that its cause is unknown to us: not, as some vainly imagine, that chance itself can be the cause of any thing. Although Aristotle in his *Ethics* (l. iii. c. 3.), enumerating the active, efficient causes of events, mentions chance as one of them; these several causes, he says, are nature, necessity, and chance; and besides these, mind or intellect, and whatever operates by or through man. However, from the consideration that chance itself cannot be the cause of any thing, Dr. Bentley takes occasion to expose the folly of that old tenet, "the world was made by chance."

The case of the painter, mentioned by Plutarch, (*περὶ Τυχῆς*) who, unable to express the foam at the mouth of a horse he had painted, threw his sponge in despair at the piece, and, by chance, did that which he could not before do by design, is an eminent instance of the force of chance: yet, it is obvious, all we here mean by chance is, that the painter was not aware of the effect; or that he did not throw the sponge with such a view; so that with respect to him it was fortuitous, because he did not design or foresee such an effect: not but that he actually did every thing necessary to produce it; inasmuch that, considering the direction wherein he threw his sponge, together with its form, specific gravity, the colours wherewith it was smeared, and the distance of the hand from the piece, it was impossible, on the present system of things, that the effect should not follow.

Chance, says Dr. Bentley (see Boyle's *Lecture Sermons*, vol. i. p. 44.), is but a mere name, and really nothing in itself; a conception of our own minds, and only a compendious way of speaking, by which we would express, that such effects as are commonly attributed to chance, were really produced by their true and proper causes, but without their designing to produce them. And in any event called casual, if you take away the real and physical causes, there remains nothing but a simple negation of the agent's intending such an event; which negative being no real entity, but a conception only of man's intellect wholly extrinsic to the action, can have no title to a share in the production. The

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adequate meaning of chance, as this ingenious writer observes, is a bare negation, signifying no more than this, that any effect among inanimate bodies, ascribed to chance, is really produced by physical agents, according to the established laws of motion, but without their consciousness of concurring to the production, and without their intention of such an effect. So that chance, in its true sense, is the same with nature, and both words are used promiscuously by some ancient writers (see Plato X. de Legibus) to express the same thing.

Chance is frequently personified, and erected into a chimerical being, whom we conceive as acting arbitrarily, and producing all the effects, whose real causes do not appear to us: in which sense the word coincides with the *Tuxn*, and *Fortuna*, of the ancients. See FORTUNE.

Chance is confounded with *Fate* and *Destiny*; and the word is also used for the manner of deciding things, the conduct or direction of which is left at large, and not reducible to any determinate rules or measures; or where there is no ground for preference; as at cards, dice, lotteries, &c.

The ancient *fors*, or *chance*, M. Placette observes, was instituted by God himself; and in the Old Testament we find several standing laws, and express commands, which prescribed its use on certain occasions: hence the Scripture says, the *lot*, or chance, *fell on St. Matthias*; when it was in question who should fill Judas's place in the apostolate.

Hence also arose the *sortes sanctorum*, or method of determining things among the ancient Christians, by opening some of the sacred books, and pitching on the first verse they cast their eye on, as a sure prognostic of what was to befall them. The *sortes Homerice, Virgilianæ, Prænestinæ*, &c. used by the heathens, were with the same view, and in the same manner. See SORTES.

St. Augustine seems to approve of this method of determining things future, and owns that he had practised it himself; grounded on this supposition, that God presides over chance, and on Proverbs xvi. ver. 33.

Many among the modern divines hold chance to be conducted in a particular manner by Providence, and esteem it an extraordinary way which God uses to declare his will, and a kind of immediate revelation.

CHANCES, *doctrine of*. This subject, no less useful than it is curious, does not appear to have engaged the attention of mathematicians in former times so much as its importance required. Until the beginning of the last, or, at least, the middle of the preceding century, little is to be found in any of their writings concerning it. Of the few problems which they had been accustomed to investigate, they withheld the solutions both from the public and from each other, and they seem to have considered the doctrine of chances rather as an exercise for their ingenuity, than as capable of being applied to any useful purpose. Before Mr. Huygens published his book "*De Ratiociniis in Ludo Aleæ*," no person had treated the subject methodically, and, with the exception of Messrs. Pascal and Fermat, who had solved a few problems of no great importance or difficulty, he appears to have been the first who attempted either to give rules for the solution of any question, or to lay down the principles from which those solutions might be deduced. To him, therefore, we are indebted for the first regular tract on this subject; although even *his* work, from the comparatively few problems which it contains, and the want of demonstrations to some of them, can hardly be regarded as an *elementary* treatise. To this work succeeded a small anonymous tract "on the Laws of Chance," which was published in

London in 1692, and a French publication of not much larger size, entitled, "*L'Analyse des Jeux de Hazard*," which was written by M. Monmort, and published in the year 1708. In this latter work, the author having chiefly insisted on the same mode of reasoning with Mr. Huygens, in the solution of his problems, Mr. de Moivre, (who considered such reasoning as neither genuine nor natural,) was induced, in his celebrated work on the Doctrine of Chances, (which was first published in 1717,) to adopt a plainer and less exceptionable mode, in which he has proceeded from the most simple to the most complicated cases; so that, by the variety of his problems as well as by the improvements and additions which he has made in two subsequent editions, he has rendered his work one of the best and most copious that has ever been written on the subject. In the year 1740, Mr. Thomas Simpson, in consequence, as he observes, of the high price of the preceding, and the imperfections of other books on the subject, was led to publish a small treatise on "the Nature and Laws of Chance," which, like his other publications, is not only clear and concise, but contains some problems, whose solutions had either never been attempted, or, at least, never before communicated to the public. Prior, however, to the two last-mentioned publications, a posthumous work of Mr. James Bernoulli was published in the year 1713, entitled, "*De Arte Conjectandi*," containing an explanation of Mr. Huygens's tract, and the solution of a great variety of other problems deduced from the general principles of combination. The second part of this valuable work has lately been translated into English by Mr. Baron Maseres, with copious notes and commentaries, and it is to be regretted that the other parts had not been given to the public in the same manner.

In the first volume of his Mathematical Repository, published in the year 1748, Mr. Dodson has introduced the solution of several questions in the doctrine of chances; but chiefly with the view of applying them to the doctrine of annuities and survivorships, which constitutes the principal part of his work. In the year 1765, and at other times, M. D'Alembert in his *Opuscules*, &c. wrote different essays; and about 15 years ago M. Condorcet published a small treatise on the same subject. But as these works are almost wholly confined to the investigation of events, whose probability or improbability can be ascertained by no computation, they serve more to shew the ingenuity of the authors than to answer any useful purpose. In addition to these, which are the principal publications on this subject, may be noticed a small tract, "*De Mensura Sortis*," given by Mr. De Moivre, in his "*Miscellanea Analytica*," and some papers written by him, by Messrs. Bernoulli, Euler, and others, in the *Acts of Leipzig*, the *Journal des Sçavans*, the *Philosophical Transactions*, &c. among which may be particularly mentioned an "Essay on the Method of calculating the exact probability of all Conclusions founded on Induction, and a 'Supplement' to that essay:—the one preserved from the papers of the late Rev. Mr. Bayes, and communicated, with an appendix, by Dr. Price to the Royal Society in the year 1762; the other chiefly written by Dr. Price, and communicated in the following year. These tracts contain the investigation of a problem, the converse of which had formerly exercised the ingenuity of Mr. Bernoulli, De Moivre, and Simpson. Indeed, both the problem and its converse may justly be considered not only as the most difficult, but as the most important that can be proposed on the subject; having (as Dr. Price well observes) "no less an object in view than to shew what reason we have for believing that there are in the constitution of things fixed laws, according to which events happen; and that, therefore,

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fore, the frame of the world must be the effect of the wisdom and power of an intelligent cause; and thus to confirm the argument taken from final causes for the existence of the Deity." While the solution of these problems require and display the highest mathematical skill, their application proves how much those are mistaken who have insinuated that the "doctrine of chances is of trivial consequence and unworthy of any serious inquiry." In truth, there is no part of the mathematics of more consequence, at least in this country, where the valuation of an immense property, and the future provision of many thousands entirely depend on a right knowledge of the subject. In addition to the tracts and papers already mentioned, it may be observed, that the last communication of Dr. Waring to the Royal Society, in the year 1791, contains the solutions of two theorems on this subject; but as the chief design of the present article is to explain the general principles on which all solutions in the doctrines of chances are founded, rather than to give a minute history of what has already been done, or an analysis of every particular case, it will be improper to proceed further with this account.

In order the more rightly to understand the subject it will be necessary to begin with the following definitions.

DEFINITION I. The *probability* of an event is the ratio of the chance for its happening to all the chances for its happening or failing: thus, if out of six chances for its happening or failing, there were only two chances for its happening, the *probability* in favour of such an event would be in the ratio of 2 to 6; that is, it would be a fourth proportional to 6, 2, and 1, or $\frac{1}{3}$. For the same reason, as there are four chances for its failing, the *probability* that the event will *not* happen, will be in the ratio of 4 to 6, or, in other words, it will be a fourth proportional to 6, 4, and 1, or $\frac{2}{3}$. Hence, if the fractions expressing the probabilities of an event's both happening or failing be added together, they will always be found equal to unity. For let a be the number of chances for the event's happening, and b the number of chances for its failing, the probability in the first case being $\frac{a}{a+b}$, and

in the second case $\frac{b}{a+b}$, their sum will be $= \frac{a+b}{a+b} = 1$.

Having therefore determined the probability of any event's either happening or failing, the probability of the contrary will always be obtained by subtracting the fraction expressing such probability from unity.

DEFINITION II. The *expectation* of an event is the present value of any sum or thing which depends either on the happening or on the failing of such event. Thus, if the receipt of one guinea were to depend on the throwing of any particular face on a die, the *expectation* of the person entitled to receive it would be worth 3s. 6d.; for since there are six faces on a die, and only one of them can be thrown to entitle the person to receive his money, the probability that such a face will be thrown being $\frac{1}{6}$ (according to Definition I.), it follows that the value of his interest before the trial is made, or which is the same thing, that his *expectation* is equal to *one-sixth* of a guinea, or 3s. 6d. Were his receiving the money to depend on his throwing either of two faces, his *expectation* would be equal to *two-sixths* of a guinea, or 7s. And, in general, supposing the present value of the money or thing to be received to be A , the probability of the event's happening to be denoted by a , and of its failing by

b , the *expectation* will be either expressed by $\frac{Aa}{a+b}$, or by

$\frac{Ab}{a+b}$, according as it depends either on the event's happening, or on its failing.

DEFINITION III. Several events are *inconsistent*, when, if one of them happens, none of the rest can: thus, if the sum S were to be received on throwing either an ace or a duce with a single die, it is evident that the expectation in this case would depend on either of two events which are *inconsistent* with each other; for if one particular face is thrown it is impossible that the other should be turned up at the same time. And since the value on the ace's being thrown is $\frac{S}{6}$, and its value on the duce's being thrown is also $\frac{S}{6}$, it follows that the whole expectation will be equal to S multiplied into the sum of the probabilities of the two events, or $\frac{1}{3}$; and this is universally true, whatever be the number of such events.

DEFINITION IV. Two events are *contrary*, when one or other of them must, and both together cannot happen.

DEFINITION V. An event is said to be *determined*, when it has either happened or failed.

DEFINITION VI. Events are *independent*, when the happening of any one of them does neither increase nor lessen the probability of the rest. Thus, if a person undertook with a single die to throw an ace at two successive trials, it is obvious (however his expectation may be affected) that the probability of his throwing an ace in the one is neither increased nor lessened by the result of the other trial.

THEOREM.

"The probability that two subsequent events will both happen, is equal to the product of the probabilities of the happening of those events considered separately."

Suppose the chances for the happening and failing of the first event to be denoted by b , and those for its happening only to be denoted by a . Suppose, in like manner, the chances for the second event's happening and failing to be denoted by d , and those for its happening only by c ; then will the probability of the happening of each of those events,

separately considered, be, according to Definition I. $\frac{a}{b}$ and $\frac{c}{d}$ respectively. Since it is necessary that the first event

should happen before any thing can be determined in regard to the second, it is evident that the expectation on the latter must be lessened in proportion to the improbability of the former. Were it *certain* that the first event would happen,

in other words, were $a = b$ or $\frac{a}{b} = 1$, the expectation on

the second event would be $= \frac{c}{d}$. But if a is less than b , and

the expectation on the second event is restrained to the contingency of its having happened the first time, that expectation will be so much less than it was on the former suppo-

sition as $\frac{a}{b}$ is less than unity. Hence we have $1 : \frac{a}{b} = \frac{c}{d}$

$: \frac{ac}{bd}$ for the true expectation in this case.

Corollary. By the same method of reasoning it will appear, that the probability of the happening of any number of subsequent events is equal to the "product of the probabilities of those events separately considered," and therefore if a always denote the probability of its happening, and b the probability of its happening and failing, the fraction

$\frac{a^n}{b^n}$

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$\frac{a^n}{b^n}$ will express the probability of its happening n times successively, and (by Definition I.) the fraction $\frac{b-a}{b}$ will express the probability of its failing n times successively.

Remark. It should be observed that, in some instances, the probability of each subsequent event necessarily differs from that which preceded it, while in others it continues invariably the same through any number of trials. In the one case the probabilities are expressed, as in the theorem, by fractions, whose numerators and denominators continually vary; in the other they are expressed, as in the corollary, by one and the same invariable fraction. But this perhaps will be better understood by the following examples.

1. Suppose, that out of a heap of counters, of which one part of them are white and the other red, a person were twice successively to take out one of them, and that it were required to determine the probability that these should be red counters. If the number of the white be 6, and the number of the red be 4, it is evident, from what has already been shown, that the probability of taking out a red one the first time will be $\frac{4}{10}$; but the probability of taking it out the 2d time will be different; for since one counter has been taken out, there are now only nine remaining; and since, in order to the 2d trial, it is necessary that the counter taken out should have been a red one, the number of those red ones must have been reduced to 3. Consequently, the chance of drawing out a red counter the 2d time will be $\frac{3}{9}$, and the probability of drawing it out the 1st and 2d time will (by this theorem) be $\frac{4 \times 3}{10 \times 9} = \frac{2}{15}$.

2. Suppose next, that with a single die, a person undertook to throw an ace twice successively: in this case the probability of throwing it the first, does not in the least alter his chance of throwing it the second time, as the number of faces on the die is the same in both trials. The probability, therefore, in each will be expressed by the same fraction, so that the probability, before any trial is made, will, by the preceding corollary, be $\frac{1}{6} \times \frac{1}{6} = \frac{1}{36}$. On these conclusions depend all the computations, however complicated and laborious, in the doctrine of chances. But this perhaps will be more clearly exemplified in the following problems, which, containing the solution of some of the most difficult and important cases, will serve to explain the principles on which every other investigation is founded in this intricate and exhaustless subject.

PROBLEM I.

To determine the probability that an event happens a given number of times and *no more*, in a given number of trials.

Solution. 1. Let the probability be required of its happening only once in two trials, and let the ratio of its happening to that of its failing be as a to b . Then since the event can take place only by its happening the first, and failing the second time, the probability of which is $\frac{a}{a+b} \times \frac{b}{a+b} = \frac{ab}{(a+b)^2}$, or by its failing the first and happening the second time, the probability of which is $\frac{ba}{(a+b)^2}$, the sum of these two fractions, or $\frac{2ab}{(a+b)^2}$, will be the probability required.

2. Let the probability be required of its happening only twice in three trials. In this case the event, if it happens,

must take place in either of three different ways. 1st. By its happening the first two, and failing the third time, the probability of which is $\frac{a^2b}{(a+b)^3}$. 2dly. By its failing the first and happening the other two times, the probability of which is $\frac{b^2a}{(a+b)^3}$; or, 3dly. By its happening the first and third, and

failing the second time, the probability of which is $\frac{aba}{(a+b)^3}$.

The sum of these fractions, therefore, or $\frac{3aba}{(a+b)^3}$, will be the required probability. By the same method of reasoning, the probability of its happening only *once* in three trials; or, which is the same thing, of its failing twice in three trials, may be found equal to $\frac{3bba}{(a+b)^3}$.

3. Let the probability of the event's happening only once in *four* trials be required. In this case it must either happen the first and fail in the three succeeding trials—or happen the 2d and fail in the 1st, 3d, and 4th trials—or happen the 3d and fail in the 1st, 2d, and 4th trials—or happen the 4th and fail in the 1st, 2d, and 3d trials. The probability of each of these being $\frac{ab^3}{(a+b)^4}$, the required probability will be

$\frac{4ab^3}{(a+b)^4}$; and for the same reason the probability of its happening three times and failing only once in four trials will be $\frac{4b^3a}{(a+b)^4}$.

4. Let the probability be required of its happening twice and failing twice in four trials: here the event may be determined in either of six different ways. 1st. By its happening the 1st and 2d, and failing in the 3d and 4th trials—2dly, by its happening the 1st and 3d and failing the 2d and 4th trials—3dly, by its happening the 1st and 4th and failing the 2d and 3d trials—4thly, by its happening the 2d and 3d and failing the 1st and 4th trials—5thly, by its happening the 2d and 4th and failing the 1st and 3d trials—or, 6thly, by its happening the 3d and 4th and failing the 1st and 2d trials. Each of these probabilities being expressed by $\frac{a^2b^2}{(a+b)^4}$, it follows that the sum of them, or

$\frac{6a^2b^2}{(a+b)^4}$, will express the probability required.

By proceeding in the same manner, the probability in any other case may be determined. But if the number of trials be very great, these operations will become exceedingly complicated, and therefore recourse must be had to a more general method of solution.

Supposing n to be the whole number of trials, and d the number of times in which the event is to take place, the probability of the event's happening d times successively, and failing the remaining nd times, will be $\frac{a^d}{(a+b)^d} \times$

$\frac{b^{n-d}}{(a+b)^{n-d}} = \frac{a^d \cdot b^{n-d}}{(a+b)^n}$. But as there is the same probability of its happening any other d assigned trials and failing in the rest, it is evident that this probability ought to be repeated as often as d things can be combined in n things, which, by

the known rules of combination, are $= \frac{n}{1} \times \frac{n-1}{2} \times \frac{n-2}{3}$

continued

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continued to d terms; the general rule therefore will be $\frac{a^d \cdot b^{n-d}}{a+b}^n$ multiplied into $n \times \frac{n-1}{2} \times \frac{n-2}{3} \times \frac{n-3}{4}$ continued to d terms.

Example. Supposing a person with six dice undertakes to throw two aces and no more; or, which is the same thing, that he undertakes with one die to throw an ace twice, and no more, in six trials, it is required to determine the probability of his succeeding, a being in this case = 1, $b = 5$, $n = 6$, and $d = 2$, the above expressions will become = $\frac{5^4}{6^6}$, multiplied into $6 \times \frac{5}{2} = \frac{625 \times 15}{46656} = \frac{2}{10}$ very nearly. Hence, since there are only two chances for his succeeding, while there are eight for his failing, the odds against him will be as four to one.

PROBLEM II.

To determine the probability that an event happens a given number of times in a given number of trials; supposing, as in the former problem, the probability of its happening each time to that of its failing to be in the ratio of a to b .

Solution. It will be observed that this problem materially differs from the preceding, in as much as the event in that problem was restrained so that it should happen neither more nor less often than a given number of times, while in this problem the event is determined equally favourable by its happening either as often or oftener than a given number of times, so that in the present case there is no further restriction than that it should not fall short of that number.

1. Let the probability be required of an event happening once at least in two trials.—If it happens the first, and fails the second time, or fails the first and happens the second time, or happens both times, the event will have equally succeeded. The probability in the first case is $\frac{ab}{a+b}$, the probability in the second is $\frac{ba}{a+b}$, and the probability in the third is $\frac{aa}{a+b}$; hence the probability required will be = $\frac{2ab + aa}{a+b}$.

2. Let the probability be required of its happening once in three times. Provided it has happened once at least in the first two trials, the event will have equally succeeded, whether it happens or fails in the third trial, and therefore $\frac{a^2 + 2ab}{a+b^2}$ will represent the probability in this case. But it may have failed in the first two and happened in the third trial, the probability of which is $\frac{bba}{a+b^3}$; adding this to the preceding fraction, we have $\frac{a^2 + 3a^2b + 3ab^2}{a+b^3}$ for the probability required. In like manner the probability of its happening once at least in four trials will be $\frac{a^3 + 3a^2b + 3ab^2 + a^4}{a+b^4}$, and the probability of its happening once at least in n times will be = $\frac{a^n + b^n}{a+b^n}$. In other words, since the event must happen

once at least, unless it fails every time, the probability required (by Def. I.) will always be expressed by the difference between unity and $\frac{b^n}{a+b^n}$.

3. Let the probability be required of an event's happening twice at least in three trials. In this case it will succeed if it happens the 1st and 2d, and fails the 3d time, if it happens the 1st and 3d and fails the 2d time, if it happens the 2d and 3d and fails the first time, or if it happens each time successively. The 1st three probabilities are $\frac{3a^2b}{a+b^3}$ and

the 4th is $\frac{a^3}{a+b^3}$; therefore the probability required will be = $\frac{a^3 + 3a^2b}{a+b^3}$. If the event is to happen twice at least

in four times, the probability of its happening during the first three times has been already found. Let it be supposed to have happened only once in these times, the probability of which, by the preceding problem, is $\frac{3abb}{a+b^3}$; then will the probability of its happening the 4th, after having happened once in the three preceding, be $\frac{3a^2b^2}{a+b^4}$, and therefore the

whole probability will be $\frac{a^3 + 3a^2b}{a+b^3} + \frac{3a^2b^2}{a+b^4} = \frac{a^4 + 4a^3b + 6a^2b^2}{a+b^4}$. By proceeding in the same manner, it may be found that the probability of an event's happening

twice at least in five trials, will be = $\frac{a^5 + 4a^4b + 6a^3b^2 + 4a^2b^3}{a+b^5}$

+ $\frac{a}{a+b} \times \frac{4ab^2}{a+b^4} = \frac{a^5 + 5a^4b + 10a^3b^2 + 10a^2b^3}{a+b^5}$.

And if the probability of the event's happening thrice in 4, 5, 6, &c. trials be required, they may, by pursuing the same steps, be found = $\frac{a^4 + 4a^3b}{a+b^4}$, $\frac{a^5 + 5a^4b + 10a^3b^2}{a+b^5}$, $\frac{a^6 + 6a^5b + 15a^4b^2 + 20a^3b^3}{a+b^6}$, &c. respectively. Hence

it follows, that if the binomial $a+b$ be raised to the n th power, the probability of an event's happening at least d times in n trials

will be = $\frac{a^n + na^{n-1}b + n \cdot \frac{n-1}{2} \cdot a^{n-2}b^2 + \dots + b^n}{a+b^n}$ that is, the series in the numerator must be continued till the index of a becomes equal to d .

Corollary. From this solution it appears that the series $b^n + nb^{n-1}a + n \cdot \frac{n-1}{2} b^{n-2}a^2$ to d terms, will express the

probability of the event's not happening so often as d times in n trials.

Example. Supposing a person with six dice undertakes to throw two aces or more in the 1st trial, what is the probability of his succeeding? In this case a, b, n , and d being respectively equal to 1, 5, 6, and 2, the above expression will become = $\frac{1 + 30 + 15 \times 25 + 20 \times 125 + 15 \times 625}{6^6}$

= $\frac{12,281}{46656}$. Hence the odds against his succeeding will be as 34375 to 12,281, or very nearly as 2.4 to one.

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PROBLEM III.

To determine the number of trials in which it shall become an equal chance, that an event happens d times; supposing still the ratio of the event's happening to that of its failing in any single trial to be as a to b .

Solution. Let n be the number sought: then since it appears, from the preceding corollary, that the probability of the event's not happening d times in n trials is equal to $b^n + n b^{n-1} a + n \cdot \frac{n-1}{2} b^{n-2} a^2 + \dots (d)$

and since this expression, from the nature of the problem, must be $= \frac{1}{2}$, it follows

that the series $1 + \frac{na}{b} + \frac{n \cdot n-1 \cdot aa}{2 \cdot b \cdot b} + \dots (d)$ will be $= \frac{1 + \frac{a}{b}}{2}$, and therefore in order to obtain a solution of this

problem, it will be necessary to find the unknown quantity n .

If a is $= b$, or, in other words, if the chances of the event's happening or failing are equal, the series will become simply

$$= 1 + n + \frac{n \cdot n-1}{2} + \frac{n \cdot n-1 \cdot n-2}{2 \cdot 3} \dots (d) = \frac{1+n}{2}.$$

But the first half of the terms of the binomial $(1+n)^n$ are equal to the rest of the terms, or half the whole power, and the whole number of terms, in any binomial, raised to the n th power, is $= n + 1$. Hence it follows, that the exponent, n , in this case will always be $= 2d - 1$; so that supposing a counter to have a black and a white face, and that it were required to determine the number of throws which would be necessary to make it an equal chance, that either face should be turned up, 3, 4, 5, &c. times, the number thus required will be 5, 7, 9, &c.

If, on the contrary, instead of being equal, the ratio of b to a is indefinitely great, or, which is the same thing, if the fraction $\frac{a}{b}$ is indefinitely small; let this fraction be made

$$= p, \text{ then we have } 1 + \frac{np}{1} + \frac{n^2 \cdot p^2}{2} + \frac{n^3 \cdot p^3}{2 \cdot 3} \dots (d) = \frac{1+p}{2}.$$

1st. Let d be $= 1$, then will the above equation become

$$n \times \log. \frac{1+p}{2} = \log. 2; \text{ that is, (since } p = \frac{p \cdot p}{2} + \frac{p^3}{3} - \&c. \text{ is equal the hyp. log. of } \frac{1+p}{2} \times p - \frac{p \cdot p}{2} + \frac{p^3}{3} - \&c. = \text{hyp. log. of } 2, \text{ and consequently, in as much as } p \text{ is indefinitely small, } np = .69314 \&c. \text{ or } \frac{1}{1.4427} \text{ very nearly.}$$

2dly. Let d be $= 2$, and the equation in this case will be $1 + np = \frac{1+p^2}{2}$, or (making $np = d + x$ and $a = d + 1$)

hyp. log. of $2 + \text{hyp. log. of } \frac{a+x}{a} = np$. But the fluxion of the hyp. log. of $\frac{a+x}{a}$ is $\frac{\dot{x}}{a} - \frac{x \dot{x}}{a^2} + \frac{x^2 \dot{x}}{a^3} - \&c.$

whose fluent corrected is $= \text{the hyp. log. of } a + \frac{x}{a} - \frac{x^2}{2a^2}$

$$+ \frac{x^3}{3a^3} - \&c.$$

Let s be made $=$ the hyp. log. of $2 + \text{hyp. log. of } a$, then

will $d + x$ be $= s + \frac{x}{a} - \frac{x^2}{2a^2} + \&c.$ and $x + \frac{x^2}{2a \cdot a - 1}$

$$- \frac{x^3}{3a^2 \cdot a - 1} + \&c. = \frac{a \cdot s - d}{a - 1} = \frac{a \cdot s - d}{d}.$$
 But this

series converges so extremely fast, that it will be necessary to take only the first term of it, and consequently x will be

$$= \frac{a \cdot s - d}{d}, \text{ or } .31237. \text{ Hence } d + x (= np) \text{ will be } = 2 - .31237 = 1.68763 \text{ nearly.}$$

3dly. If d be $= 3$, or $\frac{1+p}{2} = 1 + \frac{np}{1} + \frac{n^2 \cdot p^2}{2}$, let

$d + x$ as in the former case be $= np$ and $a = d + 1$; let m also be $= 1 + d + \frac{dd}{2}$, then will $np = \text{hyp. log. of}$

$$2 + \text{hyp. log. of } m + ax + \frac{x^2}{2} = \text{hyp. log. of } 2 +$$

$$\text{Flu. } \frac{a \dot{x} + x \dot{x}}{m + ax + \frac{x^2}{2}} = \text{hyp. log. of } 2m + \frac{ax}{m} + \frac{m - a \cdot x^2}{2m^2}$$

$$+ \frac{2aa - 2m - ma}{6m^3} \cdot x^3 + \&c. \text{ or (making } s = \text{hyp. log.}$$

$$2m) \ x + \frac{aa - m \cdot x^2}{2 \cdot m \cdot m - a} + \frac{2m + ma - 2aa \cdot x^3}{6m^2 \cdot m - a} + \&c.$$

$$= \frac{m \cdot s - d}{m - a} = \frac{2m \cdot s - d}{dd}, \text{ or, (neglecting all the terms in}$$

$$\text{this series except the first)} \ x = \frac{2m \cdot s - d}{dd} = . . . 3168.$$

Hence we have $np = 3 - .3168 = 2.6843$. By proceeding in the same manner when d is $= 4$, the value of x

$$\text{may be found } = \frac{1 \cdot 2 \cdot 3 \cdot m \cdot s - d}{d^3} \text{ (} m \text{ being in this case}$$

$$= 1 + d + \frac{dd}{2} + \frac{d^3}{6}). \text{ And universally if } m \text{ be}$$

$$\text{made } = 1 + d + \frac{dd}{2} + \frac{d^3}{2 \cdot 3} + \&c. (d) \text{ and } s =$$

$$\text{the hyp. log. of } 2m; \text{ the value of } x \text{ will always be } = \frac{1 \cdot 2 \cdot 3 \cdot 4 \dots d - 1 \cdot m \cdot s - d}{d^{d-1}}, \text{ which, in every case, may}$$

be found very nearly equal to $-\frac{3}{10}$; so that when the ratio

of b to a is indefinitely great n will always be very nearly $=$

$$\frac{d - .3}{d} \times \frac{b}{a}; \text{ and since it is } = 2d - 1 \text{ when } b \text{ and } a \text{ are}$$

$$\text{equal, it follows that the true value in all intermediate cases must be between these limits, or nearly } = \frac{b}{a} \times d - .3 +$$

$$d - .7. \text{ If } d, \text{ however, be a great, and } \frac{a}{b} \text{ a small number,}$$

the value will be expressed with sufficient accuracy by the fraction $\frac{bd}{a}$.

Example 1. In how many throws with four dice may it be undertaken to turn up the four aces.

Ans. The number of chances for the event's failing in any single

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single trial being $6^4 - 1 = 1295$, while there is only one chance for its happening, $\frac{b}{a}$ will be $= \frac{1295}{1}$, and the number required will be $= 1295 \times 1 - .3 + 1 - .3 = 907$.

Example 2. In how many throws with four dice may it be undertaken to turn up 15 points twice?

Ans. The number of chances for throwing 15 points with 4 dice being 140 (see Prob. VII.), and the number of chances for missing being $6^4 - 140 = 1156$, $\frac{b}{a}$ will be

equal to $\frac{1156}{140}$, and therefore the number required will be $= \frac{1156}{140} \times 2 - .3 + 2 - .3 = 15$ nearly.

Example 3. Supposing a lottery, like that for the present year (1806), consisting of 25,000 tickets, of which 20 are to be prizes of 1000l. and upwards; how many tickets must be bought in order to make it an equal chance that the purchaser has one of those prizes?

Ans. In this case $\frac{b}{a}$ is $= \frac{24980}{20}$, and, therefore, the number required will be $= 1249 \times 1 - .3 + 1 - .7 = 875$ nearly.

It may be observed, that in this lottery the whole number of prizes of every description being 5210, it may be found by the preceding rule that it will be necessary to buy about 3 tickets, in order to make it an equal chance that the purchaser has a prize.

PROBLEM IV.

Suppose a given number (n) of counters of the same shape and size, but marked with different colours, (of which a are white, b are red, c are blue, &c.) to be mixed promiscuously, and that a given number (m) of them were to be taken out at random; it is required to determine the probability that there shall be precisely p white, q red, r blue, &c.

Solution. By the well known rules of combination, the number of ways in which a things may be combined, so that there shall be p things in each parcel, is $= \frac{a \cdot a - 1 \cdot a - 2 \cdot a - 3 \dots (p)}{1 \cdot 2 \cdot 3 \cdot 4 \cdot \&c. (p)}$; the number of ways in which b things may be combined, so that there shall be q things in each parcel, is $= \frac{b \cdot b - 1 \cdot b - 2 \dots (q)}{1 \cdot 2 \cdot 3 \&c. (q)}$; the number of ways in which c things may be combined, so that there shall be r things in each parcel is $= \frac{c \cdot c - 1 \cdot c - 2 \dots (r)}{1 \cdot 2 \cdot 3 \&c. (r)}$, and so on. The number of ways, therefore, in which, $a, b, c, \&c.$ things may be combined, so that there shall be p of the 1st, q of the 2d, r of the 3d, &c. will be $= \frac{a \cdot a - 1 \cdot a - 2 \dots (p)}{1 \cdot 2 \cdot 3 \&c. (p)} \times \frac{b \cdot b - 1 \cdot b - 2 \dots (q)}{1 \cdot 2 \cdot 3 \&c. (q)} \times \frac{c \cdot c - 1 \cdot c - 2 \dots (r)}{1 \cdot 2 \cdot 3 \&c. (r)} \times \&c.$ But the number of ways in which n things may be combined, so that there shall be m things in each parcel, without any restriction as to their being composed of any particular sort, is $= \frac{n \cdot n - 1 \cdot n - 2 \dots (m)}{1 \cdot 2 \cdot 3 \&c. (m)}$. It follows, therefore, that in taking out m (or $p + q + r + \&c.$) counters,

the probability that there shall be precisely p of white, q of red, r of blue, &c. will be expressed by the fraction $\frac{a \cdot a - 1 \cdot a - 2 \cdot \&c. (p) \times b \cdot b - 1 \cdot b - 2 \cdot \&c. (q) \times c \cdot c - 1 \cdot c - 2 \cdot \&c. (r) \times \dots}{1 \cdot 2 \cdot 3 \cdot \&c. (m)} \times \frac{n \cdot n - 1}{2} \times \frac{n - 2}{3} \times \frac{n - 3}{4} \times \dots$

$\frac{c \cdot c - 1 \cdot c - 2 \cdot \&c. (r) \&c.}{1 \cdot 2 \cdot 3 \cdot \&c. (m)}$

Example. Supposing that out of a heap of 30 cards, consisting of 12 diamonds, 10 spades, and 8 clubs, 3 be taken out; it is required to determine the probability that there shall be one of each sort. Because n , the number of things, is $= 30$; m , the number of things taken out, $= 3$; $a = 12$, $b = 10$, $c = 8$, and p, q , and r each $= 1$, the above expression will be $= \frac{12 \times 10 \times 8}{30 \times \frac{29}{2} \times \frac{28}{3}} = \frac{48}{203}$.

Hence, the odds are as 155 to 48, or rather more than three to one against the contingency above-mentioned. If nine were taken out, of which four were to be diamonds, three spades, and two clubs, the odds against their being taken in that order would be very nearly 22,250 to one.

Corollary. If only counters of one colour are to be taken out, the fraction will be simply $= \frac{a \cdot a - 1 \cdot a - 2 \cdot a - 3 \dots (m)}{n \cdot n - 1 \cdot n - 2 \cdot n - 3 \dots (m)}$.

If counters of two colours, m will become $= p + q$, and the fraction expressing the probability will be $= \frac{a \cdot a - 1 \cdot a - 2}{2} \times \frac{b \cdot b - 1 \cdot b - 2}{3} \times \frac{c \cdot c - 1 \cdot c - 2}{4} \times \dots$. But if either $n \cdot n - 1 \cdot n - 2 \cdot n - 3 \dots (m)$ or $1 \cdot 2 \cdot 3 \cdot 4 \cdot \&c.$

p or q , and consequently a and b are very large numbers, the great multitude of terms involved in the operation will render it almost impracticable, and therefore it becomes necessary to have recourse to some method of reducing the labour.

Since the denominator $\frac{n \cdot n - 1 \cdot n - 2 \cdot \&c. (m)}{1 \cdot 2 \cdot 3 \cdot \&c. (m)}$ is $= \frac{n \cdot n - 1 \cdot n - 2 \cdot \&c. (a)}{1 \cdot 2 \cdot 3 \cdot \&c. (a)} \times \frac{n - a \cdot n - a - 1 \cdot n - a - 2 \cdot \&c. (p)}{1 \cdot 2 \cdot 3 \cdot \&c. (p)} \times \frac{n - a - r \cdot \&c. (q)}{4 \cdot \&c. (q)} (m - a) = \frac{n \cdot n - 1 \cdot n - 2 \cdot \&c. (a)}{m \cdot m - 1 \cdot m - 2 \cdot \&c. (p)} \times \frac{b \cdot b - 1 \cdot b - 2 \cdot \&c. (m - a)}{1 \cdot 2 \cdot 3 \cdot 4 \cdot \&c. (q)}$, the fraction $\frac{a \cdot a - 1 \cdot a - 2}{1 \cdot 2 \cdot 3 \cdot \&c. (p)} \times \frac{b \cdot b - 1 \cdot b - 2 \cdot \&c. (q)}{1 \cdot 2 \cdot 3 \cdot \&c. (q)} \times \frac{n \cdot n - 1 \cdot n - 2 \cdot n - 3 \cdot \&c. (m)}{1 \cdot 2 \cdot 3 \cdot \&c. (m)}$ will be $= \frac{a \cdot a - 1 \cdot a - 2}{2} \times \frac{b \cdot b - 1 \cdot b - 2}{3} \times \frac{n \cdot n - 1 \cdot n - 2 \cdot \&c. (a)}{n \cdot n - 1 \cdot n - 2 \cdot \&c. (a)} \times \frac{\&c. (q) \times m \cdot m - 1 \cdot m - 2 \cdot \&c. (p)}{1 \cdot 2 \cdot 3 \cdot \&c. (p)}$. But the last factor $\times b \cdot b - 1 \cdot b - 2 \cdot \&c. (m - a)$

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of $b, b-1, b-2$ &c. $(m-a)$ is $b-m+a+1$, therefore the first and following terms of the fraction $\frac{b \cdot b-1 \cdot b-2 \cdot \&c. (q)}{b \cdot b-1 \cdot b-2 \cdot \&c. (m-a)}$ will be $a+b-m, a+b-m-1$, &c. or (making $a+b-m=v$) $v \cdot v-1 \cdot v-2$ &c.; hence the required probability will be $\frac{a \cdot a-1 \cdot a-2 \cdot \&c. (p) \times v \cdot v-1 \cdot v-2 \cdot \&c. (a+q-m)}{1 \cdot 2 \cdot 3 \cdot \&c. n \cdot n-1 \cdot n-2 \cdot \&c.}$

$\times m \cdot m-1 \cdot m-2 \cdot \&c. (p)$ If counters of three colours are taken out, the fraction expressing the probability that there shall be p of a sort, q of b sort, and r of c sort, will, by pursuing the same steps, (and making $d=a+b$

$\frac{a \cdot a-1 \cdot a-2 \cdot \&c. (p)}{1 \cdot 2 \cdot 3 \cdot \&c. n \cdot n-1 \cdot n-2 \cdot \&c.}$ $\times \frac{b \cdot b-1 \cdot b-2 \cdot \&c. (q)}{1 \cdot 2 \cdot 3 \cdot \&c. n \cdot n-1 \cdot n-2 \cdot \&c.}$ $\times \frac{c \cdot c-1 \cdot c-2 \cdot \&c. (r)}{1 \cdot 2 \cdot 3 \cdot \&c. n \cdot n-1 \cdot n-2 \cdot \&c.}$ $\times \frac{d \cdot d-1 \cdot d-2 \cdot \&c. (a+b-r-m)}{1 \cdot 2 \cdot 3 \cdot \&c. n \cdot n-1 \cdot n-2 \cdot \&c.}$ $\times m$ $\cdot \frac{b \cdot b-2}{3} (q) \times d \cdot d-1 \cdot d-2 (a+b+r-m) \times m$ $\cdot \frac{m-1 \cdot m-2 (p+q)}{\dots (a+b)}$ which will also greatly lessen the

labour, provided a, b, p , and q are not very large, and that r be always put to denote the highest number.—In short, if only one set of counters or things be very numerous, and the others inconsiderable, an expression will always be obtained by proceeding in this manner which shall give the probability required with very little trouble.

Example. Supposing a lottery like that of the present year (1806) to consist of 25000 tickets, of which three are to be prizes of 20,000*l.* each, and three of 10,000*l.* each; and that a person had purchased 3000 of those tickets.—What is the probability of his having among them one prize of 20,000*l.* and one prize of 10,000*l.*? In this case n is equal to 25,000*l.*, $a=3$, $b=3$, $p=1$, $q=1$, $m=3000$, $r=2998$, and $d=22,000$; hence the above expression becomes $\frac{3 \times 3 \times 22000 \times 21,999 \times 21,998 \times 21,997 \times 3000 \times 2999}{25,000 \times 24,999 \times 24,998 \times 24,997 \times 24,996 \times 24,995} = .0777$. The odds therefore *against* his having those two prizes will be as 9,223 to 777, or nearly as 12 to 1.

PROBLEM V.

Suppose a given number (n) of counters marked a, b, c, d, e , &c. to be mixed promiscuously and taken out at random; to determine the probability that none of them shall come out in the order of the alphabet.

Solution 1. Let it be required to determine the probability that neither of the two counters marked a and b shall come out in the right order. The probability that any of the counters is taken out at any particular trial is compounded of the probability of its having previously failed, and of the probability of its being taken out at that particular trial. Now since the chance of b 's being taken out the first is $\frac{1}{n}$, and the chance of its being taken out the second (when there are only $n-1$ counters remaining) is $\frac{1}{n-1}$; the probability

that it is taken out the second, after having failed the first trial, will be $= 1 - \frac{1}{n} \times \frac{1}{n-1} = \frac{1}{n}$; the probability of its being taken out the third, after having failed the first two trials, will in like manner be $= 1 - \frac{1}{n} \times \frac{1}{n-1} \times \frac{1}{n-2} = \frac{1}{n}$; and universally the probability of its being taken out at any other trial, after having failed in the preceding ones, will be $= \frac{1}{n}$. The probability therefore, that it will *not* be taken out at any particular trial will be $1 - \frac{1}{n}$; hence the probability that b is *not* taken out

the second will be $1 - \frac{1}{n}$. And since the only case in which the condition of the problem can be defeated, when b is not the second taken out, is by a 's having been taken out the first; if this probability or $\frac{1}{n} \times 1 - \frac{1}{n}$ be subtract-

ed from $1 - \frac{1}{n}$ (or from the probability of b 's *not* being taken out the second without any restriction as to a) the remainder or $1 - \frac{2}{n} + \frac{1}{n \cdot n-1}$ will be the probability that

b is not taken out the second, and that a is taken out at any other trial than the first: that is, the fraction $1 - \frac{2}{n} + \frac{1}{n \cdot n-1}$ will express the probability that neither of the counters marked a and b will be taken out in their right order.

2. Let it be required to determine the probability that neither of the *three* counters marked a, b , and c , shall come out in their right order.—By reasoning as above, and *supposing the first trial to have been made*, the probability that the counters marked b and c shall not come out the second and third will be $= 1 - \frac{2}{n-1} + \frac{1}{n-1 \cdot n-2}$. The probability therefore that a is the first taken out (or $\frac{1}{n}$) being

multiplied into this expression will give $\frac{1}{n} - \frac{2}{n \cdot n-1} + \frac{1}{n \cdot n-1 \cdot n-2}$ for the probability of the only event

(when b and c have not been taken out in their right order) which can defeat the condition of the problem. This being

subtracted from $1 - \frac{2}{n} + \frac{1}{n \cdot n-1}$ (or the probability that b and c have not been taken out second and third without any restriction as to a) will give $1 - \frac{3}{n} + \frac{3}{n \cdot n-1} - \frac{1}{n \cdot n-1 \cdot n-2}$ for the probability that neither of the

three counters shall be taken out in their proper order.

III. In the same manner if $\frac{1}{n} - \frac{3}{n \cdot n-1} + \frac{3}{n \cdot n-1 \cdot n-2} - \frac{1}{n \cdot n-1 \cdot n-2 \cdot n-3}$ be subtracted from $1 - \frac{3}{n} + \frac{3}{n \cdot n-1}$

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$\frac{3}{n \cdot n - 1} - \frac{1}{n \cdot n - 1 \cdot n - 2}$ we shall have $1 - \frac{4}{n} + \frac{1}{n \cdot n - 1 \cdot n - 2 \cdot n - 3}$ for the probability that neither of the four counters marked a, b, c, d , shall be taken out in their right order. Hence it is manifest, if the number of counters to be taken out be m , and A, B, C, D , &c. be the several co-efficients of the binomial whose exponent is m , that the probability that neither of the counters come out in their right order will be expressed by $1 - \frac{A}{n} + \frac{B}{n \cdot n - 1} - \frac{C}{n \cdot n - 1 \cdot n - 2} + \frac{D}{n \cdot n - 1 \cdot n - 2 \cdot n - 3}$, &c. $(m + 1)$.

Corollary 1. If out of a given number of counters taken out, it were required to determine the probability that the first k of them should be in their right order, and the remaining m ones in the contrary, it will follow, since the fraction expressing the first of these contingencies is $\frac{1}{n \cdot n - 1 \cdot n - 2 \cdot n - 3 \dots (k)}$ and the fraction expressing the second or the contingency that none of the m counters shall come out in their proper order) is $1 - \frac{A}{n - k} + \frac{B}{n - k \cdot n - k - 1}$, &c. that the required probability in this case will be $\frac{1}{n \cdot n - 1 \cdot n - 2 \dots (k)}$ multiplied into $1 - \frac{A}{n - k} + \frac{B}{n - k \cdot n - k - 1} - \frac{C}{n - k \cdot n - k - 1 \cdot n - k - 2} + \text{&c. } (m + 1)$.

Corollary 2. If it be proposed to take out the whole of the n counters, or, in other words, if $n - k$ be m , then will the probability that the first k counters come out in their proper order, and all the remaining ones in the contrary be expressed by $\frac{1}{n \cdot n - 1 \cdot n - 2 \cdot n - 3 \dots (k)}$ multiplied into $1 - 1 + \frac{1}{2} - \frac{1}{2 \cdot 3} + \frac{1}{2 \cdot 3 \cdot 4} - \text{&c. } (m + 1)$. If $m + 1$ be a large number, this last series may be considered as infinite; and since, thus continued, it is known to be the number whose hyp. log. is -1 , the reciprocal of which is the number whose hyp. log. is $+1$. Deducting 1 therefore from 2.3025851 (or the hyp. log. of 10) the remainder 1.3025851 will be the hyp. log. of the number .367878. Hence the above probability in this case will be nearly $\frac{.367878}{n \cdot n - 1 \cdot n - 2 \cdot n - 3 \dots (k)}$.

Corollary 3. Supposing $n - k$ to be still m , and it were required to determine the probability of taking k things in their proper order, without any restriction as to the rest, it is evident that the above expression ought to be repeated as many times as k things can be taken in n things, or $n \cdot \frac{n - 1}{2} \cdot \frac{n - 2}{3} \dots (k)$ times, and consequently that the probability required will be very nearly $\frac{.367878 \text{ &c.}}{1 \cdot 2 \cdot 3 \cdot 4 \dots (k)}$. Hence, if .367878 &c. be put $= \pi$, and k be expounded by $o, 1, 2, 3$ &c. we shall have $\pi, \pi, \frac{\pi}{2}, \frac{\pi}{2 \cdot 3}$, &c. for the several

probabilities of taking out $o, 1, 2, 3$, &c. counters in their proper order; and $1 - \pi, 1 - 2\pi, 1 - 2\pi + \frac{\pi}{2}$, &c. for the several probabilities that $o, 1, 2, 3$, &c. or a greater number. will not be taken out in their proper order.

Corollary 4. If instead of one there be p counters marked with each of the letters a, b, c, d , &c. and it were required to determine the probability that k sorts shall come out in the order of the alphabet, and m sorts in the contrary order, the solution in this case will be easily obtained from that of the preceding problem. For since the permutations are $= p \cdot p - 1 \cdot p - 2$, &c. it follows that the probabilities of all the a 's being taken out first will be $= \frac{1 \cdot 2 \cdot 3 \dots (p)}{n \cdot n - 1 \cdot n - 2 \dots (p)}$,

or (making $1 \cdot 2 \cdot 3 \dots (p) = b$) $= \frac{b}{n \cdot n - 1 \cdot n - 2 \dots (p)}$. Hence the probability that all the counters of any particular class shall not be taken in succession will be $= 1 - \frac{b}{n \cdot n - 1 \cdot n - 2 \dots (p)}$; and by pursuing the same steps as in the solution of the preceding problem, the probability that the a 's do not come out first nor the b 's next will be $= 1 - \frac{2b}{n \cdot n - 1 \dots (p)} + \frac{b}{n \cdot n - 1 \cdot n - 2 \dots (p)} \times \frac{b}{n - p - 1 \cdot n - p - 2 \dots (p)} = 1 - \frac{2b}{n \cdot n - 1 \cdot n - 2 \dots (p)} + \frac{b^2}{n \cdot n - 1 \cdot n - 2 \dots (2p)}$, and the probability that neither the a 's, b 's, c 's, d 's, nor any other class will come out in their proper order (putting A, B, C , &c. for the quantities in Corollary I. of this problem), will be $= 1 - \frac{A b}{n \cdot n - 1 \cdot n - 2 \dots (p)} + \frac{B b^2}{n \cdot n - 1 \cdot n - 2 \dots (2p)} - \frac{C b^3}{n \cdot n - 1 \cdot n - 2 \dots (3p)} + \text{&c.}$ Now since $\frac{1}{n \cdot n - 1 \cdot n - 2 \dots (kp)}$ is the probability that k sorts shall be taken out in their right order; if this be multiplied into the foregoing series, &c. (as in Corollary I.) we shall have $\frac{A b}{n \cdot n - 1 \cdot n - 2 \dots (kp)}$

into $1 - \frac{A b}{n - kp \cdot n - kp - 1 \dots (kp + p)} + \frac{B b^2}{n - kp \cdot n - kp - 1 \dots (kp + 3p)} - \frac{C b^3}{n - kp \cdot n - kp - 1 \dots (kp + 3p)} + \text{&c. } (m + 1)$ for the probability that k sorts of counters are taken out in their proper order, and m sorts in the contrary order.

PROBLEM VI.

Supposing a solid with n regular faces to be thrown in continued succession by A, B , and C , and that the sum S be paid to the person who shall first throw any assigned face; to determine the value of the several expectations, or the probability of their obtaining this sum.

Solution. By the condition of the problem, A is to have the 1st, 4th, 7th, &c. throws; B the 2d, 5th, 8th, &c.; and C the 3d, 6th, 9th, &c. The probability of A 's throwing it the 1st time is $\frac{1}{n}$; the probability of his throwing it the 4th time depending on the contingency of his having missed it the first, and of B 's and C 's having missed it the

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2d and 3d times, may be found by reasoning as in the solution of the preceding problem, $= \frac{n-1}{n} \left\{ \frac{n-1}{n} \right\}^2 \times \frac{1}{n}$; the probability of throwing it the 7th time, depending on the contingency of his having missed it the 1st and 4th, of B's having missed it the 2d and 5th, and of C's having missed it the 3d

and 6th times, may be found $= \frac{n-1}{n} \Bigg)^6 \times \frac{1}{n}$, and so on.
In like manner the probability of B's throwing it the 2d,

5th, &c. times, will be $= \frac{n-1}{n} \frac{n-1}{n^3}$, &c. and the probability of C's throwing it the 3d, 6th, &c. times will be $= \frac{n-1}{n^3} \frac{n-1}{n^2}$, &c. Hence the whole expectation of A

will be $\frac{S}{n} \times 1 + \frac{n-1}{n} + \frac{n-1}{n} + \frac{n-1}{n} + \dots =$

$\frac{S \cdot nn}{n^3 - n - 1^3}$, the whole expectation of B = $\frac{S}{n} \times$

$$\frac{n-1}{n} + \left[\frac{n-1}{n} \right]^4 + \left[\frac{n-1}{n} \right]^7 + \dots = \frac{S. n. n-1}{n^3 - n - 1^3},$$

and the whole expectation of C = $\frac{S}{n} \times \frac{n-1}{n} \left[\frac{n-1}{n} + \frac{n-1}{n} \right]$

$$+ \frac{n-1}{n} + \&c. = \frac{S. n-1}{3}.$$

Corollary 1. If the solid be a cube, the odds in favour of A against B will be as 36 to 30, and the odds in his favour against C will be as 36 to 25. And supposing the sum S to be 101. the values of their respective expectations will be 31. 19s., 31. 6s., and 21. 15s.

Corollary 2. If, instead of a cube, the solid be a counter with two faces, n in this case will be $= 2$, and the odds in favour of A against B will be as 2 to 1, and the odds in his favour against C will be as 4 to 1; that is, their respective expectations in the sum S (supposing it to be 10l.) will be 5l. 14s., 2l. 17s., and 1l. 9s. nearly. If, on the contrary, the solid have a great number of faces, the chances will be nearly equal. Hence the advantage of having the priority in the throws will be greater or less in proportion as the faces are few or many in number.

Corollary 3. If instead of three there be d persons to throw the solid successively, the expectation of the 1st will be

$$\frac{S \cdot n^{d-1}}{n^d - n - 1} ; \text{ of the 2d } = \frac{S \cdot n^{d-2} \cdot n - 1}{n^d - n - 1} ; \text{ of the 3d } =$$
$$\frac{S n^{d-3} \cdot \sqrt[n-1]{2}}{n^d - n \cdot \sqrt[n-1]{d}}; \text{ of the 4th} = \frac{S \cdot n^{d-4} \sqrt[n-1]{3}}{n^d - n \cdot \sqrt[n-1]{d}} \text{ of the}$$

$$\frac{d - \text{ith}}{d} = \frac{S \cdot n \cdot \sqrt[n]{d - 1}^{d-1}}{n^d - n - 1}^{d-1}, \text{ and of the } d\text{th} = \frac{S \cdot n \cdot \sqrt[n]{d - 1}^{d-1}}{n^d - n - 1}^{d-1}.$$

PROBLEM VII.

To determine the chances of throwing any given number (p) of points with any number (m) of solids, having a given number (n) of regular faces.

Solution 1. Let the chances be required of throwing on two common dice any given number from 12 to 2. In order to throw 12, the two fixes must turn up together, and therefore there can only be one chance for this number. In order to throw 11, the fixes and fives may be changed alternately, and therefore there will be two chances for this number. The next number may be thrown by the two fives, or by a fix and four, and as these last may be alternately turned up, it follows that there are three chances for succeeding in this case. In the same manner nine points may be thrown by the turning up of the four and five, or of the fix and three; and since each of these admit of being alternately changed, the chances for throwing this number will be four. Again, eight points may be thrown by the two fours, the three and five, or the two and six coming up; and since the two last pairs admit of being changed alternately, the number of chances in this case will be five. For throwing seven points, the chances will be six; for either the three and four, the two and five, or the ace and six may be turned up, each pair of which admit of being alternately changed. The chances for six points are only five; consisting of the two alternate throws of an ace and five, or a four and duce, or of the single throw of two trays. The chances for throwing five points consist of the two alternate throws of an ace and four, or of a duce and tray, and therefore are just four. The chances for throwing four points consist of the alternate throws of an ace and tray, and of the single throw of two duces, and are therefore only 3. The chances for throwing three points consisting of the alternate throw of an ace and duce are no more than two; and the chance for throwing two points being limited to the two aces being turned up together must be a single one. Hence the chances for throwing 12, 11, 10, . . . 2 points being respectively 1, 2, 3, 4, . . . 1; if either of these be divided by 36, or the number of all the changes upon two dice, the quotient will give the probability for any number of points required.

By proceeding in the same manner, the chances may be determined when there are any greater number of dice, or when the solid has a greater number of faces than the common die. But the following computations, when three and four dice are thrown, will explain the process better than a more minute detail of it.

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WITH THREE DICE.

No. of Points.	Faces turned up.	No of Permutations.		No. of Points.	Faces turned up.	No. of Permutations.		No. of Points.	Faces turned up.	No. of Permutations.		No. of Points.	Faces turned up.	No. of Permutations.	
18	6. 6. 6	1	1	13	6. 4. 3	6		10	6. 3. 1	6		8	4. 3. 1	6	
17	6. 6. 5	3	3		5. 5. 3	3			6. 2. 2	3			3. 3. 2	3	21
16	6. 6. 4	3			5. 4. 4	3	21		5. 4. 1	6		7	5. 1. 1	3	
	6. 5. 5	3	6	12	6. 5. 1	6			5. 3. 2	6			4. 2. 1	6	
15	6. 6. 3	3			6. 4. 2	6			4. 4. 2	3	27		3. 3. 1	3	
	6. 5. 4	6			6. 3. 3	3			4. 3. 3	3			3. 2. 2	3	15
	5. 5. 5	1	10		5. 5. 2	3		9	6. 2. 1	6		6	3. 2. 1	6	
14	6. 6. 2	3			5. 4. 3	6			5. 3. 1	6			2. 2. 2	1	
	6. 5. 3	6			4. 4. 4	1	25		5. 2. 2	3			4. 1. 1	3	10
	6. 4. 4	3		11	6. 4. 1	6			4. 3. 2	6		5	3. 1. 1	3	
	5. 5. 4	3	15		6. 3. 2	6			4. 4. 1	3			2. 2. 1	3	6
13	6. 6. 1	3			5. 5. 1	3			3. 3. 3	1	25	4	2. 1. 1	3	3
	6. 5. 2	6			5. 4. 2	6		8	6. 1. 1	3		3	1. 1. 1	1	1
					5. 3. 3	3			5. 2. 1	6					
					4. 4. 3	3	27		4. 2. 2	3					

WITH FOUR DICE.

No. of Points.	Faces turned up.	No. of Permutations.	No. of Points.	Faces turned up.	No. of Permutations.	No. of Points.	Faces turned up.	No. of Permutations.	No. of Points.	Faces turned up.	No. of Permutations.				
24	6. 6. 6. 6	1	1	18.	6. 6. 5. 1	12			16	6. 6. 3. 1	12				
23	6. 6. 6. 5	4	4		6. 5. 4. 3	24				6. 5. 4. 1	24	15	6. 3. 3. 3	4	
22	6. 6. 6. 4	4			5. 5. 5. 3	4				6. 5. 3. 2	24		4. 4. 4. 3	4	
	6. 6. 5. 5	6	10		6. 6. 4. 2	12				5. 5. 5. 1	4		5. 4. 3. 3	12	
21	6. 6. 6. 3	4			6. 5. 5. 2	12				5. 5. 4. 2	12	14	5. 4. 4. 2	12	140
	6. 5. 5. 5	4			5. 5. 4. 4	6				5. 4. 4. 3	12		6. 6. 1. 1	6	
	6. 6. 5. 4	12	20		6. 6. 3. 3	6				6. 4. 4. 2	12		6. 5. 2. 1	24	
20	6. 6. 6. 2	4			6. 4. 4. 4	4	80			6. 4. 4. 2	12		6. 4. 2. 2	12	
	6. 6. 4. 4	6		17	6. 6. 4. 1	12				6. 3. 4. 3	12		6. 4. 3. 1	24	
	6. 5. 5. 4	12			6. 6. 3. 2	12				4. 4. 4. 4	1		5. 5. 3. 1	12	
	6. 6. 5. 3	12			6. 5. 4. 2	24				6. 6. 2. 2	6		5. 5. 2. 2	6	
	5. 5. 5. 5	1	35		6. 5. 5. 1	12			15	5. 5. 3. 3	6	125	5. 4. 3. 2	24	
19	6. 6. 6. 1	4			6. 5. 3. 3	12				6. 6. 2. 1	12		5. 4. 4. 1	12	
	6. 6. 5. 2	12			5. 5. 5. 2	4				6. 5. 3. 1	24		4. 4. 4. 2	4	
	6. 5. 4. 4	12			5. 5. 4. 3	12				6. 5. 2. 2	12		5. 3. 3. 3	4	
	5. 5. 5. 4	4			5. 4. 4. 4	4				5. 5. 4. 1	12		4. 4. 3. 3	6	
	6. 6. 4. 3	12			6. 4. 4. 3	12	104			5. 5. 3. 2	12		6. 3. 3. 2	12	146
	6. 5. 5. 3	12	56							6. 4. 3. 2	24				
										6. 4. 4. 1	12				

The chance for turning up 13, 12, 11, &c. points being the same with those for turning up 15, 16, 17, &c. points respectively, it will be unnecessary to proceed with the operation. The whole number of changes on 3 dice being $6 \times 6 \times 6 = 216$, and on 4 dice $6 \times 6 \times 6 \times 6 = 1296$, the probability of throwing any given number of points will be the fraction, whose numerator is given above, and whose denominator is either 216 or 1296, according as 3 or 4 dice are used; thus the probability of throwing 9 points with three dice is $\frac{25}{216}$, and the probability of throw-

ing 15 points with 4 dice is $\frac{140}{1296}$; that is, the odds in the 1st case *against* throwing them are as $7\frac{2}{3}$ to 1, and in the second case as 8 to 1.

If the solids have more faces than a cube, or if their number be much greater than is stated above, these operations will be rendered too complicated and laborious, and

therefore it becomes necessary to have a more general solution of the problem. Suppose a single solid to have n sorts of faces, of which one is marked A, r marked B, r^2 marked C, r^3 marked D, and so on to n terms, then will $1 + r + r^2 + r^3 + \dots + r^{n-1}$, represent the whole number of chances on such a solid, and each term of the series, divided by the whole, will represent the chance that any particular face will be turned up. If there be m such solids, (since the sum of the series is $\frac{1 - r^n}{1 - r}$) the whole number of chances on all those solids

$$\text{will be} = \frac{1 - r^n}{1 - r}^m = \frac{1 - r^n}{1 - r}^m \times \frac{1 - r^n}{1 - r}^m = 1 + m r + \frac{m \cdot m + 1}{2} r^2 + \frac{m \cdot m + 1 \cdot m + 2}{2 \cdot 3} r^3 + \&c. \text{ multiplied into } 1 - m r^n + \frac{m \cdot m - 1}{2} r^{2n} - \frac{m \cdot m - 1 \cdot m - 2}{2 \cdot 3} r^{3n} + \&c.$$

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+ &c. Now since the smallest number of points that can be thrown with those solids is m , the next $m + 1$, the third $m + 2$, and so on: it follows that the first term of the product of these two series, or unity, will represent the number of chances for throwing m points, the second term the number of chances for throwing $m + 1$ points, the third term the number of chances for throwing $m + 2$ points, &c. and that the term of the series, in which the exponent of r is $p - m$, will represent the number of chances for throwing p points.

But since this term arises from such terms of the first series, in which the exponents of r being $p - m$, $p - m - n$, $p - m - 2n$, &c. are respectively multiplied into the first, second, third, &c. terms of the second series, and since the last factor of the co-efficient of the term, whose exponent is $p - m$, is both in the numerator and denominator $= p - m$, it is evident that the whole co-efficient may be divided into $\frac{p - 1 \cdot p - 2 \cdot p - 3 \dots (m - 1)}{1 \cdot 2 \cdot 3 \dots (m - 1)} + \frac{p - m \cdot p - m - 1 \cdot p - m - 2 \dots (m)}{m \cdot m + 1 \cdot m + 2 \dots p - m \dots}$

and therefore that the term itself will be $= \frac{p - 1 \cdot p - 2 \cdot p - 3 \dots (m - 1)}{1 \cdot 2 \cdot 3 \dots (m - 1)} \times r^{p - m}$. In the same manner the co-efficient of the term in which the exponent of r is $p - m - n$ will be $= \frac{p - m - 1 \cdot p - m - 2 \cdot p - m - 3 \dots (m - 1)}{1 \cdot 2 \cdot 3 \cdot 4 \cdot (m - 1)}$, and the co-efficients of the terms in which the exponents of r are $p - m - 2n$, $p - m - 3n$, &c. will be $\frac{p - 2n - 1 \cdot p - 2n - 2 \dots (m - 1)}{1 \cdot 2 \cdot 3 \dots (m - 1)}$, $\frac{p - 3n - 1 \cdot p - 3n - 2 \dots (m - 1)}{1 \cdot 2 \cdot 3 \dots (m - 1)}$, &c.. Hence, if the first of the terms just mentioned be multiplied into 1; the second into $-mr^n$; the third into $\frac{m \cdot m - 1}{2} r^{2n}$ and $p - n$ be made $= d$, $p - 2n = e$, $p - 3n = f$, &c. the number of chances for throwing exactly p points will be equal to $\frac{p - 1}{1} \times \frac{p - 2}{2} \times \frac{p - 3}{3} (m - 1) \times r^{p - m} - \frac{d - 1}{1} \times \frac{d - 2}{2} \times \frac{d - 3}{3} (m - 1) \times m \cdot r^{p - m} + \frac{e - 1}{1} \times \frac{e - 2}{2} \times \frac{e - 3}{3} (m - 1) \times \frac{m \cdot m - 1}{2} r^{p - m} - \frac{f - 1}{1} \times \frac{f - 2}{2} \times \frac{f - 3}{3} (m - 1) \times \frac{m \cdot m - 1 \cdot m - 2}{2 \cdot 3} r^{p - m} + \&c.$ which series are to be continued till they either vanish or become negative. But if r be $= 1$, or, which is the same thing, if there be only one face of a fort on each die, the chances will be expressed simply by $\frac{p - 1}{1} \times \frac{p - 2}{2} \times \frac{p - 3}{3} (m - 1) - \frac{d - 1}{1} \times \frac{d - 2}{2} \times \frac{d - 3}{3} (m - 1) \times m + \frac{e - 1}{1} \times \frac{e - 2}{2} \times \frac{e - 3}{3} (m - 1) \times \frac{m \cdot m - 1}{2} - \&c.$

Remark. Since it appears from the preceding computations, that the chances continually increase till the number

of points required becomes a mean between the greatest and least possible number that can be thrown on the solids, and that they then as regularly decrease till the number of points required be the least than can be thrown on those solids; it will be best, if the number required be nearer the lesser than the greater extreme, to use, instead of the former, a number equally distant from that greater extreme. Thus, the greatest number that can be thrown on three common dice is 18, and the least is 3. If therefore the required number be 6, it will lessen the labour to find the number of chances for throwing 15; the latter being as much less than 18 as the former is greater than 3: if the chances for throwing 11 points on 4 dice be required, it will be most convenient to find the chances for throwing 17 points, the latter being as far distant from 24, the greatest, as the former is from 4, the least number that can be thrown on 4 dice.

Example. Let it be required to determine the chances for throwing precisely 24 points on 6 dice. In this case n is $= 6$, $p = 24$, $r = 1$, $m = 6$, $d (= p - n) = 18$, $e (= p - 2n) = 12$, $f (= p - 3n) = 6$, $g = 0$. The above expression therefore becomes $= 23 \times \frac{22}{2} \times \frac{21}{3} \times \frac{20}{4} \times \frac{19}{5} - \frac{17}{1} \times \frac{16}{2} \times \frac{15}{3} \times \frac{14}{4} \times \frac{13}{5} \times 6 + \frac{11}{1} \times \frac{10}{2} \times \frac{9}{3} \times \frac{8}{4} \times \frac{7}{5} \times 6 \times \frac{5}{2} - \frac{6 \times 5 \times 4}{2 \cdot 3} = 343$ and since 6^6 (or the number of all the changes on 6 dice) is $= 46,656$; the odds *against* throwing exactly 24 points will be as $12\frac{1}{2}$ to one; which also are the odds *against* throwing 18 points; these two numbers being equally distant, the one from the greater, the other from the lesser extreme.

PROBLEM VIII.

To determine the probability that an event shall happen p times successively in n trials, when the ratio of its happening to that of its failing is as a to b .

Solution. The probability that it happens the first p times is $\frac{a^p}{a + b}^p$. The probability that it happens p times after

having failed the 1st time is $\frac{b}{a + b} \times \frac{a^p}{a + b}^p$, and since

the probability of its failing any assigned time, without any restriction, as to its having either failed or not in the preceding time, is constantly $\frac{b}{a + b}$, the probability of its happening

p times successively, after having failed either the $p + 1$, $p + 2$, $p + 3$, ... $2p - 1$. preceding time, will be either $\frac{a^p}{a + b}^p \times \frac{2b}{a + b}$ or $\frac{a^p}{a + b}^p \times \frac{3b}{a + b}$ or $\frac{a^p}{a + b}^p \times \frac{4b}{a + b}$

&c.; so that if $\frac{a^p}{a + b}^p$ be made $= c$ and $\frac{bc}{a + b} = d$, the probability of its happening p times successively, after having failed in the preceding $p - 1$ trials will be pd , and the whole probability of its happening during the first $2p$ trials will be $= c + pd$.

In order to its happening p times successively at the end of $2p + 1$ trials, it must have failed *upon the whole* during the first p trials, and also in the $p + 1$ st trial. The probability, therefore, of its happening the next p trials after having failed in the first $p + 1$ trials will be $= 1 - c \cdot d$; which being added to $c + pd$ (the probability of its happening in the preceding $2p$ trials) will make the whole probability

probability of its happening p times in $2p+1$ trials = $c - cd + \frac{p+1}{2} \cdot d$.

In like manner the probability of its happening p times successively at the end of $2p+2$ trials will depend upon its having failed upon the whole during the first $p+1$ trials, and also in the $p+2$ d trial. The probability, therefore, in this case, will be $1 - c - d \times d = d - cd - dd$; which being added to $c - cd + \frac{p+1}{2} \cdot d$ (the probability of its happening p times in $2p+1$ trials) will give $c - 2cd + \frac{p+2}{2} \cdot d - dd$ for the whole probability of its happening p times successively in $2p+2$ trials. The probability of its happening p times in $2p+3$ trials may be found, by proceeding in the same manner, to be $= 1 - c - 2d \cdot d + c - 2cd + \frac{p+2}{2} \cdot d - dd = c - 3cd + \frac{p+3}{2} \cdot d - 3dd$.

The probability of its happening p times in $2p+4$ trials to be $= 1 - c - 3d \cdot d + c - 3cd + \frac{p+3}{2} \cdot d - 3dd = c - 4cd + \frac{p+4}{2} \cdot d - 6dd$. The probability of its happening p times in $2p+5$ trials to be $= 1 - c - 4d \cdot d + c - 4cd + \frac{p+4}{2} \cdot d - 6dd = c - 5cd + \frac{p+5}{2} \cdot d - 10dd$. Therefore since the $p-1$ th term of the figurate numbers 1, 3, 6, 10, &c. is $\frac{p \cdot p - 1}{2}$, the probability of the event's happening p times successively in $3p$ trials will be $= c - pcd + 2pd - \frac{p \cdot p - 1}{2} \cdot dd$.

The probability of its happening p times in $3p+1$ trials will depend on the chance of its having failed during the first $2p$ trials, and also in the $2p+1$ th trial, and of its having succeeded in the next p trials; the probability of which being $1 - c - pd \cdot d$, and the probability of its happening p times in $2p$ trials being $c - pcd + 2pd - \frac{p \cdot p - 1}{2} dd$, the whole probability of its happening p times in $3p+1$ trials will be $= c + 2p + 1 \cdot d - \frac{p+1}{2} \cdot cd - \frac{p \cdot p - 1}{2} + p \cdot dd$.

By proceeding in this manner, the probability of its happening p times in $4p$ trials will be found $= c - 2pcd + \frac{p \cdot p - 1}{2} cdd + 3pd - \frac{2p \cdot 2p - 1}{2} dd + \frac{p \cdot p - 1}{2} \cdot d^3$. The probability of its happening p times in $5p$ trials $= c - 3pcd + \frac{2p \cdot 2p - 1}{2} cdd - \frac{p \cdot p - 1}{2} \cdot d^3$. The probability of its happening p times in $6p$ trials $= c - 4pcd + \frac{3p \cdot 3p - 1}{2} cdd + \frac{2p \cdot 2p - 1}{2} \cdot d^3 - \frac{p \cdot p - 1}{2} \cdot d^4$, and so on. Hence it follows, that if the number be rp the probability required will be $= c - \frac{r-2}{2} \cdot pcd + \frac{r-3 \cdot p \cdot r - 3 \cdot p - 1}{2} cdd + \frac{r-4 \cdot p \cdot r - 4 \cdot p - 1 \cdot r - 4 \cdot p - 2}{2 \cdot 3} c d^3$

$$+ \&c. + \frac{r-1}{2} \cdot pd - \frac{r-2}{2} \cdot p \cdot r - 2 \cdot p - 1}{2} c d^2 + \frac{r-3 \cdot p \cdot r - 3 \cdot p - 1 \cdot r - 3 \cdot p \cdot r - 3 \cdot p - 2}{2 \cdot 3} d^3 \&c.$$

Let n be $= rp$ then will $\frac{n-p}{2} = r-1 \cdot p$
 $\frac{n-2p}{2} = r-2 \cdot p$, $\frac{n-3p}{2} = r-3 \cdot p$, &c. and if
 $\alpha, \beta, \gamma, \delta$, &c. be put for $n-p, n-2p, n-3p, n-4p$, &c. respectively, the probability that the event happens p times successively in n trials will be $= c - \beta cd + \frac{\gamma \cdot \gamma - 1}{2} c d d - \frac{\delta \cdot \delta - 1 \cdot \delta - 2}{2 \cdot 3} c d^3 + \&c. + \alpha d - \frac{\beta \cdot \beta - 1}{2} dd + \frac{\gamma \cdot \gamma - 1 \cdot \gamma - 2}{2 \cdot 3} d^3 - \&c.$

Example. In 30 throws with a single counter, having one side white and the other black, what are the odds that the white does not come up ten times successively? In this case c is $= \frac{1}{2^{10}} \cdot d = \frac{1}{2^{11}} \cdot n = 30 \cdot p = 10 \cdot \alpha (= n - p) = 20$. and $\beta (= n - 2p) = 10$. The foregoing expression therefore becomes $= \frac{1}{2^{10}} - \frac{10}{2^{11}} + \frac{20}{2^{11}} - \frac{10 \times 9}{2 \times 2^{11}} = .00106$. Hence the odds against the white side's coming up ten times successively, will be as 99894 to 106, or nearly as 942 to one. If, instead of a counter, a single die had been thrown up, the odds against the ace, or any assigned face coming up ten times successively in 30 trials would have been nearly as 50 millions to one.

Scholium. By the assistance of the 3d Problem, "the number of trials necessary to make it an equal chance that an event shall happen p times successively" may be found to be nearly $= \frac{7}{10} \times \frac{a+b}{a^p} - a^p \times 1 + \frac{a}{a+b} + \frac{aa}{a+b} + \frac{a^2}{a+b} + \dots + \frac{a^{p-1}}{a+b} = \frac{7}{10} \times \frac{a+b}{a^p} - a^p \times 1 + \frac{a}{a+b} + \frac{aa}{a+b} + \frac{a^2}{a+b} + \dots + \frac{a^{p-1}}{a+b} = \frac{a + \frac{b^p - a^p}{b \cdot a + b}}{a^p} \times \frac{a+b}{b \cdot a + b} - 1 \times \frac{7}{10}$

and therefore if e and f respectively represent the first and second fractions, the required number will be nearly $= ef \times \frac{7}{10}$. Thus, let it be required to determine how many trials are necessary to make it an equal chance, that an event shall happen 6 times successively, supposing the probabilities of its happening and failing to be the same. Since a and b are each = 1, and $p = 6$, the above expression will become $= \frac{2^6 - 1}{1} \times \frac{2^6 - 1}{2^5} \times \frac{7}{10} = 63 \times \frac{63}{32} \times \frac{7}{10} = 86.8$. Hence the number of trials will be between 87 and 86.

Had the probability of the event's happening to that of its failing been in the ratio of 1 to 5, the number of trials necessary in the above case would have been $= \frac{6^6 - 1}{1} \times \frac{6^6 - 1}{5 \times 6^5} \times \frac{7}{10} = 46,655 \times \frac{46,655}{5 \times 7776} \times \frac{7}{10} = 32,190$.

PROBLEM IX.

Supposing A and B to play with equal skill; to determine the

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the odds when each of them wants a given number to win the game.

SOLUTION. If only *one* can be reckoned at each party, the probability that either of them is the winner at the end of it will be $= \frac{1}{2}$. Hence if A wants 2, and B only one of being up; the former, in order to be the winner, must gain twice successively, and therefore his chance will be $= \frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$, and the chance of the latter $= 1 - \frac{1}{4} = \frac{3}{4}$. Consequently the odds against A, or in favour of B are as 3 to 1.

If A wants 3, 4, 5 6, or any other number of being up, while B wants only one, his chance of winning in these cases must always depend on his succeeding in every party without intermission, and therefore the probability when he wants 3 will be $\frac{1}{2^3} = \frac{1}{8}$, when he wants 4 it will be $\frac{1}{2^4} = \frac{1}{16}$, when he wants 5 it will be $\frac{1}{2^5} = \frac{1}{32}$, and so on; so that the odds against him in those cases respectively will be 7 to 1, 15 to 1, 31 to 1, 63 to 1, &c.

If A wants 3, and B wants 2 of being up; the former may win in either of 4 different ways.—1st. By gaining the 1st, 2d, and 3d games.—2dly. By gaining the 1st, 2d, and 4th, and losing the 3d game.—3dly. By gaining the 1st, 3d, and 4th games, and losing the 2d;—and 4thly. By losing the 1st, and gaining the 2d, 3d, and 4th games. The proba-

bility of the 1st is $\frac{1}{8}$, and the probability of each of the rest is $\frac{1}{2} \times \frac{1}{8} = \frac{1}{16}$. Hence the sum of the 4 probabilities will be $= \frac{1}{8} + \frac{3}{16} = \frac{5}{16}$. Consequently the odds against him will be as 11 to 5, or rather more than 2 to one. When A wants 4, B still wanting 2 of being up, if he gains the first game (the probability of which is $\frac{1}{2}$) he will be in the same situation as in the preceding case, and his expectation on such an event will be $\frac{1}{2} \times \frac{5}{16} = \frac{5}{32}$.—If he loses the 1st game (the probability of which is also $\frac{1}{2}$) he will then want 4 while B wants only one of being up, and his expectation in this case will be $\frac{1}{2} \times \frac{1}{16} = \frac{1}{32}$; therefore the sum of these probabilities being $\frac{6}{32}$, it follows that the odds against him are as 26 to 6.—In the same manner the odds may be found when he wants 5 of being up, to be as 57 to 7; when he wants 6 of being up, to be as 120 to 8, and so on when he wants any other number, B being always supposed to want only 2 of being up.

When A wants 4 and B wants 3 of being up, the former may win in either of the 15 following different ways:

1st. by gaining the 1 st 2 nd 3 ^d 4 th game, the probability of which is $\frac{1}{16}$					
2d. by gaining the 1 2 3 5 and losing the 4th.	1	2	3	5	4th.
3d. ——— 1 2 4 5 ———	1	2	4	5	3d.
4th. ——— 1 3 4 5 ———	1	3	4	5	2d.
5th. ——— 2 3 4 5 ———	2	3	4	5	1st.
6th. by gaining the 1 2 3 6 and losing the 4th. 5th.	1	2	3	6	4th. 5th.
7th. ——— 1 2 4 6 ———	1	2	4	6	3d. 5th.
8th. ——— 1 2 5 6 ———	1	2	5	6	3d. 4th.
9th. ——— 1 3 4 6 ———	1	3	4	6	2d. 5th.
10th. ——— 1 3 5 6 ———	1	3	5	6	2d. 4th.
11th. ——— 1 4 5 6 ———	1	4	5	6	2d. 3d.
12th. ——— 2 3 4 6 ———	2	3	4	6	1st. 5th.
13th. ——— 2 4 5 6 ———	2	4	5	6	1st. 3d.
14th. ——— 2 3 5 6 ———	2	3	5	6	1st. 4th.
15th. ——— 3 4 5 6 ———	3	4	5	6	1st. 2d.

} the probability of each of which is $\frac{1}{16} \times \frac{1}{2} = \frac{1}{32}$.

} the probability of each of which is $\frac{1}{16} \times \frac{1}{4} = \frac{1}{64}$.

Adding all these probabilities together, we have $\frac{1}{16} + \frac{4}{32} + \frac{10}{62} = \frac{22}{64}$ for the probability required, and hence the odds against A's winning will be as 42 to 22.

By proceeding in the same manner when A wants 5 of being up, the odds against him will be found to be as 219 to 37. But these operations become more and more laborious in proportion as the number wanted by each party becomes more considerable, and therefore it will be better to have recourse to the rules of combination, which will greatly reduce the labour in those cases. Thus; let B want 4 and A want 5 of being up. The probability here of A's winning will be expressed by $\frac{1}{2^5} + \frac{1}{2^6}$ multiplied into the number of ways in which 6 things may be combined by 5 of a fort + $\frac{1}{2^7}$ multiplied into the number of ways in which 7 things

may be combined by 5 of a fort + $\frac{1}{2^8}$ multiplied into the number of ways in which 8 things may be combined by 5 of a fort $= \frac{1}{2^5} + \frac{5}{2^6} + \frac{15}{2^7} + \frac{35}{2^8} = \frac{93}{256}$, that is, the odds against A's winning the game are 163 to 93.

In like manner, if B wants 5 and A wants 6 of being up, the probability of A's winning will be expressed by $\frac{1}{2^6} + \frac{6}{2^7} + \frac{21}{2^8} + \frac{56}{2^9} + \frac{126}{2^{10}} = \frac{386}{1024}$; or in other words, the odds against his winning the game will be as 638 to 386.

If instead of *one* only, either *one* or *two* may be reckoned at each party, such as in the game of bowls, quoits, &c. the investigation of the problem will be rather different. In this case, the chance of just gaining one in two trials may be considered as the same with that of taking two out of four things of two forts, so that the first may come out of the 1st fort, and the second out of the contrary; and the chance of

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gaining two, in two trials, may be considered as the same with that of taking two out of four things of two sorts, so that both may be of the same sort. The chance of taking the proper sort the first time is $\frac{2}{4}$; the chance of missing it the second time is $1 - \frac{1}{4-1}$, the probability therefore of the event first mentioned is $\frac{2}{4} \times 1 - \frac{1}{4-1} = \frac{1}{3}$. The chance of taking out the same sort twice in succession is $\frac{2}{4} \times \frac{1}{3} = \frac{1}{6}$. Hence, if A wants 2 and B only 1 of being up, the latter may win at the end of the first party, either by reckoning one or two (the probability of which is $\frac{1}{6} + \frac{1}{3} = \frac{1}{2}$); or he may also win by having lost only one at the end of the first party, and gaining one at the end of the second. Now if A has gained one at the end of the first party, the expectation of each at the beginning of the second will be equal, and therefore B's chance of winning in the second, after having lost in the first party will be $= \frac{1}{3} \times \frac{1}{2} = \frac{1}{6}$. Hence the whole probability of his winning will be $= \frac{1}{2} + \frac{1}{6} = \frac{2}{3}$, and A's chance will be the remaining $\frac{1}{3}$; that is, the odds against A will be as 2 to one.

Let A want 3, B still wanting only 1 of being up. If A gains one in the first set, he will be in the same situation as

in the preceding case. If he gains 2 he will be on an equality with B. His expectation on the first event is $\frac{1}{3} \times \frac{1}{3} = \frac{1}{9}$, and his expectation on the second $= \frac{1}{6} \times \frac{1}{2} = \frac{1}{12}$. His whole expectation, therefore, is $= \frac{1}{9} + \frac{1}{12} = \frac{21}{208} = \frac{7}{36}$; that is, the odds against him are as 29 to 7.

In like manner, when A wants 4, B still wanting only 1 of being up. If he gains one he will be in the same situation as in the foregoing case; if he gains two he will be in the same situation as in the first case; hence, his expectation will be $= \frac{1}{3} \times \frac{7}{36} + \frac{1}{6} \times \frac{1}{3} = \frac{13}{108}$, and the odds against him will be as 95 to 13. By proceeding in this manner, the odds may be found when A wants any greater number, B being always supposed to want only one of being up; nor will the reasoning, indeed, be different when B wants more than one; or when the game is of such a nature as that either A or B may reckon 3, 4, or any greater number at each party.

It would be as tedious as it is unnecessary to proceed further with these operations, and, therefore, it will be sufficient to observe, that the following table has been deduced from a similar method of reasoning with that which has been used in the preceding cases, and that it is inserted principally with the view of shewing the manner in which the odds are constantly lessened in proportion as the number to be reckoned at each party is increased.

When One may be reckoned at each Party.			When Two may be reckoned at each Party.			When Three may be reckoned at each Party.			When Eleven may be reckoned at each Party.		
A wants	B wants	Odds against A	A wants	B wants	Odds.	A wants	B wants	Odds.	A wants	B wants	Odds.
2	1	as 3 to 1	2	1	as 2 to 1	2	1	as $1\frac{5}{6}$ to 1	2	1	as $1\frac{7}{10}$ to 1
3	1	7 to 1	3	1	$4\frac{1}{7}$ to 1	3	1	$3\frac{1}{2}$ to 1	3	1	$2\frac{7}{10}$ to 1
4	1	15 to 1	4	1	$7\frac{1}{5}$ to 1	4	1	6 to 1	4	1	$4\frac{1}{8}$ to 1
5	1	31 to 1	5	1	$12\frac{3}{5}$ to 1	5	1	$10\frac{1}{4}$ to 1	5	1	$6\frac{1}{10}$ to 1
6	1	63 to 1	6	1	$21\frac{3}{5}$ to 1	6	1	$15\frac{1}{2}$ to 1	6	1	$8\frac{9}{10}$ to 1
3	2	$2\frac{1}{5}$ to 1	3	2	$1\frac{1}{2}$ to 1	3	2	$1\frac{3}{4}$ to 1	3	2	$1\frac{1}{5}$ to 1
4	2	$4\frac{1}{3}$ to 1	4	2	$3\frac{1}{3}$ to 1	4	2	$2\frac{2}{3}$ to 1	4	2	$2\frac{3}{5}$ to 1
5	2	8 to 1	5	2	$5\frac{1}{5}$ to 1	5	2	$4\frac{2}{3}$ to 1	5	2	$3\frac{2}{5}$ to 1
6	2	15 to 1	6	2	$8\frac{1}{4}$ to 1	6	2	$6\frac{1}{2}$ to 1	6	2	$4\frac{3}{5}$ to 1
4	3	$1\frac{9}{10}$ to 1	4	3	$1\frac{2}{3}$ to 1	4	3	$1\frac{3}{5}$ to 1	4	3	$1\frac{9}{10}$ to 1
5	3	$3\frac{2}{5}$ to 1	5	3	$2\frac{2}{3}$ to 1	5	3	$2\frac{3}{5}$ to 1	5	3	$2\frac{1}{10}$ to 1
6	3	6 to 1	6	3	$4\frac{1}{10}$ to 1	6	3	$3\frac{3}{5}$ to 1	6	3	$2\frac{4}{5}$ to 1
5	4	$1\frac{3}{4}$ to 1	5	4	$1\frac{3}{4}$ to 1	5	4	$1\frac{1}{2}$ to 1	5	4	$1\frac{2}{5}$ to 1
6	4	3 to 1	6	4	$2\frac{1}{4}$ to 1	6	4	$2\frac{1}{2}$ to 1	6	4	2 to 1
6	5	$1\frac{2}{3}$ to 1	6	5	$1\frac{1}{2}$ to 1	6	5	$1\frac{1}{3}$ to 1	6	5	$1\frac{3}{5}$ to 1

Were the game of such a nature as to admit of an indefinite number to be reckoned at each party, the expectations would be nearly equal, or, in other words, the odds would be indefinitely small, whatever number were wanted on either side of being up. This, indeed, appears from the preceding table, where the odds are continually lessening as the number to be gained at each party increases. It is also to be observed, that, except in one instance, the odds in those tables are never inverely as the numbers wanted of being up; and that particularly in the last column, where

11 may be gained at each party, those odds vary from that ratio more than in any other.

Hence it follows, that in the game of whist, which admits of 11 being gained in a single deal, it would be very wrong to proceed on such principles in determining the odds; for, although whist may not be strictly of the same nature in every respect with the game supposed in the table, yet it is to be remarked, that the circumstances in which it differs, especially when less than three are wanted of being up, only serve to increase the errors of such a mode of computation.

This,

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This, however, if any doubt can remain on the subject, will be more clearly explained in the following problems.

PROBLEM X.

To determine in the game of whist, the chance of any particular player (A) having one or more honours.

Solution. Let A be the dealer, and let the chance be required of his having the 4 honours. Supposing it certain that an honour is turned up, it then becomes necessary to find the chance of his taking 3 particular cards in 12 out of a stock containing 51. By the corollary to the 4th problem this probability is expressed by $\frac{a}{1} \cdot \frac{a-1}{2} \cdot \frac{a-2}{3} (p) v \cdot v-1 \cdot v-2$

$\frac{(a+q-m) \cdot m \cdot m-1 \cdot m-2 (p)}{n-2 \cdot n-3 \cdot n-4 (a)}$, where n represents the number of cards, a the number of honours, p the number to be taken, m the whole number to be taken out of n ; $v = a + b - m = n - m$, and (since $m - q$ in this case is $= p$) $a + q - m = a - p$. Here then we have $n = 51$, $a = 3$, $p = 3$, $m = 12$, $v = 39$, and $a - p = 0$, and the fraction expressing the required probability = $\frac{12 \times 11 \times 10}{51 \times 50 \times 49}$; which, being multiplied into $\frac{4}{13}$, or the probability that the honour turns up, will become = $\frac{44 \times 4}{13 \times 4165}$. Supposing it certain, on the contrary, that

the honour is not turned up, the chance of having four (making a and p each = 4) will be $\times \frac{12 \times 11 \times 10 \times 9}{51 \times 50 \times 49 \times 48}$;

which, being multiplied into $\frac{9}{13}$, (or the probability that an honour is not turned up) will become = $\frac{9 \times 33}{52 \times 4165}$.

Hence the whole chance of A's having the four honours will be $\frac{16 \times 44 + 9 \times 33}{52 \times 4165} = \frac{11}{2380} = .00462$.

If A is not the dealer, the chance of his having the four honours will be found by proceeding in the same manner, = $\frac{13 \times 12 \times 11 \times 10}{51 \times 50 \times 49 \times 48} \times \frac{9}{13} = \frac{33}{16650} = .00198$.

The chance of his having three honours and no more may also be found either = $\frac{792 + 495}{20,825} = .0618$, or $\frac{143}{4165} = .03433$ according as he is or is not the dealer.

The chance of his having two honours and no more may in like manner be found = $\left(\frac{11,115}{41,650}\right) = .26684$, or

$\left(\frac{8151}{41,650}\right) = .1957$, and the chance of his having one honour and no more = $\left(\frac{9139}{20,825}\right) = .43884$ whether he is or is not the dealer.—The chance also that he has no honour may in the first case be found = $\frac{37,962}{166,600} = .22786$; and in

the second case = $\frac{712,842}{52 \times 41,650} = .3291$.

Nor is the method of proceeding different when it is required to determine the chance of any two partners at whist having either four or three or two honours between them; the computation in this case being made on 25 or 26 instead of 12 or 13 cards, according as the honour is or is not sup-

posed to be turned up. The chance of the dealer and his partner having four honours between them appears to be $= \frac{115}{1666} = .06903$; the chance of their having three honours,

or reckoning two, = $\frac{468}{1666} = .28092$; and the chance of

their having two, or not reckoning any thing by honours = $\frac{650}{1666}$. The chance of the eldest hand and his partner's having four honours between them appears also to be = $\frac{69}{1656} = .04142$; the chance of their having three honours,

or reckoning two, = $\frac{364}{1665} = .21849$, and the chance of their having two, or not reckoning any thing by honours = $\frac{650}{1666}$, or the same as in the case of the dealer and his partner.

Corollary. Since the chance of the dealer's having three honours or more is $.0618 + .0046 = .0664$, and the chance of his having two honours or more is $.0664 + .2668 = .3332$, it follows that the odds *against* his having three or more honours are as 14 to 1, and that the odds *against* his having two or more honours are as 2 to 1. On the other hand, the chance of his having one honour or more being $.4388 + .3332 = .772$, the odds *for* his having one or more honours will be as $3\frac{2}{3}$ to 1. These chances in the case of the eldest or any other single hand being $.0363$, $.232$, and $.6708$ respectively, the odds *against* such hand's having three or more honours will be as $26\frac{1}{2}$ to 1; the odds *against* his having two or more honours will be as $3\frac{2}{3}$ to 1; and the odds *for* his having one or more honours will be as 2 to 1. The chance of the dealer and his partner having three or more honours between them being $.06903 + .28093 = .35$ nearly, and the chance of the eldest hand and his partner having the like number between them being $.04142 + .21849 = .26$ nearly; the odds *against* the former partners reckoning any thing by honours will be nearly as 2 to 1, and the odds *against* the latter will be nearly as 3 to 1.

PROBLEM XI.

To determine, in the game of whist, the chance of getting the odd or any number of tricks.

Solution. Let the chances of getting and losing a single trick be to each other in the ratio of a to b , then will the probability of getting n tricks be represented by $\frac{a^n}{a+b}$, the probability of getting

$n-1$ tricks by $\frac{n a^{n-1} b}{a+b}$, the probability of getting $n-2$

tricks by $\frac{n \cdot n-1}{2} \frac{a^{n-2} b^2}{a+b}$, and so on. In the present case

the chances of losing or winning a trick being equal, a will be equal to b , and the chance of winning 13 tricks, or reckoning 7, will be = $\frac{1}{2^{13}} = \frac{1}{8192}$, the chance of winning 12 or

reckoning 6 tricks will be = $\frac{13}{8192}$, and the chance of reck-

oning 5, 4, 3, 2, and 1 trick will be $\frac{78}{8192}$, $\frac{286}{8192}$, $\frac{715}{8192}$,

$\frac{1287}{8192}$, and $\frac{1716}{8192}$, respectively.

Corollary. Hence the chance of reckoning 6 or more tricks

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tricks is $\frac{1+13}{8192} = .001709$; the chance of reckoning 5 or more tricks is $= \frac{14+78}{8192} = .01123$; of reckoning 4 or more tricks $= \frac{92+286}{8192} = .04614$; of reckoning 3 or more tricks $= \frac{378+712}{8192} = .13342$; of reckoning 2 or more tricks $= \frac{1093+1287}{8192} = .29053$, and of reckoning one or more tricks $= \frac{2380+1716}{8192} = \frac{1}{2}$.

PROBLEM XII.

To determine the respective chances at whist, when two of the partners have eight and the other two have nine of the game.

Solution. The party who reckon eight may win the game in the first deal either by having three or more honours between them, or by getting two or more tricks without reckoning any honours. Or, if they do not win the game in that deal, they may, however, reckon one by getting the odd trick, in which case they will be on an equality with their opponents. Supposing them therefore to be the dealers, the probability of their having three or more honours, by Cor. Prob. X. is .35; the probability of their getting two or more tricks, by Prob. XI. is .29053, and the probability of their *not* having three or more honours is $1 - .35 = .65$. Hence the chance of their getting the game in the first deal is $= .35 + .29053 \times .65 = .53882$. Again, the probability of their getting one trick and no more by Prob. XI. is $\frac{1716}{8192} = .20947$, which being multiplied into .65 produces .13617 for their chance of reckoning only one in the first deal; and as their expectation in this case will be equal to that of their adversaries, it will of course be expressed by $.13617 \times \frac{1}{2} = .068085$, and their whole chance of winning will be $= .53882 + .068085 = .6069$. If they be *not* the dealers, their chance of winning may be found, by reasoning in the same manner $= .26 + .29053 \times 1 - .26 + .20947 \times \frac{1 - .26}{2} = .5428$. Hence the chance of their winning in the first case is as 3 to 2, and in the second case as 6 to 5 nearly. But if it be not considered whether they are, or are not the dealers, their chances of winning will be one with another, very nearly as 7 to 5.

Corollary. Were these two partners only seven, their chance of winning the game might be found by the help of the two preceding problems and their corollaries, equal either to .3867 or .3809 according as they were, or were not the dealers, and their chance of winning if they were only six might in like manner be found equal either to .3262 or to .3211, that is, the odds against the two partners who reckon only seven while the other partners reckon nine, are as 8 to 5, and the odds against them when they reckon only six are as 21 to 10 or a little more than two to one.

By pursuing the same steps the odds may be determined in every circumstance of the game; but the labour of such a computation would be very great, as the operations become more and more complicated in proportion as the game is further from being terminated.

PROBLEM XIII.

A undertakes to play a match with B of three or five games, in winning the greater number of which he becomes of course the winner of the match. A has an advantage in

all the games but one equivalent to the odds of b to a —in that one game B has the same advantage against A. It is required to determine the respective chances of A and B; and whether it is material that the games should be played in any particular order.

Solution 1. Let the number of games be three, and let A be supposed to play the two games, on which he has the advantage of b to a , *first*, and the game on which he has the chance only of a to b , *last*. Either A or B may become the winner by obtaining the superiority over his adversary in the following order: 1, 2. 1, 3. 2, 3. A's chance for winning in this order is expressed by the fractions $\frac{bb}{a+bl} + \frac{baa + aab}{a+l} = \frac{b^3 + bba + 2baa}{a + b^3}$, and consequently B's chance will be $= \frac{a^3 + aab + 2abb}{a + l}$. If A

be supposed to play the game *first*, on which he has only the advantage of a to b , and the other two games *last*, the fractions expressing the probability of his winning will be $= \frac{ab}{a+l} + \frac{a^2b + b^3}{a+b} = \frac{b^3 + bba + 2baa}{a + l}$ as before. Hence it follows that in this case it makes no difference in what order the games are played.

2. Let the number of games be five, and let A be supposed to play the four games on which he has the advantage of b to a , *first*, and the game on which the odds are against him, as b to a , *last*. Either party may become the winner, by succeeding in the following order: 1, 2, 3. 1, 2, 4. 1, 2, 5. 1, 3, 4. 1, 4, 5. 1, 3, 5. 2, 3, 4. 2, 3, 5. 2, 4, 5. or 3, 4, 5. A's chance for winning in this order is expressed by the fractions $\frac{b^5}{a+b} + \frac{3ab^3}{a+l} + \frac{6a^2b^2}{a+l} = \frac{b^5 + 5b^4a + 4b^3a^2 + 6b^2a^3}{a + l}$, and B's chance will, in consequence, be $= \frac{a^5 + 5a^4b + 4a^3bb + 6a^2b^3}{a + b}$.

If A be supposed to play the game *first*, in which the odds are against him, the several fractions expressing his chance of winning may be found $= \frac{ab^3}{a+l} + \frac{b^2 + 2a^2b^2}{a+b} + \frac{3a^3b^2 + 3ab^4}{a+l} = \frac{b^5 + 5b^4a + 4b^3aa + 6bb^3}{a + l}$. It is evident therefore

that in this, as well as in the former case, it is not in the least material in what order the games are played.

Example. Supposing A and B to play a match at piquet of five games, on the particular condition that B is to be the dealer in all the games except one, which gives an advantage to A in four of the games equivalent to the odds of 5 to 4. It is required to determine their respective chances of winning the match.—In this case a is $= 4$, and $b = 5$; and hence the above expression denoting A's chance becomes $= \frac{3125 + 12,500 + 8000 + 9600}{59,049} = \frac{33,225}{59,049}$ and the expression denoting B's chance becomes $= \frac{25,824}{59,049}$. The odds

therefore in favour of A are as 14 to 11 nearly. If they had played a match of only three games, and B was to have been the dealer in two of them, the odds against him would have been as 385 to 344, or nearly as 19 to 17.

PROBLEM XIV.

To determine the chances in the game of *Macao*.

Solution. In this game two packs of cards are shuffled together, from which three cards are dealt to each of the players,

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players, who are generally five in number. The tens being always deducted from the aggregate number on the faces of the three cards, the remaining numbers will of course be either 9, 8, 7, 6, 5, 4, 3, 2, 1, or 0. If the first of these numbers is turned up, the person having it is entitled to 3 stakes; if the second, he is intitled to 2 stakes; if either a 7, or any of the lower numbers, he is intitled to 1 stake; but if a 0 is turned up, he is intitled to no stake. The question, therefore, to be solved is, the chance of having either 9, 8, 7, 6, 5, 4, 3, 2, 1, or 0.

The number of changes on n things when taken 3 and 3, being $= n \cdot \frac{n-1 \cdot n-2}{1 \cdot 2 \cdot 3}$, it follows that all the changes

of this kind on two packs, or 104 cards, will be $= \frac{104 \times 103 \times 102}{6} = 182,104$, and, consequently, that

the sum of all the chances for having either 9, 8, 7, &c. points must be equal to this number. In order to find the chances for having *nine*, let it be enquired in how many ways 19 may be dealt; 1st, by having 1, 8, and 10. As there are 8 aces, 8 eights, and 32 tens, the different ways in which 19 may be dealt in this case will be $8 \times 8 \times 32 = 2048$. 2dly, 19 may be dealt by 2, 7, 10. 3, 6, 10, or 4, 5, 10; and as there are 2048 chances for dealing each of these, the whole number of chances for dealing 19, when one of the faces is a 10, is $= 2048 \times 4 = 8192$. But 19 may also be dealt by 1, 9, 9. 2, 9, 8. 3, 9, 7. 4, 9, 6. 5, 9, 5. 6, 8, 5. 7, 8, 4. 8, 6, 5. 7, 7, 5. or 7, 6, 6. The number of ways in which the cards under *ten* may be combined, when two of them are of a fort, is $\frac{8 \times 7 \times 8}{2}$

$= 224$, and the number, when they are all different is $8^3 = 512$. Hence, the number of combinations in the preceding case is $224 \times 5 + 512 \times 5 = 3680$; and, consequently, all the chances for dealing 19 are $8192 + 3680 = 11,872$. The number of ways in which all the *tens* may be combined two and two, is $\frac{32 \times 31}{2} = 496$; therefore,

the number of ways in which 29 may be dealt, is $496 \times 4 = 3968$. The number 9 also may be obtained by dealing either of the three following cards: 1, 1, 7. 1, 2, 6. 1, 3, 5. 1, 4, 4. 2, 2, 5. 2, 3, 4. or 3, 3, 3. The chances for obtaining the last of these being $\frac{8 \times 7 \times 6}{1 \cdot 2 \cdot 3}$

$= 56$, the chances for obtaining any of the whole of them are $56 + 224 \times 3 + 512 \times 3 = 2264$. Hence, all the chances for obtaining a *nine*, according to the rules of the game, are $11,872 + 3968 + 2264 = 18,104$.

By proceeding in the same manner, the chances for obtaining *eight* may be determined: thus, 18 may be had by 1, 7, 10. 2, 6, 10. 3, 5, 10. 4, 4, 10 $= 3 \times 2048 + \frac{8 \times 7 \times 32}{2} = 7040$; or it may be had without

a *ten*, by having 9, 8, 1. 9, 7, 2. 9, 6, 3. 9, 5, 4. 8, 7, 3. 8, 6, 4. 8, 5, 5. 8, 8, 2. 7, 7, 4. 7, 6, 5. or 6, 6, 6 $= 7 \times 512 + 3 \times 224 + 56 = 4312$. Hence, all the chances for having 18 are $7040 + 4312 = 11,352$: 28 may be obtained, either with an 8 and 2 tens, or with 10 and 2 nines. These chances are $8 \times 496 + 28 \times 32 = 4864$. Lastly, an *eight* may be had by 6, 1, 1. 5, 2, 1. 4, 3, 1. 4, 2, 2. or 3, 3, 2 $= 3 \times 224 + 2 \times 512 = 1696$. The sum, therefore, of all the chances for having *eight*, according to the rules of the game, is $11,352 + 4864 + 1696 = 17,912$.

By pursuing the same steps, the chances for having 7, 5, 3, and 1, may be found to be the same with those for having 9; and the chances for having 6, 4, and 2, the same

with those for having 8: but the chances for having 0 will be found to be $= 19,936$. In other words, the sum of all the chances for having each of the odd numbers is 18,104; the sum of all the chances for having each of the even numbers is 17,912; and the sum of all the chances for having a blank is 19,936; which, being added together, make up the number 182,104, and, therefore, prove the truth of the solution.

Corollary. It appears from this problem that the odds *against* the number 9 being turned up are nearly as 9 to 1; *against* the number 8, as $9\frac{1}{6}$ to 1; *against* a blank, as $8\frac{1}{3}$ to 1; and *for* either of the other numbers, as $2\frac{6}{7}$ to 1. If, therefore, each stake (as is generally the practice in this game), be five guineas, the expectation of the player on the number 9 will be worth 1l. 11s. 4d.; his expectation on the number 8 will be worth 1l. 0s. 8d., and his expectation on all the remaining numbers together will be worth 3l. 12s. 8d., making in the whole the sum of 6l. 4s. 8d.

Innumerable other problems might be added for determining the laws of chance, as well in the preceding games, as in those of *Hazard*, *Pharaon*, *Piquet*, &c. &c.; but the solution of them (were the subject of much more importance than it appears to be), would swell beyond all due limits, an article whose chief design has been to give a clear idea of the principles on which the doctrine of chances is founded, together with the solution of such general problems as may admit of the most extensive application. Those, however, who wish for further information respecting the games of chance, may have recourse to the writings of De Moivre, James Bernoulli, Thomas Simpson, &c., but particularly to those of the former, which are not surpassed, and, perhaps, not equalled by any other work on this subject.

In addition to the problems given in this article, two others should be noticed, which are not only the most abstruse, but the most important in the whole doctrine of chances; the first of them solved by James Bernoulli, and afterwards, to greater exactness by De Moivre; the second, communicated by Dr. Price to the Royal Society, from the papers of the late Mr. Bayes, as hath been already observed in the beginning of this article. In regard to the former of these problems, Mr. James Bernoulli introduces his solution of it with observing, "Hoc est illud problema, quod evulgandum hoc loco proposui, postquam jam per vicennium pressi, & cujus tum novitas, tum summa utilitas cum pari adjuncta difficultate omnibus reliquis hujus doctrinæ capitibus pondus & pretium superaddere potest." Such, therefore, being the opinion of that eminent mathematician concerning this problem, perhaps the present article ought not to be concluded without giving the solution of it, more particularly as M. De Moivre, though he pursued the investigation to a greater degree of accuracy, has contented himself with stating the rules, without giving any demonstration of them.

PROPOSITION I.

Supposing a very great number of trials to be made concerning any event, it is required to determine the probability: there is that the proportion of the number of times it will happen to the number of times it will fail in those trials will differ less than by very small assigned limits from the probability of its happening to the probability of its failing in a single trial.

Solution. Let the probabilities of happening and failing be equal, and the number of trials be n . Let L and L also be the two terms equally distant, by the interval l , from the middle term of the binomial $(1 + 1)^n$, and s the sum of the terms included between L and L , together with the extremes; then if n be a very great number, the probability that the event happens neither more frequently than $\frac{1}{2}n + l$,

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nor more rarely than $\frac{1}{2}n - l$ times will be $= \frac{s}{2^n}$. But if the probability of its happening to the probability of its failing in any one trial be as a to b , let L and R be the two terms equally distant by the interval l from the greatest term of the binomial $a + b$, and let S be the sum of the terms included between L and R , together with the extremes, then will the probability that the event happens neither more frequently than $\frac{an}{a+b} + l$ times, nor more rarely than

$$\frac{an}{a+b} - l \text{ times be rightly expressed by } \frac{S}{a+b}.$$

These are the rules given by M. De Moivre for the solution of this very difficult proposition, which, he observes, are founded on the common principles of the doctrine of chances, and therefore require no demonstration. This is certainly true, so far as regards the general principles of the solution, but the method of determining the values of s and S are by no means so obvious. In this, indeed, consists the whole difficulty of the solution; and as M. De Moivre has omitted the process by which he obtained those values, it will be necessary to supply the omission by inserting the following lemmas, which are chiefly derived from Mr. Simpson's treatise "On the Nature and Laws of Chance."

Lemma 1. To find the sum of the series $1 \times 2 \times 3 \times 4$ continued to x terms.

Solution. Let the series be $= P$, and its hyp. log. $=$

$$x - a \cdot \log. x + Ax + B + \frac{C}{x} + \frac{D}{x^2}, \text{ \&c. then will}$$

$$\frac{x}{x+1} - a \cdot \log. \frac{x}{x+1} + A \cdot \frac{x}{x+1} + B + \frac{C}{x+1} +$$

$$+ \frac{D}{(x+1)^2}, \text{ \&c.} = \log. 1 \cdot 2 \cdot 3 \dots x \cdot x+1 = \log. P +$$

$$\log. \frac{x}{x+1}, \text{ and } x - a \log. \frac{x}{x+1} + A + C \cdot \frac{x}{x+1} -$$

$$- x^{-1} + D \cdot \frac{x}{x+1} - x^{-2} +, \text{ \&c.} = 0. \text{ But the}$$

$$\text{fluxion of the log. of } \frac{1+x}{x} \text{ is } \frac{-x}{x^2+x}, \text{ whose fluent is } x^{-1}$$

$$- \frac{x^{-2}}{2} + \frac{x^{-3}}{3} - \frac{x^{-4}}{4} +, \text{ \&c. The above series, there-}$$

$$\text{fore, converted into simple terms will be } 1 - \frac{x^{-1}}{2} + \frac{x^{-2}}{3} -$$

$$\frac{x^{-3}}{4} +, \text{ \&c.} - ax^{-1} + \frac{ax^{-2}}{2} - \frac{ax^{-3}}{3} + \frac{ax^{-4}}{4} -, \text{ \&c.}$$

$$+ A - Cx^{-2} + Cx^{-3} - Cx^{-4} +, \text{ \&c.} - 2Dx^{-3} +$$

$$3Dx^{-4} - 4Dx^{-5} +, \text{ \&c.} - 3Ex^{-4} + 6Ex^{-5} -, \text{ \&c.}$$

$$\text{Hence, by equating the homologous terms, A will be found}$$

$$= -1, a = -\frac{1}{2}, C = \frac{1}{3 \cdot 4}, D = 0, E = -\frac{1}{3 \cdot 4 \cdot 5 \cdot 6},$$

$$F = 0, G = \frac{1}{5 \cdot 6 \cdot 6 \cdot 7}, \text{ \&c. and consequently the above}$$

$$\text{expression will be changed into } x + \frac{1}{2} \cdot \log. x - x + B +$$

$$\frac{1}{12x} - \frac{1}{360x^3} + \frac{1}{1260x^5} -, \text{ \&c.} = \log. P. \text{ If } x \text{ be sup-}$$

$$\text{posed} = 1, \text{ this equation will become } = -1 + B + \frac{1}{12}$$

$$x - x + 1 - \frac{1}{12} + \frac{1}{360} -, \text{ \&c.} + \frac{1}{12x} - \frac{1}{360x^3} +$$

$$\frac{1}{1260x^5} -, \text{ \&c. Now the number whose hyp. log. is 1 is}$$

$$= 2.71828 \text{ \&c., the number whose hyp. log. is } \frac{1}{12x} -$$

$$\frac{1}{360x^3} + \frac{1}{1260x^5} -, \text{ \&c. is } 1 + \frac{1}{12x} + \frac{1}{288x^2} - \frac{1}{51840x^3}$$

$$+, \text{ \&c. (see Cotes's Harm. Menf. Prop. I. Schol. 2.), and}$$

$$\text{the number whose hyp. log. is } 1 - \frac{1}{12} + \frac{1}{360} -, \text{ \&c. is}$$

$$\text{easily found to be } 2.5066 \text{ \&c. which Mr. Stirling has proved}$$

$$\text{to be the square root of the circumference of a circle, whose}$$

$$\text{radius is unity. Let this circumference be denoted by } c,$$

$$\text{the series } 1 + \frac{1}{12x} + \frac{1}{288x^2} -, \text{ \&c. by } d, \text{ and the num-}$$

$$\text{ber } 2.71828 \text{ \&c. by } m, \text{ then we shall have } \frac{x^x + \frac{1}{2} \sqrt{c}}{m^x} \times d$$

$$= P. \text{ But when } x \text{ is a very great number, the series de-}$$

$$\text{noted by } d \text{ becomes inconsiderable, and } P \text{ in this case will be}$$

$$\text{nearly} = \left(\frac{x}{m}\right)^x \times \sqrt{cx}.$$

$$\text{Lemma 2. To find the ratio which any given term of a}$$

$$\text{binomial, raised to an infinite or very great power, bears to}$$

$$\text{the whole series. Solution. Let the binomial be } a + b, \text{ and } n \text{ the index}$$

$$\text{of its power. Let } l \text{ be the distance of the given term from}$$

$$\text{the first, and } s \text{ be made } = n - l. \text{ In this case the term}$$

$$\text{proposed will be } = \frac{n \cdot n-1 \cdot n-2, \dots n-l+1 \cdot a^l b^l}{1 \cdot 2 \cdot 3 \cdot 4 \dots l},$$

$$\text{or (multiplying the numerator and denominator equally by}$$

$$1 \cdot 2 \cdot 3 \dots s) = \frac{n \cdot n-1 \cdot n-2, \dots 3 \cdot 2 \cdot 1 \cdot a^l b^l}{1 \cdot 2 \cdot 3, \dots l \times 1 \cdot 2 \cdot 3 \dots s}, \text{ which by}$$

$$\text{the preceding lemma is } = \frac{\left(\frac{n}{m}\right)^n \times \sqrt{cn} \times a^l b^l}{\left(\frac{l}{m}\right)^l \times \sqrt{cl} \times \left(\frac{s}{m}\right)^s \times \sqrt{cs}} =$$

$$\frac{n^n + \frac{1}{2} a^l b^l}{l^l s^s \sqrt{cl s}}, \text{ hence the ratio required is } \frac{n^n + \frac{1}{2} a^l b^l}{l^l s^s \sqrt{cl s} \cdot (a+b)^n}.$$

$$\text{Corollary. Since the greatest term of the binomial } a + b^n$$

$$\text{is that in which the exponents are to each other as } a \text{ to } b, \text{ if}$$

$$s \text{ be taken to } l \text{ in that proportion, or, in other words, if } l \text{ be}$$

$$\text{made } = \frac{bn}{a+b}, \text{ and } s = \frac{an}{a+b}, \text{ and if these expressions be}$$

$$\text{substituted in the values given above, the ratio of the greatest}$$

$$\text{term to the whole power will become } = \frac{a+b}{\sqrt{abcn}}, \text{ or if } a$$

$$\text{and } b \text{ are equal, it will become } = \frac{2}{\sqrt{cn}}, \text{ which are the very}$$

$$\text{expressions given by M. De Moivre in those cases respectively.}$$

$$\text{Lemma 3. To find the ratio which the greatest term of a}$$

$$\text{binomial raised to an infinite, or very great power, bears to a}$$

$$\text{given number of terms next to it. Solution. The same symbols being retained, as in the pre-}$$

$$\text{ceding lemma, let } y \text{ be the greatest term, and } p \text{ the number}$$

$$\text{of terms to be taken on either side of it. Now since}$$

$$\frac{sby}{l+1 \cdot a} \text{ is the next term to } y, \frac{s \cdot s-1 \cdot b^2 y}{l+1 \cdot l+2 \cdot a^2} \text{ the next}$$

$$\text{following,}$$

following, $\frac{s \cdot s-1 \cdot s-2 \cdot b^3 y}{l+1 \cdot l+2 \cdot l+3 \cdot a^3}$ the third term, and so on, it follows that the term whose distance from the greatest is p , will be $\frac{s \cdot s-1 \cdot s-2 \cdot s-3 \dots s-p+1}{l+1 \cdot l+2 \cdot l+3 \dots l+p} \times \frac{b^p y}{a^p}$, and

$$+ \left\{ \begin{array}{l} -\frac{1}{s} - \frac{1}{2s^2} - \frac{1}{3s^3} - \frac{1}{4s^4}, \&c. \\ -\frac{2}{s} - \frac{4}{2s^2} - \frac{8}{3s^3} - \frac{16}{4s^4}, \&c. \\ -\frac{3}{s} - \frac{9}{2s^2} - \frac{27}{3s^3} - \frac{81}{4s^4}, \&c. \\ \&c. \text{ to } p-1 \text{ series.} \end{array} \right.$$

But since al is bs , $p \cdot \log. bs - \log. al$ will vanish out of the equation; and since the numerators of the remaining terms are series of powers whose roots are in arithmetical progression, their sum may be easily obtained (by the 1st Proposition in Stirling, *De Summatione Serierum*); and hence the foregoing expression will be found = $\log. y - \frac{p-1}{2s} + \frac{p-1}{12s^2} - \frac{2 \cdot p-1}{12s^2} - \frac{3 \cdot p-1}{12s^2} - \frac{p+1}{12s^2}$

$$- \&c. - \frac{pp+p}{2l} - \frac{2p^3+3pp+p}{12ll} - \&c. \text{ But } p$$

being very small in respect of l and s , all the terms except the first in which l and s are denominators may be omitted, and consequently the log. of the term whose distance from the greatest is denoted by p will be very nearly = $\log. y - \frac{pp}{2l} - \frac{pp}{2s}$, or substituting $\frac{na}{a+b}$, and $\frac{nb}{a+b}$ for

their equals s and l , = $\log. y - \frac{pp \cdot a+b}{n \cdot 2ab}$. Let this term be denoted by T , and let d be = $\frac{a+b}{2ab}$, then will $\log.$

$$T = \log. y - \frac{dp}{n} \text{ and } T = y \times 1 - \frac{dp^2}{n} + \frac{d^2 p^4}{2 \cdot n^2} - \frac{d^3 p^6}{2 \cdot 3 \cdot n^3} + \frac{d^4 p^8}{2 \cdot 3 \cdot 4 \cdot n^4} - \frac{d^5 p^{10}}{2 \cdot 3 \cdot 4 \cdot 5 \cdot n^5} + \&c. \text{ (See Cotes's Harm. Menf. Prop. 1. Schol. 2.)}$$

By proceeding in the same manner the $p-1$ st, $p-2$ d, $p-3$ d, &c. terms may be found; so that the sum of all the terms between y and T , including the last, will be = y into $1 - \frac{dp^2}{n} - \frac{d \cdot p-1}{n} - \frac{d \cdot p-2}{n}$, &c. + $\frac{d^2 p^4}{2n^2} + \frac{d^2 \cdot p-1}{2n^2}$

+ &c. = $\frac{d^3 p^6}{2 \cdot 3 \cdot n^3} - \frac{d^3 \cdot p-1}{2 \cdot 3 \cdot n^3} - \&c.$ which, as in the former case of the p th term being series of powers whose roots are in arithmetical progression, the sum of the whole, neglecting in each series all the terms except the first, will be obtained (by the proposition just referred to) = $y \times$

$$p - \frac{dp^3}{3n} + \frac{d^2 p^5}{2 \cdot 5 \cdot n^2} - \frac{d^3 p^7}{2 \cdot 3 \cdot 7 \cdot n^3} + \&c. \text{ or if } p \text{ be made} \\ = v \sqrt[n]{n} = y \text{ into } v \sqrt[n]{n} - \frac{d v^3 \sqrt[n]{n}}{3} + \frac{d^2 v^5 \sqrt[n]{n}}{2 \cdot 5} \\ - \frac{d^3 v^6 \sqrt[n]{n}}{2 \cdot 3 \cdot 7} + \frac{d^4 v^8 \sqrt[n]{n}}{2 \cdot 3 \cdot 4 \cdot 9} - \frac{d^5 v^{10} \sqrt[n]{n}}{2 \cdot 3 \cdot 4 \cdot 5 \cdot 11} + \&c.$$

Corollary 1. The sum of the terms between the p th and the greatest term being given above, the ratio which this

therefore that its hyp. log. will be = $\log. y + p \cdot \log. b - p \cdot \log. a$ + the fluent of $\frac{\dot{s}}{s} + \frac{\dot{s}}{s-1} + \frac{\dot{s}}{s-2} (s-p+1)$ - the fluent of $\frac{\dot{l}}{l+1} + \frac{\dot{l}}{l+2} + \frac{\dot{l}}{l+3} (l+p) = \log. y + p \cdot \log. bs - p \cdot \log. al +$

$$+ \left\{ \begin{array}{l} -\frac{1}{l} + \frac{1}{2ll} - \frac{1}{3l^3} + \frac{1}{4l^4}, \&c. \\ -\frac{2}{l} + \frac{4}{2ll} - \frac{8}{3l^3} + \frac{16}{4l^4}, \&c. \\ -\frac{3}{l} + \frac{9}{2ll} - \frac{27}{3l^3} + \frac{81}{4l^4}, \&c. \\ \text{to } p \text{ series.} \end{array} \right.$$

sum bears to all the terms, will be = $\frac{y}{a+b}$ into $v \sqrt[n]{n} -$

$$\frac{d v^3 \sqrt[n]{n}}{3} + \frac{d^2 v^5 \sqrt[n]{n}}{2 \cdot 5} - \&c. \text{ But } \frac{y}{a+b} \text{ (being the ratio which the greatest term has to all the terms) has been proved in the corollary to the preceding lemma to be = } \frac{a+b}{\sqrt[n]{abcn}}; \text{ the above ratio therefore will be = } \frac{a+b}{\sqrt[n]{abcn}} \times v \\ - \frac{d v^3}{3} + \frac{d^2 v^5}{2 \cdot 5} - \frac{d^3 v^7}{2 \cdot 3 \cdot 7} + \frac{d^4 v^9}{2 \cdot 3 \cdot 4 \cdot 9} - \frac{d^5 v^{11}}{2 \cdot 3 \cdot 4 \cdot 5 \cdot 11} + \&c.$$

Corollary 2. If the probabilities of happening and failing are equal, $a+b$ will be = 2, and $d (= \frac{a+l}{2ab})$ will also be = 2, hence the series in the preceding corollary will become = $\frac{2}{\sqrt[n]{c}}$ into $v - \frac{2 v^3}{3} + \frac{4 v^5}{2 \cdot 5} - \frac{8 v^7}{2 \cdot 3 \cdot 7} +$

$$\frac{16 v^9}{2 \cdot 3 \cdot 4 \cdot 9} - \frac{32 v^{11}}{2 \cdot 3 \cdot 4 \cdot 5 \cdot 11} + \&c., \text{ which is given by M. De Moivre for determining the ratio between the sum of as many terms immediately succeeding the greatest as there are units in } v \sqrt[n]{n}, \text{ to the whole power of the binomial } 1 + 1^n.$$

Corollary 3. Since the log. of the p th term from the greatest, or $\log. T$, is = $\log. y - \frac{pp \cdot a+b}{n \cdot 2ab}$ this equation, when a and b are equal, will be $\log. T = \log. y - \frac{2pp}{n}$. But the greatest term of the binomial $1 + 1^n$ is the middle term, the log. of y , therefore, in this case, will be the log. of the middle term; hence will the log. of the ratio which T has to the middle term be expressed, as M. De Moivre has observed, by $\frac{-2pp}{n}$.

Corollary 4. In this lemma it is to be observed, that the ratio only of the p terms next succeeding the greatest term is given. But the ratio of the p terms preceding the greatest term may be determined in the same manner. For since the p th term which precedes y is $\frac{l \cdot l-1 \cdot l-2 \dots l-p+1}{s+1 \cdot s+2 \dots s+p}$, it may be found by pursuing the same steps as have been taken in this lemma, that the expression denoting the ratio, in this case, is = $\log. y - \frac{p-1}{2l} - \frac{p-1}{2l} - \frac{2 \cdot p-1}{2l} - \frac{3 \cdot p-1}{2l} - \frac{p+1}{2l} - \&c.$

$$- \frac{pp+p}{2s}$$

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$\frac{p^2 + p}{2s} - \frac{2p^3 + 3p^2 + p}{12ss} - \&c.$ which, on account of the smallness of p compared with s and l , is = $\log. y - \frac{p^2}{2s} - \frac{p^2}{2l}$, or the very same with the ratio of the p th term succeeding the greatest. Hence, agreeable to the observation of M. De Moivre, when n is a very great number, L and R , and consequently the sum of the p terms from the greatest, whether they precede or succeed it, will be equal.

By the assistance of these lemmas and their corollaries, the solution of this proposition may now be obtained without much difficulty.

First, supposing the probabilities of the event's happening and failing to be equal, let v be taken = $\frac{1}{2}$, then will the sum of the p terms included between L and the middle term (by Corollary 2, Lemma 3d) be = $\frac{2^{n+1}}{\sqrt{c}} \times \frac{1}{2} - \frac{2}{24} + \frac{4}{320} - \frac{8}{3360} + \&c. = \frac{2^{n+1}}{\sqrt{c}} \times .427812$, and $S = \frac{2^{n+1}}{\sqrt{c}} \times .855624 \&c.$, hence we have $\frac{S}{2^n} = \frac{2}{\sqrt{c}} \times .855624 \&c. = \frac{2}{2.50662 \&c.} \times .855624 \&c. = .68269 \&c.$ If, therefore, the number of trials be infinite, the probability that the event will happen neither more frequently than $\frac{1}{2}n + \frac{1}{2}\sqrt{n}$ times, nor more rarely than $\frac{1}{2}n - \frac{1}{2}\sqrt{n}$ times will be to the contrary as .68269 to $(1 - .68269) = .31731$, or nearly as 28 to 13. But it is by no means necessary that the number of trials should be infinite; if they be 3600, or even 1600, the probability that they happen neither more frequently than 1830, nor more rarely than 1770 times in the first case; nor more frequently than 820, nor more rarely than 780 times in the second case will be very nearly in the proportion given above. Nay, M. De Moivre asserts, that he has, by repeated trials, found this rule tolerably correct, when the number is even so low as 100.

Secondly, let the probabilities of the event's happening and failing be unequal. suppose as 1 to 2, and let v , as in the former case, be = $\frac{1}{2}$, then will the sum of the terms included between L and the greatest term (by Corollary 1, Lemma 3) be = $\frac{3^{n+1}}{\sqrt{2c}}$ into $\frac{1}{2} - \frac{3}{32} + \frac{8}{5120} - \frac{243}{114,688} + \frac{243}{1048,576} - \&c. = \frac{3^{n+1}}{\sqrt{2c}} \times .421183 \&c.$ Hence, $L + R$ (by Corollary 4, Lemma 3) = $S = \frac{3^{n+1}}{\sqrt{2c}} \times .842366 \&c.$ and $\frac{S}{(a+b)^n} = \frac{3 \times .842366 \&c.}{\sqrt{2} \times .62831 \&c.} = .7129 \&c.$ The probability, therefore, that in a very great number of trials the events will happen neither more frequently than $\frac{na}{a+b} + l$, nor more rarely than $\frac{na}{a+b} - l$ times, will be to the

contrary as .7129 to .2871, or very nearly as 5 to 2. If the probability of the event's happening to that of its failing in one trial be as 3 to 1, the probability that it happens neither more frequently than $\frac{na}{a+b} + l$, nor more rarely

than $\frac{na}{a+b} - l$ times, may be found to be as .9163 to .0837, or nearly as 11 to 1. The less, therefore, the ratio of the probability of the event's happening is to that of its failing, the greater will be the probability that in an indefinite number of trials, the event will happen neither more frequently nor more rarely than the number of times limited in this problem. Thus, if $a = 1$, $b = 2$, $v = \frac{1}{2}$ and $n = 3600$, the probability that the event happens neither more frequently than 1230, nor more rarely than 1170 times, is as 5 to 2 nearly, but if $a = 1$ and $b = 3$, the probability that it happens neither more frequently than 930, nor more rarely than 870 times is nearly as 11 to 1.

If v , instead of $\frac{1}{2}$, be = 1, the above series will converge more slowly, and therefore Mr. De Moivre has recourse in this case to the quadrature of curves, by means of equidistant ordinates, in order to obtain the sum of it. Thus, supposing a and b equal, and l to be successively denoted by $0\sqrt{n}$, $\frac{1}{6}\sqrt{n}$, $\frac{2}{6}\sqrt{n}$, $\frac{3}{6}\sqrt{n}$, $\frac{4}{6}\sqrt{n}$, $\frac{5}{6}\sqrt{n}$, $\frac{6}{6}\sqrt{n}$, then the logarithm of the ratio which the term distant from the middle by the intervals $\frac{1}{6}\sqrt{n}$, $\frac{2}{6}\sqrt{n}$, $\&c.$ has to the middle term, will (by Corollary 3, Lemma 3d), be respectively equal to the logarithms $-\frac{2}{36}$, $-\frac{8}{36}$, $-\frac{18}{36}$, $-\frac{32}{36}$, $-\frac{50}{36}$, and $-\frac{72}{36} = -\frac{1}{18}$, $-\frac{2}{9}$, $-\frac{1}{2}$, $-\frac{8}{9}$, $-\frac{25}{18}$, and $-\frac{2}{1}$, whose corresponding numbers being .94596, .80073, .60653, .41111, .24935, and .13534, may be considered as so many equidistant ordinates of a curve; and if the last four of them be taken, the area of the curve contained between these ordinates will be $\frac{.60653 + .24935 + 3 \times .41111 + .24935}{8} \times \frac{1}{2}$

= .27160. Adding this to .682688, or the area of the curve contained between the ordinate when l is interpreted by $0\sqrt{n}$, $\frac{1}{6}\sqrt{n}$, $\frac{2}{6}\sqrt{n}$, and $\frac{3}{6}\sqrt{n}$, we have .95429 for the probability required. In other words, the probability that the event happens neither more frequently than $\frac{1}{2}n + \sqrt{n}$ times, nor more rarely than $\frac{1}{2}n - \sqrt{n}$ times, will be to the probability that the contrary happens as .95429 to .04571, or, as 21 to 1 nearly.

If v be taken = $\frac{3}{2}$, the area contained between the ordinates, when l is interpreted by $\frac{6}{6}\sqrt{n}$, $\frac{7}{6}\sqrt{n}$, $\frac{8}{6}\sqrt{n}$, and $\frac{9}{6}\sqrt{n}$, will be found = .02902, which, being added to .95429 found above, will give .9833 for the probability in this case; that is, the probability that the event happens neither more frequently than $\frac{n}{2} + \frac{3}{2}\sqrt{n}$ times, nor more rarely than $\frac{n}{2} -$

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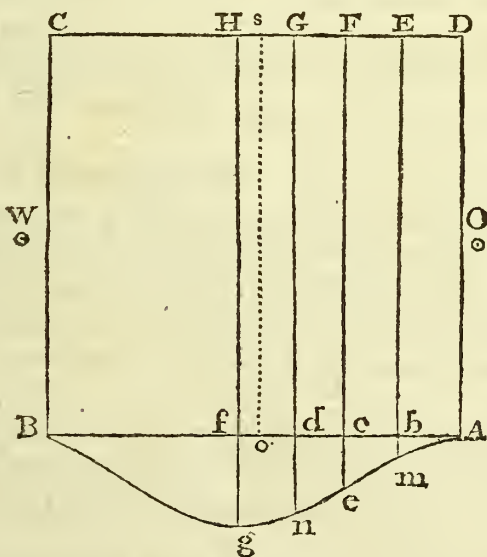
$\frac{3}{2}\sqrt{n}$ times, will be to the probability that the contrary happens very nearly as 344 to 1. If l were interpreted by a higher number, or, in other words, if the limits were extended, the probability might be increased, till it amounted almost to a certainty, yet the extension of those limits would bear but an inconsiderable proportion to the whole when n is very great, and none at all when it is infinite. Whence it follows, as M. De Moivre properly observes, that, "although chance produces irregularities, still the odds will be infinitely great, that in process of time those irregularities will bear no proportion to the recurrency of that order, which naturally results from *original design*." The truth of this observation, though undeniable, will, perhaps, be more fully confirmed by the following proposition, which is the converse of the preceding one, but rather more difficult in its solution, and more direct in its application to the arguments above-mentioned.

PROPOSITION II.

The number of times an unknown event has happened or failed being given, to find the chance that the probability of its happening should lie somewhere between any two named degrees of probability.

Solution. The solution of this proposition being not only very long and laborious, but given at full length in the Philos. Transactions (vols. 53 and 54), it will be unnecessary to enter further into it at present, than to give a general idea of the manner in which it has been investigated, and of the principles on which the demonstration is founded.

If the probability of an event's happening in each single trial be a , and that of its failing be b , the probability of its happening p times, and failing q times in $p + q (= n)$ trials, will be $= a^p b^q$ multiplied into the co-efficient of the term in which $a^p b^q$ occurs when the binomial $a + b$ is expanded. Or, denoting this co-efficient by E , the probability will be $= E a^p b^q$.



Suppose BCD A to be a plane perfectly level; the line A B to be divided into equal parts A b, b c, c d, &c. and the perpendiculars b E, c F, d G, &c. to be erected. If a ball W be thrown upon this plane, the probability that it rests between any two of the parallel lines will be equal. Supposing it, therefore, to be thrown for the first time, and a line os to be drawn through the point on which it has rested.

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If the ball O be then thrown $p + q (= n)$ times, and if its resting between A D and os , after a single throw, be called *the happening of the event M in a single trial*, then will the probability that the point o falls between any two points in the line B A be the ratio of the distance between these two points to the whole line B A; and if the ball W has been thrown, and the line os be drawn, the probability of the event M in a single trial will be the ratio of A o to B A. Hence, if on the base B A, a figure B g n e m A be described, whose property is this; that the base being divided into two parts, as A b and B b, and at the point of division b, a perpendicular being erected and terminated by the figure in m, y, x, r, respectively represent the ratio of b m, A b, and B b, to B A and y be $= E a^p b^q$ (E being the co-efficient of the term in which $a^p b^q$ occurs); then, before the ball W is thrown, the probability that the point o shall fall between f and b, and also that the event M shall happen p times, and fail q times in $p + q$ trials will be the ratio of f g m b to C A, or the square upon B A. Supposing now, before any thing is discovered concerning the place of the point o , that it should appear that the event M had happened p times, and failed q times in $p + q$ trials, and from hence, that it were guessed that the point o lay between any two points f and b, in the line B A, and consequently, that the probability of the event M, in a single trial, was somewhere between the ratio of A b to B A, and that of A f to B A; then would the probability that this guess were right be the ratio of f g b m to B A.

Having demonstrated the truth of these propositions, nothing further remained to complete the solution than to determine the area of the figure described above, and of the several parts of it separated by the ordinates perpendicular to B A. For this purpose B A being made $= 1$, and the equation of the curve $y = x^p r^q$, the area of the figure A b m, and consequently its ratio to C A $= 1$, is found $=$

$$\frac{x^{p+1}}{p+1} - \frac{q \cdot x^{p+2}}{p+2} + \frac{q \cdot q - 1 \cdot x^{p+3}}{2 \times p+3}, \text{ \&c. the area of the}$$

$$\text{figure B b m, and its ratio to C A,} = \frac{x^{q+1}}{q+1} - \frac{p \cdot x^{q+2}}{q+2} + \frac{p \cdot p - 1 \cdot x^{q+3}}{2 \times q+3} \text{ \&c. and the area of the whole figure}$$

$$\text{A m B, and its ratio to C A} = \frac{1}{n+1} \times \frac{1}{E}. \text{ Hence the}$$

$$\text{ratio of A b m to the whole figure is} = \frac{1}{n+1} \cdot E \times \frac{x^{p+1}}{p+1}$$

$$- \frac{q \cdot x^{p+2}}{p+2} + \text{\&c.}, \text{ and if, as } x \text{ expresses the ratio of A b to}$$

$$\text{B A, } z \text{ expresses the ratio of A f to B A, the ratio of A g f}$$

$$\text{to the whole figure will be} \frac{1}{n+1} \cdot E \times \frac{z^{p+1}}{p+1} - \frac{q \cdot z^{p+2}}{p+2} +$$

$$\frac{q \cdot q - 1 \cdot z^{p+3}}{2 \cdot p+3} \text{ \&c.}, \text{ and consequently the ratio of f g b m}$$

$$\text{to A m B will be} = \frac{1}{n+1} \cdot E, \text{ multiplied into the difference between these two series. Or, in other words, if}$$

$$\text{nothing is known concerning an event, but that it has happened } p \text{ times, and failed } q \text{ times in } p + q \text{ trials; and it be}$$

$$\text{guessed, that the probability of its happening in a single trial, lies somewhere between } z \text{ and } x; \text{ the chance of being right}$$

$$\text{in this case, will be} \frac{1}{n+1} \cdot E, \text{ multiplied into the difference between the series} \frac{z^{p+1}}{p+1} - \frac{q \cdot z^{p+2}}{p+2} + \frac{q \cdot q - 1 \cdot z^{p+3}}{2 \cdot p+3} \text{ \&c.}$$

&c. and the series $\frac{x^{p+1}}{p+1} - \frac{q \cdot x^{p+2}}{p+2} + \frac{q \cdot q - 1 \cdot x^{p+3}}{2 \cdot p+3} -$
&c.

When p and q are very large numbers, it will be impossible to apply this rule to practice, on account of the multitude of terms contained in the two series. Mr. Bayes, aware of this difficulty, attempted, with great labour and ingenuity, to remedy the defect; but although he considerably improved the rule, he did not succeed so far as to give the required chance within limits sufficiently narrow. His friend and editor, Dr. Price, has therefore pursued the inquiry with equal labour, and the result of an investigation, which occupies too many pages to admit of its being inserted here, has been the following rule.

If nothing is known concerning an event, but that it has happened p times and failed q times in $p+q$, or n trials, and from hence it be guessed, that the probability of its happening in a single trial lies between $\frac{p}{n} + z$, and $\frac{p}{n} - z$, the chance to be in the right, if either p or q exceed 1, is less

than 2Σ , and greater than $\Sigma + \Sigma \times \frac{1 - 2Ea^p b^q - \frac{2Ea^p b^q}{n}}{1 + Ea^p b^q + \frac{Ea^p b^q}{n}}$.

If either p or q exceed 10, this chance is less than 2Σ , and greater than $\Sigma + \Sigma \times \frac{1 - 2Ea^p b^q - \frac{2Ea^p b^q}{n}}{1 + \frac{1}{2}Ea^p b^q + \frac{Ea^p b^q}{2n}}$; but in

all cases, where z is small, and also where the disparity between p and q is not great, the chance is very nearly $= 2\Sigma$. In this rule, it is to be observed, that (supposing $m^2 = \frac{n^3}{2pq}$, K = the ratio of the quadrantal arc of a circle to its

radius, and H = the ratio, whose hyp. log. is $\frac{2^2 - 1}{2n} - \frac{2^4 - 1}{360n^2} + \frac{2^6 - 1}{1260n^3} - \frac{2^8 - 1}{1680n^4} + \&c.$) Σ is made $= \frac{n+1}{n} \times \frac{\sqrt{2pq}}{n} \times Ea^p b^q$ into the series $\frac{Hn}{n+1} \times \frac{\sqrt{K}}{\sqrt{2}} - \frac{n}{n+2}$

$\times \frac{1 - \frac{2m^2 z^2}{n}}{2mz} \left\{ \frac{n}{2+1} + \frac{n^2}{n+2} \times \frac{1 - \frac{2m^2 z^2}{n}}{n+4 \cdot 4m^3 z^3} - \frac{3n^3}{n+2} \times \frac{1 - \frac{2m^2 z^2}{n}}{n+4 \cdot n+6 \cdot n+8 \cdot 16 \cdot m^7 z^7} \right\} + \frac{3 \cdot 5 \cdot n^4}{n+1} \times \frac{1 - \frac{2m^2 z^2}{n}}{n+4 \cdot n+6 \cdot n+8 \cdot 16 \cdot m^7 z^7}$
- &c. and $Ea^p b^q = \frac{1}{2\sqrt{Kpq}}$ multiplied into the ratio,

whose hyp. log. is $\frac{1}{12} \times \frac{1}{n} - \frac{1}{p} - \frac{1}{q} - \frac{1}{360} \times \frac{1}{n^3} - \frac{1}{p^3} - \frac{1}{q^3} + \frac{1}{q^3} + \frac{1}{1260} \times \frac{1}{n^5} - \frac{1}{p^5} - \frac{1}{q^5} - \frac{1}{1680} \times \frac{1}{n^7} - \frac{1}{p^7} - \frac{1}{q^7} + \frac{1}{1188} \times \frac{1}{n^9} - \frac{1}{p^9} - \frac{1}{q^9} - \&c.$

From the preceding investigation, it appears that the first rule gives a direct and perfect solution in all cases, and that the second rule is only a method of approximating to the solution, when the labour of applying the first rule becomes too great. If either p or q are nothing, or very small, it is

evident that the first rule gives an easy and correct solution; but, in all other cases, recourse must be had to the approximation in the second rule; which, however, may be generally computed without any great difficulty. Indeed, what principally recommends the solution of this proposition is, that giving complete information when either p or q are small, it gives it in those cases where it is most wanted, and where M. de Moivre's solution of the inverse proposition can afford little or no direction. In the other cases, where p and q are very great, and where only the approximation is wanted, the required chance may be obtained with tolerable accuracy by the assistance of M. de Moivre's proposition. But in order to give a distinct idea of the nature of the present proposition, it will not be improper to conclude this account with the following examples: observing, however, previously, that both Mr. Bayes and Dr. Price, having omitted to state the value of E in the first rule, it may be

found $= \frac{n^2 \sqrt{n}}{p^2 q^2 \cdot 4 \sqrt{Kpq}}$ multiplied into the ratio, whose

hyp. log. is $\frac{1}{12} \times \frac{1}{n} - \frac{1}{p} - \frac{1}{q} - \frac{1}{360} \times \frac{1}{n^3} - \frac{1}{p^3} - \frac{1}{q^3} + \frac{1}{q^3} + \frac{1}{1260} \times \frac{1}{n^5} - \frac{1}{p^5} - \frac{1}{q^5} - \&c.$

1. Supposing an event to have happened about the probability of which nothing further is known than that it has happened *once*, and that it be inquired what conclusion should be drawn from hence with respect to the probability of its happening on a second trial. In this case q in the first rule becomes $= 0$ and $p = 1$, and if the limits z and x be put respectively $= 1$, and $\frac{1}{2}$ the expression in that rule, or

$\frac{1}{n+1} \cdot \frac{x^{p+1}}{p+1} - \frac{x^{p+1}}{p+1} \left(= 1 - \frac{1}{2} \right)$ will give $\frac{3}{4}$ for the answer; which shews that it is 3 to 1 that the chance lies

somewhere between 1 and $\frac{1}{2}$, or that the odds are 3 to 1, that it is somewhat more than an even chance that it would happen on a second trial. In the same manner, if the event has happened twice, the expression will be $1 - \frac{1}{2} = \frac{1}{2}$; if

thrice, $= 1 - \frac{1}{2} = \frac{15}{16}$. That is, the odds will be 7 to 1

if it has happened twice, and 15 to 1 if it has happened thrice, for *more* than an equal chance that it will happen on further trials. Again, if the event has happened ten times without failing, and inquiry be made what reason we have to think we are right if we guess that the probability lies

somewhere between $\frac{3}{4}$ and $\frac{2}{3}$, or between 3 to 1 and 2 to 1,

the answer in this case will be $\frac{3}{4} - \frac{2}{3} = .3067$; that is, the odds are greater than 2 to 1 against our being right.

If we had guessed that the probability lay between $\frac{16}{17}$ and $\frac{2}{3}$, or between 16 to 1 and 2 to 1, the chance would have been nearly equal that we had guessed right.

2. Supposing nothing further to have been known of an event than that it happened ten times and failed once, and that a person guessed from thence that the ratio of the probability of the event's happening in a single trial to that of its failing, lay somewhere between the ratio of 9 to 1 and 11 to

11 to 1; then would the chance of his being right in his guess be expressed by $\frac{n+1}{n}$. E multiplied into the difference between $\frac{z^{p+1}}{p+1} - \frac{qz^{p+2}}{p \times 2}$ and $\frac{x^{p+1}}{p+1} - \frac{qx^{p+2}}{p \times 2}$. Now since z is $= \frac{11}{12}$, $x = \frac{9}{10}$, $p = 10$, $q = 1$, $n = 11$, and E

also $= 11$, this expression may be easily found $= .07699$ &c.; so that there would be the odds of 923 to 77, or 12 to 1 nearly against his being right. If the event had happened 20 times and failed twice, the required chance would

$$\text{be } 23 \times 231 \times \frac{\left(\frac{11}{12}\right)^{21} - 2 \times \left(\frac{11}{12}\right)^{20} + \left(\frac{11}{12}\right)^{19} - \left(\frac{9}{10}\right)^{21}}{21 \quad 22 \quad 23 \quad 24} -$$

$$2 \times \frac{\left(\frac{9}{10}\right)^{22} + \frac{9}{10}^{23}}{22 \quad 23} = .10843 \text{ \&c. The odds, therefore,}$$

against his being right are less than in the former case, being here only 892 to 108, or 9 to 1 nearly.

3. Lastly, supposing an event to have failed 1000 times, and to have happened 100 times in 1100 trials; or, in other words, supposing a person to have known nothing more of a lottery than that he had just seen 1100 tickets drawn of which 1000 were blanks, and 100 were prizes; and that in consequence he guessed that the proportion of the blanks

to the prizes in the lottery lay somewhere between $\frac{10}{11}$ —

$\frac{1}{110}$, and $\frac{10}{11} + \frac{1}{110}$. In this case the first rule would require so many terms as to render it impracticable, and therefore recourse must be had to the second rule, by which the question may be determined in the following manner:

Since p is $= 1000$, $q = 100$, $n = 1100$, $z = \frac{1}{110}$, and m

$$\left(= \frac{\sqrt{n}}{2 \sqrt{pq}} \right) = 81.578, E a^p b^q \text{ may be found } = .0418545$$

and $\Sigma = .3531$; hence 2Σ will be $= .7062$ and $\Sigma + \Sigma \times$

$$\frac{1 - 2 E a^p b^q - 2 E a^p b^q}{n} = .6758, \text{ so that the chance of}$$

his being right in his conjecture lies somewhere between .7062 and 6758, or between the odds of 240 to 100, and 208 to 100, or nearly between 12 to 5 and 10 to 5.

CHANCE, in *Law*. Where a man commits an unlawful act, by misfortune or chance, and not by design, it is an instance of deficiency of will. In this case the will observes a total neutrality, and does not co-operate with the deed; and it therefore wants one main ingredient of a crime. It may here be observed, that if any accidental mischief happens to follow from the performance of a *lawful* act, the party stands excused from all guilt: but if a man be doing any thing *unlawful*, and a consequence ensues which he did not foresee or intend, as the death of a man or the like, his want of foresight shall be no excuse; for, being guilty of one offence, in doing antecedently what is in itself unlawful, he is criminally guilty of whatever consequence may follow the first misbehaviour. 1 Hal. P. C. 39. See the next article.

CHANCE-Medley, formed of Fr. *chance*, and *mêler*, miscere, the accidental killing of a man in self-defence. This self-

defence is that by which a man may protect himself from an assault, or the like, in the course of a sudden brawl or quarrel, by killing him who assaults him.

This kind of killing (*se defendendo*) is what the law expresses by the word *chance-medley*, or (as some write it) *chance-medley*; the former of which, according to its etymology, signifies a *casual* affray, the latter, an affray in the heat of blood or passion; both of these being much of the same import: but the former is in common speech too often erroneously applied to any manner of homicide by misadventure: whereas it appears by the statute 24 Hen. VIII. c. 5. and our ancient books (Staundf. P. C. 16.), that it is properly applied to such killing as happens in self-defence, upon a sudden rencounter. (3 Inst. 55. 57. Fost. 275, 276.) This right of natural defence does not imply a right of attacking; for, instead of attacking one another for injuries past or impending, men need only have recourse to the ordinary tribunals of justice. They cannot, therefore, legally exercise this right of preventive defence, but in sudden or violent cases; when certain and immediate suffering would be the consequence of waiting for the assistance of law. Therefore, to excuse homicide by the plea of self-defence, it must appear, that the slayer had no other possible (or, at least, probable) means of escaping from his assailant. It is frequently difficult to distinguish this species of homicide (upon *chance-medley* in self-defence) from that of manslaughter, in the proper legal sense of the word. (3 Inst. 55.) But the true criterion between them seems to be this: when both parties are actually combating at the time when the mortal stroke is given, the slayer is then guilty of manslaughter; and if the slayer hath not begun to fight, or (having begun) endeavours to decline any further struggle, and afterwards, being close pressed by his antagonist, kills him to avoid his own destruction, this is homicide excusable by self-defence. (Fost. 277.) See **HOMICIDE**. In *chance-medley* the offender forfeits his goods, but hath a pardon of course. See stat. 6 Edw. I. c. 9.

CHANCEFORD, in *Geography*, a township of America, in York county, Pennsylvania.

CHANCEL, is properly that part of the choir of a church, between the altar or communion-table, and the balustrade, or rail that encloses it; where the minister is placed at the celebration of the communion.

The word comes from the Latin *cancellus*, which in the lower Latin is used in the same sense, from *cancelli*, *lattices*, or *cross bars*; wherewith the *chancels* were anciently encompassed, as they now are with rails.

The right of a seat and a sepulchre in the chancel, is one of the privileges of the founders of a church. The repairs of the chancel belong by usage, in most parishes, to the rector or vicar, or both.

CHANCELADE, in *Geography*, a town of France, in the department of the Dordogne; one league N.W. of Périgueux.

CANCELLOR, an officer, supposed originally to have been a notary, or scribe, under the emperors, and named *cancellarius*, because he sat behind a lattice, called in Latin *cancellus*, to avoid being crowded by the people.

Naude says, it was the emperor himself who sat and rendered justice within the lattice; the chancellor attending at the door thereof, whence he took his title.

Others say, he had it from this, that all letters, addresses, petitions, &c. to the king, being first examined by him, were *canceled*, where amiss: others, as Sir Edward Coke (4 Inst. 88.) because all patents, commissions, and warrants, coming from the king, were examined and *canceled* by him, when granted contrary to law, which is the highest point of

his jurisdiction. Others, because he *cancelled* and annulled the sentences of other courts.

Du-Cange, from Joannes de Janua, fetches the original of the word chancellor from Palestine, where the houses being flat, and made in form of a terrace, with parapets or palisades, called *cancelli*; those who mounted these houses to rehearse any harangue, were called *cancellarii*; whence the name passed to those who pleaded at the bar, which he calls *cancelli forenses*, and at length to the judge who presided; and lastly to the king's secretaries.

The office, and also the name of chancellor (however derived), was undoubtedly known to the courts of the Roman emperors; where it originally seems to have signified a chief scribe or secretary, who was afterwards invested with several judicial powers, and a general superintendency over the rest of the officers of the prince. Under the emperor Carinus, one of his door-keepers, with whom he entrusted the government of the city, was denominated *cancellarius*; and from this humble original, says Mr. Gibbon, (Hist. Rom. Emp. vol. ii. p. 91.) the appellation has, by a singular fortune, risen into the title of the first great office of state in the monarchies of Europe. From the Roman empire it passed to the Roman church ever emulous of imperial state; and hence every bishop has, to this day, his chancellor, the principal judge of his consistory. And when the modern kingdoms of Europe were established upon the ruins of the empire, almost every state preserved its chancellor, with different jurisdictions and dignities, according to their different constitutions. But in all of them he seems to have had the supervision of all charters, letters, and such other public instruments of the crown, as were authenticated in the most solemn manner; and therefore, when seals came into use, he had always the custody of the king's great seal.

This officer is now in great authority in all countries: the person who bears it with us, or the

Lord High CHANCELLOR of England, is the first lay person of the realm, next after the king and princes of the blood, in all civil affairs. He is the chief administrator of justice next the sovereign, being the judge of the court of chancery; and to him belongs the appointment of all the justices of peace in the kingdom.

All other justices are tied to the strict rules of the law; but the chancellor has the king's absolute power to moderate the rigour of the written law, to govern his judgment by the law of nature and conscience, and to order all things *secundum equum & bonum*. Accordingly, Stamford says, the chancellor has two powers, the one absolute, the other ordinary; meaning, that though by his ordinary power he must observe the same form of procedure as other judges, yet in his absolute power he is not limited by any written law, but by conscience and equity.

Although Polydore Virgil, in his History of England, makes William I. called the Conqueror, the founder of our chancellors; yet Dugdale has shewn, that there were many chancellors of England long before that time, who are mentioned in his "Origines Juridicales," and catalogues of chancellors; and Sir Edward Coke (4 Inst.) says, it is certain, that both the British and Saxon kings had their chancellors, whose great authority under their kings were probably derived from the reasonable customs of neighbouring nations, and the civil law. The offices of lord-chancellor and lord-keeper, by the statute 5 Eliz. cap. 18. were invested with the same power; till that time they were different, and frequently subsisted at the same time in different persons; sometimes the lord-chancellor had a *vice-chancellor*, who was keeper of the seal.

Since that statute, there cannot be a lord-chancellor and

a lord-keeper at the same time; but before, there might, and had been. King Henry V. had a great seal of gold, which he delivered to the bishop of Durham, and made him lord-chancellor; and also another of silver, which he committed to the bishop of London to keep. Lord Bridgman was lord-keeper, and lord chief justice of the common pleas, at the same time; which offices were held not to be inconsistent. (4 Inst. 78.) By stat. 1 W. and M. cap. 21. commissioners appointed to execute the office of lord-chancellor, may exercise all the authority, jurisdiction, and execution of laws which the lord-chancellor, or lord-keeper, of right might so use and execute, &c.; since which statute this high office hath been several times in commission. The keeper was created *per traditionem magni sigilli*, but the lord-chancellor by patent, though now that he has the keeper's office, he is created in like manner by the mere delivery of the king's great seal into his custody; whereby he becomes, without writ or patent, an officer of the greatest might and power of any now subsisting in the kingdom, and in point of precedency superior to every temporal lord. And the act of taking away this seal by the king, or of its being assigned or given up by the chancellor, determines his office. (1 Sid. 338.) The chancellor is a privy-counsellor by his office, and according to lord-chancellor Ellesmere, prolocutor of the house of lords by prescription. See PARLIAMENT.

Though he be sole judge of the court of chancery, yet in matters of much difficulty, he sometimes consults the other judges, though they have no share whatever of the judicial authority; so that this office may be discharged by one who is no professed lawyer, as anciently it commonly was by an ecclesiastic, who presided over the royal chapel, and became keeper of the king's conscience; visitor, in the king's right, of all hospitals and colleges of royal foundation; patron of all the king's livings, under the value of 20 marks per ann. in the king's books, (38 Ed. III. 3. F. N. B. 35.) though Hobart (214) extends this value to 20 pounds; guardian of all infants, idiots, and lunatics; and general superintendant of all charitable institutions; and all this, over and above the vast and extensive jurisdiction which he exercises in his judicial capacity in the court of chancery, wherein, as in the exchequer, there are two distinct tribunals; the one ordinary, being a court of common law; the other extraordinary, being a court of equity. See COURT of Chancery.

The lord chancellor, as there is now no lord high steward, is accounted the first officer of the kingdom; and he not only keeps the great seal, but all patents, commissions, warrants, &c. from the king, are perused and examined by him, before they are signed; and he annuls the king's letters patent when contrary to law. See this article *supra*. By his oath he swears well and truly to serve the king, and to do right to all manner of people, &c. The stat. 25 Ed. III. c. 2. declares it to be treason to slay the chancellor (and certain other judges), being in their places doing their offices; and it seems, that the lord-keeper and commissioners of the great seal are within this statute, by virtue of stat. 5 Eliz. c. 18. and 1 W. and M. c. 21. See TREASON.

The lord-chancellor, in his judicial capacity, has twelve assistants or coadjutors, anciently called *clerici*, as then being in holy orders, now *Masters in Chancery*, and the *Master of the Rolls*. See MASTER of the Rolls, MASTERS in Chancery, &c.

Besides these superior officers, he has other assistants. The *six clerks* in chancery transact and file all proceedings by bill and answer; and also issue out some patents that pass the great seal; which business is done by their under clerks, each

each of whom has a seat there; of whom every one of the six clerks has a certain number in his office, usually about ten; the whole body being called the *sixty clerks*.

The *curfitors* of the court, 24 in number, make out all original writs in chancery, which are returnable in C. B., &c. and among these the business of the several counties is severally distributed. The *registrar* is an office of great importance in this court, under whom are several deputies, who take cognizance of all orders and decrees, and enter and draw them up, &c. The *master of the subpoena office* issues out all writs of subpoena. The *examiners* are officers who take the depositions of witnesses and examine them, and make out copies of the depositions. The *clerk of the affidavits* files all affidavits used in court, without which they will not be admitted. The *clerk of the rolls* sits constantly in the Rolls, to make searches for deeds, offices, &c., and to make out copies. The *clerks of the petty-bag office*, three in number, have a great variety of business belonging to their respective departments, in making out writs of summons to parliament, *conge d'elires* for bishops, patents for customers, *liberates* upon extent of statute-staple, and recovery of recognizances forfeited, &c.; and also relating to suits for and against privileged persons, &c. These clerks have several subordinate clerks. The *usher of the chancery* had formerly the receiving and custody of all money entered to be deposited in court, and paid it back again by order; but this business was afterwards assumed by the masters in chancery: till by stat. 12 Geo. I. c. 32. a new officer was appointed, called the *accountant general*, which see. There is also a *serjeant at arms*, to whom persons standing in contempt are brought up by his substitute as prisoners. A *warden of the fleet* receives such prisoners as stand committed by the court, &c. Besides these officers there are several others; such as a clerk of the crown in chancery; clerk and controller of the hanaper; clerk for inrolling letters patent, &c., not employed in proceedings of equity, but concerned in making out commissions, patents, powers, &c. under the great seal, and collecting the fees thereof; a clerk of the faculties, for dispensations, licences, &c.; clerk of the presentations for benefices of the crown in the chancellor's gift; clerk of appeals, in appeals from the courts of the archbishop to the court of chancery; and various other officers, who are constituted by the chancellor's commission.

CHANCELLOR of a cathedral. His office is thus described in the Monasticon; viz. to hear the lessons and lectures read in the church, either by himself, or his vicar; to correct and set right the reader when he read amiss; to inspect schools, to hear causes, apply the seal, write and dispatch the letters of the chapter, keep the books, take care there be frequent preachings, both in the church, and out of it, and assign the office of preaching to whom he lists.

CHANCELLOR of a diocese, or of a bishop, is a person appointed to hold the bishop's courts, held in the respective cathedral of each diocese, and to assist the bishop in matters of ecclesiastical law. This officer, as well as all other ecclesiastical ones, if lay or married, must be a doctor of the civil law so created in some university. Stat. 37 Hen. VIII. c. 17. He was anciently called *ecclesiasticus*, and *ecclesiasticus*, the church-lawyer. See *Bishop's COURT*.

CHANCELLOR of the dutchy of Lancaster, is an officer before whom, or his deputy, the court of the dutchy chamber of Lancaster is held. It is his business to judge and determine all controversies between the king and his tenants of the dutchy-land; and otherwise to direct all the king's affairs relating to that court. See *Dutchy COURT*.

CHANCELLOR of the exchequer, is an officer, supposed by

some to have been created for moderating extremities in the exchequer. He sometimes sits in that court and the exchequer-chamber, and, with the rest of the court, orders things to the king's best benefit. He is always in communion with the lord-treasurer for letting lands accruing to the crown by dissolution of abbies, and otherwise: he has power (by stat. 33 Hen. VIII. c. 39), with others, to compound for forfeitures on penal statutes, bonds, and recognizances entered into to the king. He has a great authority in managing the royal revenue, &c. and this seems of late to be his chief business; accordingly he is commonly the first lord commissioner of the treasury. The court of equity in the exchequer-chamber, which was intended to be holden before the lord-treasurer, chancellor, and barons, is usually held before the barons only. When there is a lord-treasurer, the chancellor of the exchequer is under-treasurer. See *COURT of EXCHEQUER*.

CHANCELLOR of the order of the garter, and other military orders, is an officer who seals the commissions and mandates of the chapter, and assembly of the knights, keeps the register of their deliberations, and delivers acts thereof under the seal of the order. This office is annexed to the see of Salisbury. See *GARTER*.

CHANCELLOR of an university, is he who seals the diplomas or letters of degrees, provision, &c. given in the university.

The chancellor of Oxford is their chief magistrate, elected by the students themselves: his office is *durante vita*, to govern the university, preserve and defend its rights and privileges, convoke assemblies, and do justice among the members under his jurisdiction.

Under the chancellor is the *vice-chancellor*, who is chosen annually; being nominated by the chancellor, and elected by the university in convocation. His business is to supply the chancellor's absence.

At his entrance upon his office, he chooses four *pro-vice-chancellors* out of the heads of colleges, to one of whom he deposes his power in his absence. See *OXFORD*.

The chancellor of Cambridge is, in most respects, the same with that of Oxford; only he does not hold his office *durante vita*, but may be elected every two years.

He has under him a commissary, who holds a court of record of civil causes, for all persons of the university under the degree of master of arts.

The vice-chancellor of Cambridge is chosen annually by the senate, out of two persons nominated by the heads of the several colleges and halls. See *CAMBRIDGE*. See also *UNIVERSITY COURTS*.

CHANCERY. See *COURT of Chancery*.

CHANCHA, in *Geography*, a town of Egypt; 2 leagues E. of Cairo, at the entrance of a desert which leads to mount Sinai.

CHANCER, in *Surgery*, is a term originally derived from the Greek word *καρκινος*, CANCER, CANKER, or (agreeably to the French orthography) CHANCRE. This word, among the Romans, signified an eroding ulcer of any kind, *ulcus cancrosum*; such, for example, as may be often seen in the inside of the cheeks or lips, where the cuticle is extremely thin, as it is upon the glans penis, and interior part of the prepuce. "Si quando autem ulcera oris cancer invadit, primo considerandum est, rum malus corporis habitus sit, eique occurrendum;" Celsus, de Med. lib. vi. cap. 15. The translators of Celsus, in this passage, and in lib. v. cap. 26. § 31. 35. have not improperly rendered the term cancer by the word *gangrene*; and so, conversely, the Greek term *γανγκραιμα* has been translated cancer in the Latin vulgate bible, and canker in the authorized English version.

z Tim. ii. 17—because a gangrene is of an eroding or spreading nature. In this sense, the word may be used metaphorically:

“Yet writers say, as in the sweetest bud
The eating canker dwells; so eating love
Inhabits in the finest wits of all.” SHAKESPEARE.

French writers do not confine the term *chancre*, as most of the modern English authors have done, to sores arising from a venereal cause; although they, too, are getting more into that habit: but the French use this word to denote the little eating ulcer of the mouth, before noticed: and they even apply the same term to vegetables, e. g. “Cet arbre la a une chancre.”

The older medical authors, especially those of the middle age, employed the words *cancrana* and *carolus*, likewise, to signify that kind of eroding malignant sore which arises from impure sexual intercourse; and it is this local disorder, almost exclusively, to which modern surgeons are accustomed to apply the epithet *chancre*. Indeed, we seldom hear the word, without annexing the idea of its originating in a venereal cause; and from this association, we are very apt to forget the true etymology of the term, and that it was in use even before the existence of lues venerea.

The old Italian words *carolo*, a canker-worm, and *caroloso*, worm-eaten, were, perhaps, derived from *caries*, which signifies rottenness. Hence, the Italians write, in their ancient idiom, “*bubones di caroli*,” that is, bubones ex carie: Vide Welsch. Obs. Med. Syllog. in Marc. Cumanus, 4to. p. 38. Hence again, Fracastorius and others say, “*caries penis*,” where we should say, “chancre penis.”

Marcellus Cumanus, who wrote in the year 1495, during the invasion of Italy by Charles VIII. tells us, he cured many persons afflicted with venereal chancres: “*Vidi quendam patientem carolos in virga, in parte præputii interna;*” and in another place, he says, “*Ego infinitos bubones causatos ex pustulis virgæ, & ex nimia fatigatione & labore curavi.*” That he means the same disease in both cases is evident, from the following observations: “*Ut resolvatur bubo in principio & augmento, à causa primitiva, vel à carolis fiat hoc, &c.*”—and again, “*Aliquando incipiebat pustula una in modum vesiculæ parvæ sine dolore, sed cum pruritu, fricabant, et inde ulcerabatur tanquam formica corrosiva; et post aliquot dies incurrabant in angustis propter dolores in brachiis, cruribus, pedibus, cum pustulis magnis.*” This is the very first description on record of what we now denominate VENEREAL CHANCRES: (See LUES VENEREA and SYPHILIS.) The next authors who noticed this symptom of lues, were Torella, Almenar, and John De Vigo.

The most common characters of a chancre, in its incipient state, are a red, painful, and itching pimple, containing a small quantity of subjacent serum, which readily bursts into a little ulcer, having hard, thickened, and slightly elevated edges. But this very same kind of sore may arise in other parts of the body, thinly covered with cuticle; and it appears to be, in a great measure, owing to the structure of the affected part, what characters the ulcer shall assume, rather than to the peculiar nature of the efficient cause. We do not, at present, enter into the subject of the cure of chancres; as this belongs to the article SYPHILIS or LUES VENEREA: but we may here observe, that medical men have grievously obscured this subject in their writings, and too generally have supposed all chancres to be venereal; from which erroneous datum, they have further concluded, that all chancres require mercury for their cure! See Mr. Blair’s “*Essays on the Venereal Disease*,” Part II. sub finem; where this question is considered, in reference to the

medicinal use of nitric acid. Mr. Abernethy has also, of late, thrown out some useful hints on the same subject, in his “*Surgical Observations*,” Part I. p. 108, &c.

CHANDA, in *Geography*, a considerable city of Hindoostan, in the country of Berar, belonging to Nagpour, and about 70 geographical miles to the south of it. N. lat. 19° 48'. E. long. 80° 2'.

CHANDACE, in *Ancient Geography*, a fortified town of the island of Crete.

CHANDAIL, a circar or district of Hindoostan in the territory of Allahabad, S.W. of the country of Benares.

CHANDANA, in *Ancient Geography*, an ancient town placed by Steph. Byz. in Japygia.

CHANDANACA, a town of Asia, in Persia. Steph. Byz.

CHANDELEUR *islands*, a cluster of islands in the gulf of Mexico, near the coast of West Florida. N. lat. 29° 30'. to 29° 45'. W. long. 88° 48'. to 88° 58'.

CHANDELLER signifies a candlestick, lamp, &c. which see. Illuminated chandeliers form an important addition to a collection of works in pyrotechny, and are much admired by the Italians. They have the advantage of being easily made; and in a grand exhibition illuminated pieces of this kind should be fired after every two or three wheels, or fixed pieces of common and brilliant fires. For the construction of an illuminated chandelier, let it be made of thin wood, consisting of a stem and arched branches, and surmounted with a crown. In the front of the branches, in the body, and in the crown at the top, bore as many holes for illuminations as they will contain, at the distance of three inches from one another: and in these insert illuminations formed with white, blue, or brilliant charges. Having fixed the port-fires, clothe them with leaders, so that the chandelier and crown may be illuminated together. See PYROTECHNY.

CHANDELIERS, or CHANDELEERS, in *Fortification*, are upright stakes raised on one or more pieces of wood to support planks, boughs, fascines, and, in general, all that can help to cover the besiegers, and prevent the enemy from seeing what is doing behind them. When the besiegers are under the necessity of opening any trenches that are enfiladed, they must take such precautions and raise a parapet every now and then to cover part of such a trench. Chandeliers sometimes serve as a moveable parapet.

CHANDEGHERE. See KANDEGHERI.

CHANDEREE, in *Geography*, a very ancient city of Hindoostan, capital of a circar or district in the province of Malwa, near the river Beewah. It once contained, according to the Ayin Acbaree, 14,000 stone houses; and, although, like most of the ancient cities of Hindoostan, it is fallen into decay, it is still the residence of a principal rajah: 242 miles N.E. of Ougein, and 302 N.W. from Nagpour, N. lat. 24° 48'. E. long. 78° 43'.

CHANDERNAGORE, a town of Hindoostan, in the country of Bengal, formerly a French settlement, but now possessed by the English, situated on the western bank of the Ganges, about an hour’s walk below Chinsurah, and somewhat more than 10 miles from Calcutta. It is built, about a mile in length, along the Ganges, in a straight line, with two parallel and several cross streets behind it, which have some good buildings. The ruins of the fort, demolished by the English, are at the north end of the place, and sufficiently shew its former strength. The French governor built a handsome house, and laid out an elegant garden about four miles below the town, affording a charming prospect along the Ganges. This place was taken by the English,

English, under the conduct of colonel Clive and admiral Watfon, in March 1757; restored to the French at the peace of 1763; taken again during the American war, and restored in 1783; and since taken in 1793, and retained. N. lat. $22^{\circ} 51' 26''$. E. long. $88^{\circ} 29' 15''$.

CHANDIEU, a town of France, in the department of the Rhône and Loire; 1 league N. of Montbrison.

CHANDIGA, a river of Siberia, which runs into the Adlan. N. lat. $62^{\circ} 10'$. E. long. $135^{\circ} 14'$.

CHANDIROBA, in *Botany*. Marcgr. Sloan, Plum. See FEUILLEA.

CHANDLER, SAMUEL, in *Biography*, an eminently learned nonconformist divine, was born in 1693 at Hungerford, in Berkshire, where his father was pastor of a congregation of protestant dissenters. His academical education was commenced under Mr. Moore of Bridgewater, and completed under the learned Mr. Samuel Jones of Tewksbury, where his fellow students were Butler and Secker, afterwards distinguished prelates in the church of England. Having acquired in this excellent seminary a very considerable share of critical, biblical, and oriental learning, he first began to preach in 1714; and in 1716 he settled with a dissenting congregation at Peckham, near London. But being married, and having an increasing family, and losing his whole fortune in the South Sea scheme in 1720, the income derived from his office was inadequate to his support; so that he was under the necessity of opening a bookfeller's shop in the Poultry, which he kept two or three years, whilst he continued to discharge his duty as a minister. At this time he was appointed to preach a weekly evening-lecture at the meeting-house in the Old Jewry, where he delivered a course of sermons on the miracles of Christ and the truth of the Christian religion. These sermons, which were published in 1725, in the form of a treatise, in 8vo, and entitled "A Vindication of the Christian Religion, in two parts," the first containing a discourse on miracles and the second an answer to Collins's "Grounds and Reasons of the Christian Religion," were very favourably received by the public, and occasioned his being chosen, about the year 1726, minister of the congregation in the Old Jewry, to which he officiated with a high degree of reputation, first as assistant and afterwards as pastor, for 40 years. As a preacher, he was eminently instructive and animated; and he was assiduous in the exercise of his pastoral office. In 1727, he published "Reflexions on the Conduct of the modern Deists, in their late Writings against Christianity," with a preface in favour of the rights of private judgment, in answer to some remarks of Dr. Rogers; and, in the following year, he published "A Vindication of the Antiquity and Authority of Daniel's Prophecies, and their Application to Jesus Christ." Whilst he thus ably and strenuously defended the truth of revealed religion, he displayed his abhorrence of the persecuting spirit which has been too often manifested by its erroneous advocates, in a translation of "The History of the Inquisition, by Philip à Limborch," in 2 vols. 4to. 1731; and to this translation he prefixed "A large Introduction, concerning the Rise and Progress of Persecution," which involved him in a controversy with Dr. Berriman, and occasioned the publication of two or three pamphlets on each side. In the prosecution of the subject of religious liberty, he published, in 1732, a letter to Dr. Gibson, bishop of London, concerning the repeal of the test act, entitled "The Dispute better adjusted about the proper Time of applying for a Repeal of the Corporation and Test Acts, by shewing that some Time is proper." Having formed a design of writing a commentary on the Hebrew prophets, he began by publishing, in 1735, "A

Paraphrase and critical Commentary on Joel," 4to.; but whilst he was proceeding with the book of Isaiah, he was convinced, by the MS. lexicon and lectures of Schultens, which fell into his hands, that he did not possess a sufficient acquaintance with the Oriental tongues for the execution of his plan; and he, therefore, abandoned his design. In 1736 he republished his introduction to the history of the Inquisition, in an enlarged form, under the title of "The History of Persecution, in 4 parts: 1. Amongst the Heathens; 2. Under the Christian Emperors; 3. Under the Papacy and Inquisition; 4. Among Protestants; with a Preface, containing Remarks on Dr. Rogers's Vindication of the civil Establishment of Religion," 8vo. In the course of this publication he endeavoured to prove, that the things for which Christians have persecuted one another have generally been of small importance; that pride, ambition, and covetousness, have been the grand sources of persecution; that the decrees of councils and synods are of no authority in matters of faith; that the imposition of subscriptions to human creeds is unreasonable and pernicious; and that the Christian religion absolutely condemns persecution for conscience-sake. In 1741, he renewed his controversial warfare with deism, by a "Vindication of the History of the Old Testament," which was followed, in 1742, by his "Defence of the Prime-Ministry and Character of Joseph," both written in answer to Dr. Thomas Morgan, whom, according to Dr. Leland, he clearly convicted of falsehood and misrepresentation. In 1744, he published "The Witnesses of the Resurrection of Jesus Christ re-examined, and their Testimony proved entirely consistent;" which, in the judgment of Dr. Leland, was "a valuable treatise," containing, particularly in the last chapter, a very clear and judicious summary of the evidence for the resurrection of Jesus. His next publication, in 1748, was "The Case of Subscription to explanatory Articles of Faith, as a Qualification for Admission into the Christian Ministry, calmly and impartially reviewed; in answer to, 1. A late Pamphlet, entitled, the Church of England vindicated in requiring Subscription from the Clergy to the 39 Articles; 2. The Rev. Mr. John White's Appendix to his third Letter to a dissenting Gentleman; to which is added, the Speech of the Rev. John Alphonso Turretine, previous to the Abolition of all Subscription, at Geneva, translated from a MS. in the French," 8vo. About this time he accompanied his friend, the earl of Finlater, into Scotland, and accepted, what he had before declined, the honour of a doctor's degree in divinity, which was conferred upon him without solicitation, and with every token of respect, by the two universities of Edinburgh and Glasgow. He had likewise the honour of being afterwards elected a fellow of the Royal Society and of the Society of Antiquaries. Upon the death of king George II. in 1760, Dr. Chandler published a funeral sermon, containing an eulogy of that prince, and comparing him to king David. This occasioned a pamphlet, entitled "The History of the Man after God's own Heart," in which the author calumniated the character of David, and censured the parallel which the preacher had delineated between him and the British monarch, as an insult to the latter. This wanton and illiberal attack was repelled, on the part of Dr. Chandler, by a publication, entitled "A Review of the History of the Man after God's own Heart, in which the Falsehoods and Misrepresentations of the Historian are exposed and corrected." Without attempting to vindicate the Jewish prince from all the accusations of his adversary, the author, by means of his skill in the Hebrew language, and his extensive acquaintance with biblical learning, detected and exposed the misrepresentations of his puny antagonist, who had chiefly availed himself

himself of Bayle's article of "David" in his dictionary, by shewing that he had paid no regard to scripture criticisms, to the various readings of particular passages, and the opinions of expositors and commentators. This gave occasion to a very learned and elaborate publication, in 2 vols. 8vo. entitled "A critical History of the Life of David; in which the principal Events are ranged in order of time, the chief Objections of Mr. Bayle and others against the Character of this Prince, and the Scripture Account of him, and the Occurrences of his Reign are examined and refuted; and the Psalms which refer to him explained." This work, trivial as was the occasion which gave rise to it, did great honour to the judgment, and sagacity, as well as the erudition, of Dr. Chandler; and contained explications of several psalms, and commentaries upon them, particularly that on the 68th psalm, which have been much admired. This was the last of Dr. Chandler's productions; and the greatest part of it was printed off at the time of his death, which happened on the 8th of May 1766, in his 73d year. In early life he had been subject to frequent and dangerous fevers, which induced him to restrict himself for 12 years to a vegetable diet; and this had so good an effect on his constitution, that although he afterwards returned to the usual mode of living, he enjoyed an uncommon share of spirits and vigour till the age of 70 years. During the last year of his life he was afflicted with frequent returns of a very painful disorder, which he endured with a great degree of Christian fortitude and resignation. Under repeated paroxysms of his complaint he often declared, "that to secure the divine felicity promised by Christ was the principal, and almost the only thing that made life desirable: that to attain this he would gladly die, submitting himself entirely to God, as to the time and manner of his death, whose will was most righteous and good; and being persuaded that all was well which ended well for eternity." He had several children, two sons and a daughter who died before him, and three daughters who survived him; one of whom was married to the Rev. Dr. Harwood. The eminent abilities and extensive learning of Dr. Chandler commanded respect and esteem not only from the dissenters, with whom he was immediately connected, and among whom he had a very considerable degree of influence, but from several dignitaries and other persons of rank belonging to the established church.

He is said to have had liberal offers of preferment in the church: nor is this at all unlikely, considering his early acquaintance with the prelates Butler and Secker, and his connection with several persons of high rank in the state; but he declined every proposal of this kind, because he did not choose to conform: preferring a steady adherence to the dictates of conscience to any secular advantage which he might thus have obtained. Amongst the dissenters his talents and character gave him that influence, which must have been gratifying to his mind; and he exerted himself on a variety of occasions, by his acquaintance with persons in power, and by the respect with which he was held among persons of his own profession, in assisting individuals, and in promoting the general interest of his brethren. Accordingly he was principally instrumental in establishing the fund for the relief of the widows and orphans of poor dissenting ministers, which has been eminently useful, and has been long supported with distinguished liberality.

Besides the works which we have already noticed, Dr. Chandler printed a number of single sermons and pamphlets, on occasional subjects. After his death, 4 volumes of his sermons were published by Dr. Amory, in 1768, according to the directions of his will; and, in 1777, Mr. White, his immediate successor as pastor of the congregation in the

Old Jewry, published in 1 vol. 4to. "A Paraphrase and Notes on the Epistles of St. Paul to the Galatians and Ephesians, with doctrinal and practical Observations; together with a critical and practical Commentary on the two Epistles of St. Paul to the Thessalonians." He also left an interleaved bible, containing a large number of critical notes, which merited publication; but by some accident or other, though they were intended for the press by gentlemen who purchased them, the design was never executed.

Mrs. *Mary Chandler*, the sister of Dr. Chandler, was celebrated for her literary acquirements and poetical productions. As she was somewhat deformed in her person, in consequence of an accident in her childhood, she used to say, "that as her person would not recommend her, she must endeavour to cultivate her mind, in order to render herself agreeable." She was born at Malmesbury in Wiltshire, in 1687, and, after an excellent education, settled in business at Bath, where she was highly esteemed by all who knew her, among whom were several persons of rank and eminence in the literary world. She published several poems; but that which she wrote on Bath was the most popular, and passed through several editions. Having long struggled with the infirmities of a valetudinary constitution, she died in 1745. Dr. Chandler drew up an account of her, which is inserted in "The Lives of the Poets," published under the name of Theophilus Cibber. Our author had also a brother, Mr. John Chandler, who was for many years eminent in his profession as an apothecary in the city of London, and much respected among his acquaintance. He published a pamphlet on colds and catarrhs, which was well received. Amory's Preface to Dr. Chandler's Sermons. Biog. Brit.

CHANDOR, in *Geography*, a town of Hindoostan, in the country of Baglana; 52 miles N.E. of Nassuik, and 80 N.W. of Aurungabad.

CHANDOUL, a town of Persia, in the province of Adirbeitzan; 150 miles N.E. of Tauris.

CHANE, in *Ichthyology*, a name given by Aristotle, Athenæus, and the other Greek writers, to the fish called by other authors *hiatula*, *chauna*, and *chaunus*. This fish appears to be the *labrus hepatus* of modern writers, a species common in the Mediterranean, and which has the lower jaw longest, and the sides traversely lined with black. See *LABRUS Hepatus*.

CHANFRIN, in the *Manege*, is the fore part of a horse's head, extending from under the ears, along the interval between the eye-brows, down to his nose.

CHANG, in *Geography*, a town of China, of the second rank, in the province of Chen-si; 495 miles S.W. of Peking. N. lat. 33° 50'. E. long. 109° 31'.

CHANGA, or **XANGA**, a small island, in the Indian Sea, near the coast of Africa, at the mouth of the river of the same name. S. lat. 10° 45'. E. long. 39° 50'.

CHANGAMAH, a fortified place of Hindoostan, in the country of Myfore, situated in the valley of Vaniam Laddy or Barra-maul, directly distant from Trinomaly about 10 $\frac{1}{2}$ miles.

CHANGAPRANG, a town of Asia, in the country of Thibet, 242 miles W. of Lassa, and 195 N.N.E. of Catmandu. N. lat. 31° 6'. E. long. 86° 52'.

CHANGASARI, a town of Russia, in the government of Viborg; 80 miles W.N.W. of Viborg.

CHANGAY, a mountain of Asia; being a branch of the Altaian chain. See **ALTAI**.

CHANG-CHA, a city of China, of the first rank, in the southern part of the province of Hu-quang.

CHANG-CHE, a city of China, of the second rank, in the

the province of Quang-si; 403 leagues S.S.W. of Peking. N. lat. 22° 6'. E. long. 106° 17'.

CHANG-CHEW, a city of China, of the first rank, in the southern part of the province of Fo-kyen; situate on a river which ebbs and flows; over which is a stately bridge, consisting of 36 very high arches, broad enough to admit shops on both sides, which are stored with all sorts of rich merchandize, both of China and the Indies. Its vicinity to Amoy (which see), a place of vast commerce, occasions a constant traffic to be continually carried on between them. The neighbouring mountains yield the finest crystal, of which they make buttons, seals, figures of animals, &c.—Also, a district of the province of Kiang-nan or Nanking.

CHANG-CHOU, a town of China, of the third rank, in the province of Honan; 15 leagues S.E. of Hiu.

CHANGE, in *Commerce*. See EXCHANGE.

CHANGÉ, in *Geography*, a town of France, in the department of the Mayenne; one league N. of Laval.—Also, a town of France, in the department of the Sarthe; one league S. of Le Mans.

CHANGE, in the *Manege*. To *change* a horse, or *change* hand, is to turn or beat the horse's head from one hand to the other, from the right to the left, or from the left to the right. You should never *change* your horse without pushing him forward upon the turn; and after the turn, push him on straight, in order to a stop.

CHANGE of crops, in *Agriculture*, is that part of husbandry which relates to the mode of changing, distributing, and cultivating different sorts of crops, on any kind of soil, in order to prevent its being exhausted in the least possible degree. This is an improvement of considerable importance; and which modern cultivators have attended to in a particular manner. It has been observed that "experience soon taught men, that even the most fruitful soil cannot constantly yield the same grain; and that this of course laid them under a necessity of seeking for some means to remedy the defect. They found that the plough was then the most ready, and perhaps the most effectual: and hence all the ancient writers so highly recommend a thorough ploughing. At the same time the apparent loss of the produce of the ground, during the year of fallow, put them upon inquiring how this inconvenience might be prevented, consistently with keeping the land in good heart. Repeated observations convinced the Romans, the most attentive of all nations to every thing relative to husbandry, that, besides the alternate resting of the land, wheat might, as is observed by Pliny, be sown after lupines, vetches, beans, or any other plant which has the quality of fertilizing and enriching the soil."

A judicious change of crops must therefore, without doubt, be of great importance in the common tillage husbandry, as it enables the farmer to save the expence and loss of a crop in the fallow year; and to get quit of weeds, by attacking them at different seasons of the year, and in different periods of their growth; both from the nature of the crops cultivated, and where the intermediate crops are hoed, as those of beans, pease, and many other similar seeds. It has been well remarked by cultivators, that in the change of crops that are cultivated for the purpose of preventing the exhaustion of land, by the repeated sowing of the same kinds of grain, attention should always be had, both to the nature of the soil, and the intentions of the farmer; as it is only in this way that the most advantageous changes can be adopted and introduced in the different situations and conditions of land. But this method of operating, though a practice of infinite consequence in agriculture, and which was much examined and attended to at an early period of the art, seems to have been much overlooked and neglected, until lately, when the

culture of turnips probably furnished the useful hint, and led the farmer to perceive that his land, instead of being impoverished by that valuable root, was greatly enriched, and prepared to yield a better crop of barley in the spring, than would otherwise have been the case. This might likewise suggest to him, that other succulent plants, which shade and cover the earth much with their leaves, might have the same effect; and the success which has followed has answered his utmost expectation, as it is now found that a fallow does not become necessary in several years; the ground being kept clean from weeds and in heart by a variety of green and other crops, when rightly timed and properly managed in respect to their introduction and culture afterwards.

It has been discovered by modern cultivators that some sorts of crops, such as pease, beans, clover, and all plants of the pulse kind, are enrichers and cleaners of the earth; while wheat, oats, barley, and the whole tribe of vegetables, whose roots are fibrous and spread far, impoverish and rob the ground. The latter also let it become foul, by giving way to weeds and grass, which, being the natural products of every soil, are more readily nourished by it than such plants as it does not spontaneously produce. It is therefore evident, that by judiciously interposing such green or other enriching crops as are adapted to the soil between the grain-crops, the farmer may not only, in a great measure, avoid the necessity and expence of fallowing, but frequently be enabled to reap better crops. Besides, under this system of management, he may be enabled to keep a much larger flock of cattle, and consequently produce a much larger quantity of manure, the advantages of which are very great. See GREEN CROPS and COURSE OF CROPS.

CHANGE of seed, denotes the practice of sowing seed taken from a different soil, in order to prevent the land from becoming tired with the same kind of grain.

This is a custom pretty common among farmers, though experience has not yet shown how far it is well founded. Great importance has been attached to this practice by some cultivators, probably from adopting imperfect notions of the nature of vegetation itself, or from pursuing false analogies in respect to the breeding of animals; but it is evident, a cultivator of much experience observes, from the trials that have been made in the cultivation of grain, and from what happens in particular cases of gardening, that it will be of no utility to have recourse to the change of seed, provided it is properly adapted to the soil, except it be for an improved kind. The only thing necessary, is that of collecting and preserving the best of the different kinds, and by that means preventing a degeneracy. "It is hardly, he observes, to be supposed that the soil can become tired of, or be improper for, producing a sort of grain for which it is adapted, since it may be observed that the same sorts of plants are frequently propagated on the same spots of ground, for a vast length of time, without any manifest injury in respect to their quality."

A great objection to the practice is also found by some on the ground of the expence.

It is observed by Mr. Middleton, in the *Agricultural Report of Middlesex*, that the changing of the seed of corn every two or three years, though extremely general, is done at an extra expence of from 6d. to 1s. a bushel on wheat, and half these sums on other kinds of grain. This practice is, he thinks, as little founded on propriety, as a change of live-stock once in every two years would be, and never will be the means of advancing corn to a high pitch of excellence. On the contrary, when corn farmers become wise enough to apply Bakewell's method of improving cattle to the raising of seed grain, the advance will be rapid indeed, and its im-

provement will go on towards the mark of perfection, in a degree which, in the present state of things, can scarcely be conceived. The method he wishes to recommend to those cultivators who desire to excel in the article of grain, is, he says, the following: namely, a few days before harvest, to walk through their fields of corn, to select and gather the prime samples of every species of seed, and ever afterwards to continue the same practice, by repeating the operation of collecting the most perfect grain from the crops produced from such selected seed. The same observations, he asserts, apply to every variety of cultivated crops.

However this may be, we are inclined to believe, from observing what takes place in respect to the curl, a disease in potatoe crops, that a change of seed may sometimes be useful, though, perhaps, much less frequently than is the practice of farmers in general.

But it is added by the first of these writers, on the authority of Mr. Donaldson, that "as some of the varieties of the same sort of grain or seed, when sown under similar circumstances of soil and climate, are, however, often found by the cultivators of land to be of a much more early growth than others, as well as of a more or less hardy and vigorous nature; it may be of utility to change them in these respects, the early kinds being always cultivated on the colder and more backward descriptions of land, while those of the later are sown upon the dry and more warm soils. In this way the crops may often be considerably improved, as, in so far as regards themselves, they will enjoy the advantages of more genial soils and climates. Another advantage may be gained in this method, as by employing such early kinds of seed, the farmer may, in some cases, delay the putting in of his seed for several days, without the danger of the crop being injured thereby, or of its not being reaped at the usual time. He may likewise, in the late soils, thus obviate the difficulties and inconveniencies attending bad seed times, as by such a change the seed, though put in later, may be equally early at the harvest." And it has also, he says, been remarked, that "there is an advantage resulting from changing seed from soils of opposite natures, which cannot be depended upon when the change is made from similar soils. Some weeds will grow only in strong deep lands, while others are peculiar to light and sandy soils. When, from whatever cause, grain abounds so much with the seeds of weeds as to render it improper for sowing, by procuring seed from a soil of an opposite nature the farmer is to a great degree certain that no dangerous seed-weeds will be introduced by the change. The sowing of such grain as contains the seeds of weeds should, however, never be practised, except where perfectly clean seed cannot be procured, as, though the above may be the case in regard to particular sorts of weeds, it does not by any means extend to all." It is also found from experience, "that grain, like all other seeds and plants, when brought from a warmer to a colder climate, gradually degenerates, till, by being frequently cultivated, it becomes natural both to the soil and climate." And "experience has shown that it degenerates sooner, and to a greater degree, in mountainous districts, than in the level and better sheltered parts of the country. At the same time, it is well known, that many vegetables introduced from other countries, and which it was once thought would not come to maturity in this, have, by proper care and attention, been brought to a great degree of perfection. It is certain, too, that the introduction of better sorts of grain has soon become effectual in removing the poor kinds that were originally cultivated. This has been the case in respect to oats in some parts of Scotland: which is a circumstance that, the writer just mentioned thinks, proves how much the quality of grain may be

improved by proper attention; and further, that frequent and judicious changes of seed, in the way stated above, are of the greatest importance in effecting this improvement." And it is further "concluded, that from the long established practice, and the acknowledged advantages derived from annually importing seed-wheat from England into all the districts in Scotland, where that species of grain is cultivated, which are well known; as well as from the practice being no less general, although more local, for the farmers in Banffshire, where deep strong cold soils prevail, to procure, in unfavourable seasons, a great portion of the oats necessary for seed from the light dry sandy soils in the adjoining county of Moray; and also the practice of many other districts where improved agriculture is to any considerable degree established; it will, he thinks, be found that frequent changes of seed, for some or other of the reasons mentioned above, are not only highly proper but indispensably necessary." But the author of *Phytologia* on the whole concludes, "that, as the varieties of plants are supposed to be produced from different soils and climates, which varieties will afterwards continue through many generations; even when the plants are removed to other soils and climates, it must be advantageous for the agricultor to inspect other crops as well as his own; and thus, wherever he can find a superior vegetation, to collect seeds from it; which is, he thinks, more certain to improve his crops than an indiscriminate change of seed. And that where seed-corn is purchased without a previous observation of its superior excellence, perhaps it would be more advantageous to take it from better kinds of soil, and from somewhat better climates; as the good habits acquired by such seeds may be continued long after their removal to inferior situations. But on the contrary, care should be taken not to collect a change of worse seeds from worse climates or inferior soils, unless the agricultor is previously certain that they are of a superior kind or quality." See SEED and SOWING.

CHANGEABLE *Rose*. See HIBISCUS.

CHANGER, or CHAUNGER, an officer belonging to the king's mint, who changes money for gold or silver bullion. See MINT.

CHANGER, *Money*, is a banker who deals in the exchange, receipt, and payment of monies.

CHANGES, in *Arithmetic*, &c. the permutations, variations, or alternations of any number of quantities; with regard to their position, order, &c.

To find all the possible changes of any number of quantities, or how oft their order may be varied.

Suppose two quantities a and b . Since they may be either wrote ab or ba , it is evident, their changes are $2 = 2 \times 1$. Suppose three quantities a, b, c : their changes $c a b$ will be as in the margin; as is evident by combining $a c b$ c first with ab , then with ba ; and hence the number of changes arises $3 \times 2 \times 1 = 6$. If the quantities be 4, each may be combined four ways with $c b a$ each order of the other three; whence the number of changes arise $6 \times 4 = 4 \times 3 \times 2 \times 1 = 24$. $b c a$ Wherefore, if the number of quantities be supposed n , the number of changes will be $n \times n - 1 \times n - 2 \times n - 3 \times n - 4$, &c. to $n - n$. If the same quantity occur twice, the changes of two will be found bb , of three bab, abb, bbb ; of four $cbab, bcab, babc$. And thus the number of changes in the first case will be $1 = (2 \times 1) \div 2 \times 1$; in the second, $3 = (3 \times 2 \times 1) \div 2 \times 1$; in the third, $12 = (4 \times 3 \times 2 \times 1) \div 2 \times 1$.

If a fifth letter be added, in each series of four quantities, it will beget five changes, whence the number of all the changes will be $60 = (5 \times 4 \times 3 \times 2 \times 1) \div 2 \times 1$. Hence if

if the number of quantities be n , the number of changes will be $(n \times n - 1 \times n - 2 \times n - 3 \times n - 4, \&c.) \div 2 \times 1$. From these special formulæ may be collected a general one; viz. if n be the number of quantities, and m the number which shews how oft the same quantity occurs; we shall have $(n \times n - 1 \times n - 2 \times n - 3 \times n - 4 \times n - 5 \times n - 6 \times n - 7, \&c. (\div) m - 1 \times m - 2 \times m - 3, \&c.)$; the series being to be continued, till the continual subtraction of unity from n and m leave 0. After the same manner we may proceed farther, till putting n for the number of quantities, and $l, m, r, \&c.$ for the number that shews how oft any of them is repeated, we obtain an universal form $(n \times n - 1 \times n - 2 \times n - 3 \times n - 4 \times n - 5, \&c.) \div (l \times l - 1 \times l - 2 \times l - 3 \times l - 4, \times, \&c. m \times m - 1 \times m - 2 \times m - 3, \&c.) r \times r - 1 \times r - 2 \times r - 3, \&c.$

Suppose, for instance, $n = 6, l = 3, r = 3$. The number of changes will be $(6 \times 5 \times 4 \times 3 \times 2 \times 1) \div 3 \times 1 \times 2 \times 3 \times 2 \times 1 (= 6 \times 5 \times 4) \div 3 \times 2 = 2 \times 5 \times 2 = 20$.

Hence, if it be proposed to assign how many different ways 6 persons might be placed at table, the answer would be $6 \times 5 \times 4 \times 3 \times 2 \times 1 = 720$. For 13 persons we shall find the number $13 \times 12 \times 11 \times 10 \times 9 \times 8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1 = 6227020800$.

If it were required to find how many changes may be rung on seven bells, the answer would be $1 \times 2 \times 3 \times 4 \times 5 \times 6 (= 720) \times 7 = 5040$. On 12 bells, it would be $12 \times 11 \times 10 \times 9 \times 8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1 = 479001600$. Supposing 10 changes to be rung in one minute, that is, 10 \times 12 or 120 strokes in a minute, or two strokes in each second of time, then, according to this mode of computation, it would take upwards of 91 years to ring over all these changes on the 12 bells. If two more bells were added, so as to make the whole number 14 bells, it would require, at the same rate of ringing, about 16575 years to ring all the changes on 14 bells but once over. And if the number of bells were 24, it would require more than 117,000,000,000,000 years to ring all the different changes upon them. See ALTERNATION.

In this manner may all the possible anagrams of any word be found in all languages, and that without any study. Suppose, v. g. it were required to find the anagrams of the word *Roma*, the number of changes will be $4 \times 3 \times 2 \times 1 = 24$. Thus,

ROMA orma mroa arom
roam oram mrao armo
rmoa omra mora aorm
rmao omar maor aomr
raom oarm maro amro
ramo oamr maor amor

The anagrams therefore of the word *Roma*, furnishing any word of known signification in the Latin tongue, are seven; viz. *Roma, ramo, oram, mora, maro, armo, amor*. Wallis's Algebra, p. 117. See ANAGRAM and COMBINATION.

Whether this new method of anagrammatizing be likely to prove of much service to that art, is left to the poets.

CHANGES of insects. See AURELIA, and transformation, &c. of insects in article ENTOMOLOGY.

CHANGewater, in *Geography*, a town of America, in the state of New Jersey; 25 miles W.S.W. of Morristown.

CHANG-HAI, a town of China, of the third rank, in the province of Kiang-nan, or Nan-king; 6 leagues S.E. of Song-kiang.

CHANG-HANG, a town of China, of the third rank, in the province of Fo kien; 50 miles S. of Ting-tcheou.

CHANG-HIA-TONG, a town of China, of the second

rank, in the province of Quang-fi; 400 leagues S.S.W. of Peking. N. lat. $22^{\circ} 27'$. E. long. $106^{\circ} 4'$.

CHANG-HO, a town of China, of the third rank, in the province of Chang-tong; 6 leagues S.W. of Vou-tung.

CHANGI, a gulf in the northern part of the Chinese sea, which is in the most advanced and narrow part of a great bay, which begins at the island of Fungma, and terminates at the frontiers of the province of Peking, about 50 leagues from the capital of the Chinese empire.

CHANG-IN, a town of China, of the second rank, in the province of Quang-fi; 385 leagues S.S.W. of Peking. N. lat. $23^{\circ} 3'$. E. long. $106^{\circ} 24'$.

CHANG-KAO, a town of China, of the third rank, in the province of Kiang-fi; 10 leagues W.S.W. of Chou-tcheou.

CHANGLASSE, a town of Asia, in the county of Thibet, near the river Sanpoo; 204 miles W. of Lassa, and 190 N.E. of Catmandu.

CHANG-LIN, a town of China, of the third rank, in the province of Quang-fi; 6 leagues N.W. of Ping.

CHANG-LING, a town of Asia, in the kingdom of Corea; 5 miles S.S.W. of Hoang.

CHANG-NAN, a town of China, of the third rank, in the province of Chen-fi; 14 leagues S.E. of Chang.

CHANG-SE, a town of China, of the second rank, in the province of Quang-fi; 1180 miles S.S.W. of Peking. N. lat. $22^{\circ} 18'$. E. long. $107^{\circ} 14'$.

CHANG-TCHEOU, a town of Asia, in the kingdom of Corea; 20 miles W. of Long-Kouang.

CHANG-TCHING, a town of China, of the third rank, in the province of Honan; 8 leagues S.S.E. of Kouang.

CHANG-TE, a city of China, of the first rank, in the southern part of the province of Hu-quang.

CHANG-TE, a city of China, of the first rank, in the province of Ho-nan.

CHANG-TI, or TIEN, in *Ancient Mythology*, a deity of the ancient Chinese, whom, according to Du Halde, they worshipped as the supreme being: the name is said by some to denote the spirit which presides over the heavens; but in the opinion of others it is only the visible firmament.

CHANG-TSAI, in *Geography*, a town of China, of the third rank; 6 leagues N. of Yun-hing.

CHANG-YEON, a town of China, of the third rank, in the province of Kiang-fi; 10 leagues N.N.E. of Nanchang.

CHANG-YU, a town of China, of the third rank, in the province of Tche-kiang; 6 leagues E.S.E. of Chao-king.

CHANGY, a town of France, in the department of the Rhone and Loire; $3\frac{1}{2}$ leagues N.W. of Roanne.

CHANIERES, a town of France, in the department of the Gironde; 12 miles E. of Blaye.

CHANIEWIEZE, a town of Lithuania, in the palatinate of Novogrodek; 56 miles S.W. of Novogrodek.

CHAN-LIN, a town of China, of the third rank, in the province of Quang-fi; 8 miles N.N.W. of Ko hoa.

CHANMANNING, a town of Asia, in Thibet, where the grand Lama occasionally resides; 116 miles W. of Lassa, and 266 N. of Catmandu; about 167 geographical miles of horizontal distance from Paridrong, in the Lama's map.

CHANNA, in *Ichthyology*, the name of a fish, said to be caught in great plenty in the Mediterranean, and brought to market in Italy and elsewhere, among the sea perch, which it nearly resembles. It is not sufficiently clear that

the above species is the same with the Gmelinian *labrus chaunus*, as some imagine.

CHANNADELLA, a name given by Bellonius and others to a species of *labrus*, apparently the *chane* of the elder writers. See *LABRUS hepatus*.

CHANNEL, in *Anatomy, Surgery, &c.* See **CANAL**.

CHANNEL, in *Architecture*. See **GUTTER**.

CHANNEL, or bed of a river. See **RIVER**.

CHANNEL of the larmier, is the hollow socket of a cornice, which makes the *pendant mouchette*. See **LARMIER**.

CHANNEL of the volute, in the Ionic capital, is the face of its circumvolution, inclosed by a listel. See **VOLUTE**.

CHANNEL, in *Geography*, the English name of one of the French departments, called *La Manche*. This is one of the five departments formed of Normandy, and the north part of Perche. It is bounded on the north by the Channel; on the east by the Channel and the department of Calvados; on the south by those of Mayenne, and of Ille and Vilaine; and on the west by the ocean. Its superficies is about 1,323,912 square acres, or 675,713 hectares, and comprehends 6890 kilometres; its population consists of about 528,912 persons. It is divided into five communal districts, 48 cantons, and 669 communes. The general total of its contributions amounts to 5,314,741 francs, and the expences charged upon it are 370,112 francs. Its chief town is Coutances.

CHANNEL is also applied to divers arms of the sea, where the waters run within the land; or to certain narrow seas confined between two adjacent continents, or between an island and a continent.

In this sense we say, St. George's *Channel*, the British *Channel*, the *Channel* of the Black Sea, or Constantinople, &c.

CHANNEL, in the *Manege*, is used for that concavity in the middle of the lower-jaw of a horse, where the tongue lies. This hollow being bounded on each side by the bars, terminates in the grinders or maxillary teeth. The barbles grow in this channel.

CHANELLINGS. See **FLUTINGS**.

CHANNI OUDOU, in *Geography*, a town of Chinese Tartary, in the country of the Moguls. N. lat. 42° 51'. E. long. 114° 14'.

CHANON, in *Conchology*. Adanson calls the Linnæan *Mytilus Hirundo* by this name.

CHANONAT, in *Geography*, a town of France, in the department of the Puy de Dôme, celebrated for its mineral waters.

CHAN-SAN-SHEN, a town of China, seated on the river Chen-tang-chaung, which at this place ceases to be navigable. See **CHEN-TANG-CHAUNG**.

CHANSCHENA-POU, in *Botany*, Rheed. See **BAUBINIA**.

CHAN-SI, **XANSI**, **SHAN-SI**, or **SHAN-SEE**, a province of China, bounded on the east by Pe-che-li; on the west by Shen-si; on the south by Ho-nan; and on the north by the Chinese wall, which separates it from Tartary. It extends from 1° to 6° 23' W. long. from Pe-king, or 115° 27' 30" E. long. to 110° 24' 30" E. long.; but from north to south, from 34° 37' to 40° 50' of latitude. It is a tradition among the Chinese, that this was the first inhabited province of the whole empire. The climate, though the country is mountainous, is mild and salubrious; of the mountains, some are lofty and rugged, and others are well cultivated, by means of terraces, cut from the top to the bottom, which produce plenty of corn and other grain. The plains are fertile, though not so well watered as the other provinces. The vines yield excellent grapes, which, instead of being applied to the

purpose of making wine, are dried, and in this state sold in the other provinces. This province furnishes great quantities of musk, porphyry, marble, and jasper; it has also mines of iron-stone, which affords iron that is fabricated into a variety of utensils. The mountains supply an abundance of coal, which is pounded and mixed with water, and formed into small cakes: these, though not very inflammable, afford a strong and lasting fire. The people are athletic in their frame, and obliging in their disposition; but illiterate: the women are much admired for their slender shape and beauty. The number of inhabitants is estimated at 27,000,000; occupying an extent of territory of 55,268 square miles, or 35,371,520 acres. The revenue received into the royal treasury at Peking from this province, and derived from the land, salt, and other taxes, amounts to 3,722,000 taels, or ounces of silver. Chan-si contains five cities of the first rank, viz. Tay-ywen, the metropolis of the province; Ping-yang; Lu-nghan; Feven-chew; and Tay-sing; and 85 of the second and third rank.

CHANSON, *French*, a song; a short lyric poem on familiar subjects, of love, wine, joy, sorrow, &c. put to an easy melody for social occasions: at table, to a mistress, to friends, and even to yourself when alone, in order to drive away care, anxiety, low spirits in the rich, and to alleviate fatigue and indigence in the poor.

A *song* of this kind is totally distinct from what is called an *air* in a musical drama, which, as a poem when taken out of its niche, has neither beginning, middle, nor end. See **SCOLIA**, **SONG**, **AIR**, **BALLAD**, and **NATIONAL MUSIC**. French songs, not dramatic, or *chansons à table*, turn chiefly on love and wine, addressed by their votaries to *Venus* and *Bacchus*.

There are in France, likewise, numerous *satirical songs*, under the denomination of *Vaudevilles*, which see.

The ancient historians and poets of France mention their *military songs* of very remote antiquity, in which were celebrated the heroic deeds of their favourite chiefs and most gallant commanders. These used to be sung in chorus by the whole army in advancing to attack an enemy; a custom probably derived from their German ancestors, as the privilege of leading off this kind of *war whoop* usually appertained to the bard who had composed it. Charlemagne had a great passion for these heroic songs, and, like our Alfred, not only had them collected, but knew them by heart. However, the achievements of this victorious prince and his captains obliterated those of their predecessors, and gave birth to new songs. One of these, in praise of Roland, the *Orlando innamorato* and *furiOSO* of Boiardo, Berni, and Ariosto, was longer preserved than any of the rest. This, the French historians tell us, was begun at the battle of Hastings, where William became the conqueror of the English nation, by a knight called Taillefer, on whom this honour was conferred for his strong and powerful voice. Here he performed the office of *herald minstrel* (*menestrier huchier*) at the head of the Norman army, and was among the first that was slain in the onset.

The song upon Roland continued in favour among the French soldiers as late as the battle of Poitiers, in the time of their king Jolin; who, upon reproaching one of them with singing it at a time when there were no Rolands left, was answered, that Rolands would still be found if they had a Charlemagne at their head. But however popular this song may have been in the fourteenth century, it is not come down entire to the present times.

Concerning the heroic song called *l'Homme armé*, on the melody of which all the first great contrapuntists composed masses of the most elaborate kind; nothing is more probable than

than that the tune of this song was the famous *Cantilena Rolandi*, or melody to the song which the French armed champion used to sing at the head of the army, in honor of their hero Roland, in advancing to attack an enemy.

CHANSONS de Geste. Songs on heroic, historical, and chevaleresque subjects. This kind of song was called in England during the Norman dynasty, *chant-royal*; and Chaucer, in speaking of the musical talents of the poor scholar Nicholas, in the Miller's Tale, says:

And after that he fong the *King's note*;

Full often blessed was his mery throat.

The *Chanson de Geste* was distinguished from common songs, according to Alberic, by the title of *Heroica Cantilena*. These historical songs or ballads must have been sung to very short and simple tunes, such as our *Chevy-Chace*, or such as is used by the *Improvvisatori* of Italy in accompanying their inspirations, which frequently amount, in length, to many hundred stanzas.

Though the rest of Europe is not partial to the music of France, the words of their songs, from the time of the Troubadours to the present, must be allowed to abound in wit, irony, *badinage*, and elegant, warm, and ingenious praises of love and wine, more than those of any other country.

CHANSONNETTE, *French*. The diminutive of *chanson*, a little song.

CHANT, in our cathedral service, bears very little resemblance to the *canto fermo*, or *plain-chant* of the Roman Catholics, which is chiefly pronounced, rather than sung by the priest alone, without base; whereas our *chants* are short phrases of melody, sung antiphonally from side to side, in four parts, accompanied by the choir organ, except in the first verse and *Gloria Patri*. Some of our chants are as ancient as the reformation; and perhaps still more ancient, as they resemble, in length, facility, and counterpoint, those used in Italy during the middle of the XVIth century. Several composed by Palestrina and his contemporaries have been preserved in an ancient MS. procured in Italy, called *Studii di Palestrina*, and believed to be the autography of that father of ecclesiastical harmony.

CHANT, *Ambrosian*. See **AMBROSIAN Chant**.

CHANT, *Gregorian*. See **GREGORIAN Chant**.

CHANT, *French*, is equivalent to melody, or the principal or treble part in a musical composition. See **CANTO**; **CANTILENA**, *Ital*.

CHANT, *Cantus*, is used for the vocal music of churches. In church history we meet with divers kinds of *chant* or *song*: the first is the *Ambrosian chant*, established by St. Ambrose.

The second, the *Gregorian chant*, introduced by pope Gregory the Great, who established schools of *chanters*, and corrected the church song.

This is still retained in the church under the name of *plain song*: at first it was called the *Roman song*.

The *plain*, or *Gregorian chant*, is where the choir and people sing in unison, or altogether in the same manner. See **CHORAL Service**.

CHANT sur le livre, *French*, is discant, or singing extempore in the plain song in the cathedral service of the Romish Church; which is done by three or four fingers on the Gregorian notes, in the mass book on the desk in the middle of the choir, so that, except the *canto fermo* in the missal, which is generally sung by the tenor, the fingers have nothing to guide them. However, there are choral fingers, so versed in counterpoint, that they even lead off and pursue subjects of fugue and canon on this foundation, without confusion, or violating the rules of harmony. See **DISCANT**, **CONTRAPUNTO alla monte**, or **AL'IMPROVISO**.

CHANTABOUN, in *Geography*, a sea-port town of the kingdom of Siam, on the frontiers of Camboja.

CHANTADA, a town of Spain, in the province of Galicia; 20 miles N. of Orense.

CHANTAGIR, a river of Siberia, which runs into the Enisei; N. lat. 51° 50'. E. long. 91° 34'.

CHANTELLE-le château, a town of France, in the department of the Allier, and chief place of a canton in the district of Gannat, three leagues N. of Gannat; the place contains 1334, and the canton 11,916 inhabitants: the territory includes 225 kilometres and 20 communes.

CHANTAUNAY, a town of France, in the department of the Lower Loire, and chief place of a canton, in the district of Nantes; two miles west of it.—Also, a town of France, in the department of the Sarthe, and chief place of a canton, in the district of Le Mans; 15 miles W.S.W. of it.

CHANTER, *French*, to sing. We shall not go to France for instructions in this art; though Messrs. Framery and Ginguéné have adopted and given in the Encycl. Meth. some very useful precepts from the Italian school, which we apprehend will not be generally received or put in practice by their countrymen for some time. We acknowledge, however, that Mr. Framery has discussed this subject with delicacy, discrimination, and good taste.

Rousseau's definition of the verb *chanter*, is clear and precise: it is, in its general application, the forming with the voice such sounds as are agreeable. See **MELODY**. But it is more commonly understood to imply the producing, by vocal inflexions, a variety of such tuneable sounds as are agreeable to the ear, and by intervals admitted in harmony, and consonant to the rules of modulation. A finger pleases in proportion as the voice is clear and well toned, the ear perfectly accurate, the organs flexible, the taste well formed, and when instruction and practice have polished and improved the gifts of nature. To which, in imitative and theatrical music, should be added that degree of sensibility which impresses others with the sentiments which we affect to feel. From observations in hearing great vocal performers, many rules have been formed for facilitating and perfecting a vocal student; but many discoveries still remain to be made on the most easy, short, and certain path to perfection in this difficult art.

CHANTEREAU-LE-FEVRE, **LOUIS**, in *Biography*, a learned antiquary of France, was born at Paris in 1588; and became eminent no less for the qualities of his heart than for those of his understanding. He distinguished himself by his knowledge of jurisprudence, history, politics, and belles-lettres, and was advanced by Lewis XIII. through successive posts to that of intendant of the finances of the duchies of Bar and Lorraine. He compiled from original records, "Historical Memoirs of the Houses of Lorraine and Bar;" the first part of which only was published at Paris, 1642, fol. He also published other works on detached parts of French history; and after his death, his son published his "Treatise on Fiefs," 1662, fol. in which he maintains an opinion, which has been thought to be erroneous, viz. that hereditary fiefs commenced only after the time of Hugh Capet. He died at Paris in 1658. **NOUV. DICT. HIST.**

CHANTERELLE, *French*, the first string of a violin, tenor, or violoncello.

CHANTIER, in *Military Language*, a square piece of wood, which is used for raising any thing upon, as, for instance, for ranging barrels of gunpowder on, or for proving cannon without the assistance of gun carriages.

CHANTILLY, in *Geography*, a town of France, in the depart-

department of the Oise, and chief place of a canton, in the district of Senlis. The prince of Condé had, before the revolution, a magnificent palace in this place, with beautiful gardens, a managery, extensive park, and curious water-works. The stable was reckoned superior to any in France, and the forest for the preservation of game extended many miles in circumference: $1\frac{1}{2}$ league W. from Senlis, and 4 S.S.E. from Clermont.

CHANTLATE, in *Building*, a piece of wood fastened near the ends of the rafters, and projecting beyond the wall, to support two or three rows of tiles so placed to prevent the rain-water from trickling down the sides of the wall.

CHAN-TONG, CHAN-TUNG, SHAN-TONG, or XAN-TUN, in *Geography*, a province of China, bounded on the west by part of Pe che-li, Chan-si, and Honan; on the south, by Kiang-nan; on the east, by the Yellow Sea, and on the north, by the same sea and part of Pe che-li. It extends from $34^{\circ} 30'$ to 33° N. lat. and from 1° to $6^{\circ} 25'$ of east longitude from Peking, or $117^{\circ} 47' 30''$ to $122^{\circ} 2' 30''$ E. long.; and it is reckoned one of the most fertile provinces and finest climates in China. One crop is said to afford the inhabitants, who are not so numerous as those of some other provinces, several years' sustenance. Besides the grand imperial canal, which traverses some part of this province, it has several lakes, rivers, and brooks, which contribute to fertilize and enrich it; though it frequently suffers from drought, as it seldom rains here. It is much infested by locusts, wolves, and gangs of robbers, who beset travellers in the highways over the mountains, and often descend to the plains, plundering and ravaging the villages and open towns. The inhabitants are strong and healthy, and are employed in manufacturing great quantities of silk: besides the common sort produced by the silk-worms, they find another sort upon trees and bushes in great plenty, which is spun by a kind of worm not unlike our caterpillars. This last kind, though coarse, is stronger than the other; and with this they carry on a great trade, by means of their rivers and canals. The barks that come from the southern parts to Peking pass along the imperial canal; and the tribute of the merchandize they thus convey has been computed to amount to a very large sum. Among other fruits produced in this province, they have one which is called Se-tse, a kind of figs, which ripen about the beginning of autumn, and being dried, contract a crust of candied sugar, that gives them a delicious flavour. This province is rendered particularly venerable among the Chinese by a tradition, that their great philosopher Kongsuntse, commonly called by us Confucius, drew his first breath in it. Chan-tong is divided into six districts, which contain six cities of the first rank, that are very populous and flourishing. These again include no less than 114 towns of the second and third rank, besides a great number of towns and villages, fifteen fortresses, some of them very large, and all of them built to guard the entrances of their ports and the mouths of their rivers. There are likewise several islands scattered along the gulf, extremely well peopled, affording convenient harbours for Chinese transports, and a quick and easy passage to and from Corea and Leao-tong. The cities of the first rank are Tsinan or Cinnan, the metropolis of the province, Yeng-chew, Tong-chang, Tsing-chew, Ten-chew, and Lao-chew. The population of Chan-tong consists of twenty-four millions, occupying a territory in extent 65,104 square miles, or 41,666,560 acres. The revenue of this province, transmitted to the treasury at Peking from the land, salt, and taxes, amounts to 3,600,000

tahels or ounces of silver, besides 360,000 measures of rice and other grain.

CHANTONICE, in *Ancient Geography*, a country of Asia, which made part of Carmania, according to Ptolemy.

CHANTONNAY, in *Geography*, a town of France, in the department of the Vendée, and chief place of a canton, in the district of Fontenay-le-Comte; $4\frac{1}{2}$ leagues W. from La-Châtaignoraye. The place contains 1421, and the canton 8928 inhabitants: the territory includes $267\frac{1}{2}$ kilometres and 15 communes.

CHANTOR, in the *Jewish Antiquities*. In the temple of Jerusalem there was a great number of Levites, who were employed in singing the praises of God, and in playing upon instruments before his altar. In the reign of David there were four thousand singing men, with their heads and president.

The chantors and Levites who were employed in singing, playing upon instruments, and other functions of the Temple, had no habits distinct from the rest of the people. Nevertheless, in the ceremony of removing the ark to the Temple of Jerusalem built by Solomon, the chantors appeared dressed in tunics of byssus, or fine linen. Josephus remarks, that in king Agrippa's time they obtained the favour from that prince of wearing a linen robe in the Temple, like the priests. Agrippa believed it would be for the honour of his reign, to signalize it by so considerable a change as this. The other Levites, employed in different exercises under the command of the priests in the Temple, procured likewise commission to learn to sing, to the end that they might enjoy the same privileges with their brethren.

CHANTOR, or CHAUNTOR, a person who sings in the choir of a cathedral.

All great chapters have chantors and chaplains to ease and assist the canons, and officiate in their absence.

St. Gregory first instituted the office of chantors, erecting them into a body, called *schola cantorum*: though Anastasius seems to attribute their rise to pope Hilary, who lived an hundred years before Gregory. But the word grows obsolete in this sense, and instead of it the word choir-man or singing-man is now used.

CHANTOR is used, by way of excellence, for the præcentor or master of the choir; which is one of the dignities of the chapter.

The chantor bears the cope and the staff at solemn festivals; and gives tune to the rest at the beginning of psalms and anthems. At St. David's in Wales, where they have no dean, he is next in dignity to the bishop.

The ancients called the chantor, *primicerius cantorum*.

To him formerly belonged the direction of the deacons, and other inferior ministers.

CHANTRIGNE, in *Geography*, a town of France, in the department of the Mayenne, and chief place of a canton, in the district of Mayenne; $2\frac{1}{2}$ leagues N. of it.

CHANTRY, or CHAUNTRY. See CHAUNTRY.

CHAN-YN, a town of China, of the third rank, in the province of Chan-si; 25 miles E.N.E. of Sou.

CHAO, one of the classes into which the late Mr. Muller arranged the islands between Kamtskatka and America; comprehending eight islands; viz. Immæk, Kiska, Tshatghina, Ava, Chavia, Tshagulak, Ulagabina, and Amtshigda, or the more distant Aleutans.

CHAOASES, an order of horse in the service of the grand signior. These and the *muteferriker* were originally the guards of the sultans in Egypt, and their leaders were his two vizirs, that always accompanied him. They now constantly go out with the bashaw.

The body of the chaos seems originally to have been the guard out of which the sultan used to send persons to execute his orders.

CHAO-HING, a city of China, of the first rank, in the province of Tche-kiang; 673 miles S.S.E. of Peking. N. lat. $30^{\circ} 10'$. E. long. $120^{\circ} 14'$.

CHAO IM, a town of Chinese Tartary; 8 miles S. of Geho.

CHAO-KEOUING, a town of China, in the province of Chang-tong; 35 miles S.E. of Tei-nghin.

CHAOLGY, the history or description of the chaos.

Orpheus, in his Chaology, sets forth the different alterations, secretions, and divers forms, which matter went through till it became inhabitable: this amounts to the same with what we otherwise call cosmogony, or the creation of the world. See COSMOGONY.

Dr. Burnet likewise gives us a chaology, in his Theory of the Earth. He represents the chaos, as it was at first, entire, undivided, and universally rude and deformed; or the *tohu bohu*: then shews how it came divided into its respective regions; how the homogeneous matter gathered itself apart from all of a contrary principle; and lastly, how it hardened, and became a solid habitable globe.

CHAO-MA ING, in *Geography*, a town of Asia, in Thibet; 10 miles N. of

CHAO-MA-ING-HOTUN, is a town of Thibet, 285 miles E. of Hami.

CHAOMANTIA, among the *Enthusiastical Chemists*, is the art of making preages from observations on the air.

CHAON, in *Ancient Geography*, a mountain of the Peloponnesus, situated to the left of the route from Argos to Tegæa, the lower part of which was planted with fruit-trees. Hence proceeded the river Erasinus, which supplied that of Stympbalus in Arcadia. Bacchus and Pan were honoured with sacrifices at the fall of the water which formed the Erasinus, and a feast was celebrated in honour of Bacchus, which was denominated *tyrbe*. Pausan. Corinth. l. ii. c. 24.

CHAONES, or CHAONII, the name of a people who had the sovereignty of the whole of Epirus before the Molossi, according to Strabo. Virgil (*Æn.* l. iii.) supposes that they were more ancient than the war of Troy; and in another place he says that Ceres and Bacchus introduced the use of wheat instead of the acorn of Chaonia. It is more natural however to trace the descent of the Chaonians from the ancient Pelasgi than from the Trojans, as the greatest number of the people of Greece and its environs had originated from the Pelasgi; and Steph. Byz. reports that Chaonia in particular had been formerly called *Pelasgide*. Plutarch seems to have assigned the time of their establishment, and the chiefs of their colony, when he says, that the historians related, that after the deluge of Deucalion, Phaeton, one of those who accompanied Pelasgus into Epirus, was the first king of the Thesproti and Molossi, that is, of the Chaonians, the predecessors of these people. If the establishment of the Pelasgi in Chaonia soon followed the deluge of Deucalion, this last event serves to fix the *origin* of the Chaonians; for although we cannot precisely ascertain the period of this deluge, it is known that Deucalion lived 200 years before the siege of Troy, and that some of his descendants assisted at this siege. The deluge happened about the close of his reign, and therefore could not have preceded the Trojan war, more than about five generations, or 150 years; or, according to sir Isaac Newton, four generations,

or about 133 years, reckoning with the ancients three generations to 100 years. The establishment of the Chaonians, which immediately followed the deluge, must therefore have taken place about three or four generations, or from 100 to 133 years, before the Trojan war. Upon this supposition, we may determine who was the Pelasgus that conducted the Chaonians into Epirus. He could not have been the ancient Pelasgus, who lived before the flood of Deucalion, according to the history of his posterity, traced out by Pausanias; but he had a grandson of the same name, who, according to the relation of Plutarch, conducted a colony to Epirus after the deluge of Deucalion. Steph. Byz. mentions a Pelasgus, the son of Lycaon, and father of Thesprotus, and he also mentions his descendants, who inhabited Epirus. We have reason, therefore, to believe, that this is the Pelasgus to whom Plutarch refers, since a period near the deluge of Deucalion corresponds to the time of a son of Lycaon; and we learn from Apollodorus (l. iii. c. 8. § 2.) that Deucalion's flood occurred in the reign of Nyctimus, the successor of Lycaon. Moreover, Pausanias (l. viii. c. 3.) informs us, that the sons of Lycaon, amounting in number to not less than 24, dispersed themselves in Greece. The oracle of Dodona in Epirus was of Pelasgian origin; and since the Pelasgi were not settled in Epirus till after the deluge of Deucalion, this oracle could not have been established at an earlier period, or till after the settlement of the Chaonians, and hence we may infer that it was probably of Chaonian origin. Herodotus (l. ii.) assures us, that the ancient Pelasgi invoked the divinity in general, without ascribing to him those appellations which afterwards distinguished the gods and goddesses, whose worship was not yet introduced into Greece. This author adds, that the Pelasgi consulted the oracle of Dodona. The Pelasgi, according to Herodotus, were more ancient than the gods of Greece, and more ancient than the other Greeks, who, according to Strabo, cannot be traced to a higher antiquity than the Trojan war, since Pelasgus, their chief, was a descendant in the 8th degree of those who assisted in this war, according to Pausanias. The scholiast of Aristophanes says, that the Chaones were descended from the Thracians; but Aristotle traces them to the Oenotrii, one of the most ancient nations of Italy.

CHAONIA, a country of Greece, the most northern part of Epirus, so called from its ancient inhabitants the Chaones. It was bounded on the north by the Oresside territory and part of the country of the Peneestes; on the south-west, by the Mediterranean sea; on the south, by Thesprotia; and on the east, by the country of the Antitænes. The Acro-ceraunian mountains bounded it to the north. The most noted cities in this part of Epirus were, according to Ptolemy, Oricum or Oricus, Cassiopæa or Cassiope, Antigonía, founded by Antigonus, Phœnice, Hecatompædum, Omphalum, Elæus, and the strong town, or, as Pliny calls it, castle of Chimæra, much frequented on account of its hot baths. See EPIRUS.

CHAONIA, a town of Asia, in Syria, situated at the confluence of two small rivers, S.W. of Zeugma. Ptolemy places it in Coniagene, a country of Syria.

CHAONITES, a small country of Asia, in Assyria, E. of the Tigris; more properly *Chalonitis*, which see.

CHA-OU-FOU, in *Geography*, a town of China, of the first rank, in the province of Fokien; 775 miles S. of Peking. N. lat. 22° . E. long. $117^{\circ} 19'$.

CHAO PAL, a town of Chinese Tartary. N. lat. $42^{\circ} 13'$. E. long. $124^{\circ} 42'$.

CHAO-PING, a town of China, of the third rank, in the

the province of Quang-si; 5 leagues S.E. of Yong-nghan.

CHAORA, one of the smaller Cape Verd islands.

CHAOS, among the *Ancient Philosophers*, was described a dark, turbulent kind of atmosphere; or a disorderly system, or mixture, of all sorts of particles together, without any form or regularity; out of which the world was formed.

Chaos is every where represented as the first principle, ovum or seed of nature, and the world. All the ancient sophists, sages, naturalists, philosophers, theologues, and poets, hold that *chaos* was the eldest and first principle, *το αρχαιον chaos*.

The Barbarians, Phœnicians, Egyptians, Persians, &c. all refer the origin of the world to a rude, mixed, confused mass of matter. The Greeks, Orpheus, Hesiod, Menander, Aristophanes, Euripides, and the writers of the Cyclic Poems, all speak of the first chaos: the Ionic and Platonic philosophers build the world out of it. The Stoics hold, that as the world was first made of a chaos, it shall at last be reduced to a chaos; and that its periods and revolutions in the mean time are only transitions from one chaos to another. Lastly, the Latins, as Ennius, Varro, Ovid, Lucræti, Statius, &c. are all of the same opinion. Nor is there any sect or nation whatever, that does not derive their *διακοσμος*, the *structure of the world*, from a chaos.

The opinion first arose among the Barbarians, whence it spread to the Greeks, and from the Greeks to the Romans, and other nations.

Dr. Burnet observes, that besides Aristotle, and a few other pseudo-Pythagoreans, nobody ever asserted, that our world was always, from eternity, of the same nature, form, and structure, as at present: but that it had been the standing opinion of the wise men of all ages, that what we now call the terrestrial globe, was originally an unformed undigested mass of heterogeneous matter, called chaos; and no more than the rudiments and materials of the present world.

It does not appear who first broached the notion of a chaos. Moses, the eldest of all writers, derives the origin of this world from a confusion of matter, dark, void, deep, without form, which he calls *tohu bohu*; which is precisely the chaos of the Greek and Barbarian philosophers. Moses goes no further than the chaos; nor tells us whence it took its origin, or whence its confused state; and where Moses stops, there precisely do all the rest.

Dr. Burnet endeavours to shew, that as the ancient philosophers, &c. who wrote of the cosmogony, acknowledged a chaos for the principle of their world; so the divines or writers of the theogony, derive the origin or generation of their fabled gods from the same principle.

Mr. Whiston supposes the ancient chaos, the origin of our earth, to have been the atmosphere of a comet; which though new, yet all things considered, is not the most improbable assertion. He endeavours to make it out by many arguments, drawn from the agreement which appears to be between them.

So that, according to him, every planet is a comet, formed into a regular and lasting constitution, and placed at a proper distance from the sun, revolving in a nearly circular orbit; and a comet is a planet either beginning to be destroyed, or re-made: that is, a chaos, or planet, unformed, or in its primæval state, and placed as yet in an orbit very eccentric. See COSMOGONY.

CHAOS, in the phrase of Paracelsus, imports the air. It has also some other significations among the alchemists.

CHAOS (*redivivum*) &c. of Linn. in the 12th edit. of Syst. Nat. is the *Vibrio glutinis* of Goeze and Gmelin.

CHAOURCE, in *Geography*, a town of France in the department of the Aube, and chief place of a canton in the district of Bar-sur-Seine; 5 leagues S. of Troyes. The place contains 1630, and the canton 12,339 inhabitants: the territory comprehends 415 kilometres and 26 communes.

CHAP, in *Ornithology*, denotes either of the mandibles of a bird's bill, which are distinguished by the epithets *upper* and *lower*. The term mandible is most commonly that adopted by modern ornithologists.

CHAP. See CHILBLAIN.

CHAPALA, in *Geography*, a lake of North America, in Mexico, and the province of Guadaluza; 18 leagues long and 5 broad: 15 miles S. of Guadaluza.


CHAPARANG, or DSAPRONG, a town of Asia, in the country of Thibet, situate near the head of the Ganges; 140 miles N.N.E. of Sirinagur. N. lat. 33° 10'. E. long. 79° 22'.

CHAPARRAL, a town of Spain in the province of Granada; 5 leagues from Antequera.

CHAPÉ, the metalline part put on the end of a scabbard to prevent the point of the sword or bayonet from piercing through it.

CHAPEAU, in a general sense. See HAT.

CHAPEAU is sometimes also used to denote the cap, or coronet, armed with ermine, borne by dukes; and of late frequently met with above an helmet instead of a wreath, under gentlemen's or noblemen's crests. See CAP of Maintenance. The crest is borne on the chapeau; and by the chapeau the crest and coat are separated; it being a rule, that no crest must touch the shield immediately.

CHAPEAU, Fr. literally means a hat; but in music it implies the semicircle over two or more notes which we call a slur, ; and by which a singer understands that all the notes under or over this semi-circle or slur are to be sung to one syllable; and in violin music to be played with one bow.

CHAPEAU de Mineur. See the article CHASSES de galerie.

CHAPEL, or CHAPPEL, a kind of little church, served by an incumbent properly under the denomination of a *chaplain*. The word chapel, according to some, comes from *καπηλια*, little tents, or booths, set up by traders in fairs, to shelter them from the weather. Papias derives it both from the Greek and Latin, *quasi capiens laicos* or *populum*, vel *laudem*: others derive it from the *chape*, or cope, which served to cover the body: others, à *pellibus caprarum*; because these places were anciently covered with goat-skins. Rebuff derives it from *cappa*, St. Martin's cope, which the kings of France carried to war with them as their standard, and preserved very carefully in particular tents, thence called chapels. There are two kinds of chapels, the one consecrated, and held as benefices: the other secular, being of the nature of oratories. The first are built apart, and at a distance from the parish church; being neither parishes, cathedrals, nor priories, but subsisting of themselves. These are called by the canonists *sub dio*, and by us *chapels of ease*; as being erected at a distance from the mother-church, where the parish is large and wide, for the ease and convenience of some of the parishioners who reside far off. They are served by some inferior pastor, provided either by the rector of the parish, or by those for whose ease and benefit they are intended, by prayers or preaching merely. Some of these are also parochial, having the parochial rights of christening and burying, and differing from a church only in the want of a rectory and endowment.

The second kind are frequently built in, or adjoining to a church, as a part thereof; having only a *deft*, &c. to read.

read prayers in ; and in the Romish churches, an altar, &c. to celebrate mass on ; but without any baptistery, or font. These the canonists call *sub teſto*. They are generally erected by some considerable person for the use of their own families ; *ut ibidem familiaria sepulera sibi conſtituant*. The twenty-first canon of the council of Agda, held in 506, allows private persons the use of chapels ; but with prohibition to all clerks to officiate in them without leave from the bishop.

CHAPELS, *free*, are those *chapels of ease* which have a settled revenue for perpetual maintenance of a pastor, &c. by charitable donatives of lands, or rents bestowed on them : so as not to be any charge either to the rector, or the parishioners ; and they are thus called because they are free from all ordinary jurisdiction.

There are several collegiate churches in France, which they call *saintes chapelles*, *holy chapels* ; as those of Paris, Dijon, Bourges, Bourbon, &c. These are so denominated, from being repositories of certain relics.

Hence, all those places where relics were preserved came to be called chapels ; and the persons who had the care of them, chaplains.

CHAPEL is also a name given to a printer's workhouse ; because, say some authors, printing was first actually performed in chapels, or churches ; or, according to others, because Caxton, an early printer, exercised the art in one of the chapels in Westminster Abbey. In this sense they say, the orders, or laws of the chapel, the secrets of the chapel, &c.

CHAPEL, *knights of the*, an order of knights instituted by king Henry VIII. in his testament, to the number of thirteen ; though these have been increased to the number of twenty six : they are called *poor knights*.

These are not knights of the order of the Garter ; but are, as it were, their assistants or deputies, serving to discharge all their offices in the funeral services of the kings of England.

They are subject to the office of the canons of Windſor, and live on pensions which the order assigns them.

They bear the blue or red cloak, with the arms of St. George on the left shoulder ; but the cloak is only cloth, and they wear no sort of garter : which distinguishes them sufficiently from the knights of the Garter.

CHAPEL *Royal Establishment*. We have an account of this establishment in the "*Liber niger domus Regis*," in the time of king Edward IV. in which there is likewise a list of the several musicians retained in that monarch's service, as well for his private amusement as for the duties of his chapel.

As this seems the origin of those establishments, of the chapel royal and king's band, which still subsist, we shall give the account of them, and their several employments, at full length from this ancient book, as well as from N^o 293 of the Harl. MSS. in the British Museum, and N^o 1147, 2. 3. 11. of the Ashmol. Collect. Oxf. for *Ordinances touching the King's household*, made in the time of Edward II. as well as in that of Edward IV.

"Minstrelles thirteene, thereof one is Virger, which directeth them all festyvall dayes in their statyones of blowings and ppyngs to such offyces as the offyces might be warned to prepare for the King's meats and soupers ; to be more redyere in all services and due tyme ; and all thes sytyng in the hall together, whereof some be trompets, some with the shalmes and smalle pypes, and some are strange mene coming to this Court at syve feastes of the year, and then take their wages of Household, after iiijd. ob. by daye, after as they have byne presente in Courte, and then to avoyd after the

next morrowe after the feaste, besydes theire other rewards yearly in the King's Exchequer, and clothinge with the Household, wintere and somere for eiche of them xxs. And they take nightelye amongest them all iiij galanes ale ; and for wintere seafone thre candles waxe, vj candles pich, iiij tale sheids [fire-wood cleft and cut into billets] ; lodging suffyente by the Herbergere for them and theire horses nightely to the Courte. Aulso hauing into Courte ij servants to bear their trompets, pypes, and other instruments, and torche for wintere nightes, whilst they blow to suppoere of the chaundry ; and alway two of thes perlones to contynewe styllie in Courte at wages by the cheque rolle whiles they be presente iiij ob. dayly, to warne the King's ridynge household when he goeth to horsbacke as oft as it shall require, and that his household mene may followe the more redyere aftere by the blowinge of their trompets. Yf any of thes two Minstrelles be lete bloode in Courte, he taketh two loves, ij messe of greate meate, one galone ale. They part not at no tyme with the rewards given to the Household. Also when it pleaserthe the King to have ij Minstrelles continuinge at Courte, they will not in no wise that thes Minstrelles be so famylliere to aske rewards.

"Children of the Chappelle viij, founden by the King's priue Cofferer for all that longeth to their apparell by the hands and overlyghte of the Deane, or by the Master of Songe assigned to teache them, which Master is appointed by the Deane, chosen one of the number of the fellowshipe of chappelle after rehearsed, and to drawe them to other Schooles after the form of Sacotte, as well in Songe in Orgaines and other. The Children eate in the Hall dayly at the Chappell bord, nexte the Yeomane of Uestery ; taking amongest them for lyverye daylye for brekefaste and all nighte, two loves, one messe of greate mete, ij galons ale ; and for wintere seafone iiij candles piche, ij talsheds, and lyttere for their pallets of the Serjante Usher, and carryadge of the King's colte for the competent beddyng by the overlyghte of the Comptrollere. And amongest them all to have one servante into the court to trusse and bear their harnesse and lyverye in Court. And that day the King's Chappelle remoueth every of thes Children then present receaueth iiijd. at the Grene Clothe of the Comptyng-house for hors hire dayly, as long as they be jurneing. And when any of thes Children comene to xviij years of age, and their voyces change, ne cannot be preferred in this Chappelle, the nombre being full, then yf they will assente the King assynethe them to a College of Oxford or Cambridge of his foundatione, there to be at fyndyng and studey bothe suffyentyly, tylle the King may otherwise aduance them."

In the *Liber niger*, there is likewise not only an account of the gentlemen and children of the chapel, but of the "Deane's person and establishment, with that of the xxiiij Chaplenes and Clerkes of the Chappelle by the Deane's electyone or denomynatione," &c.

The establishment of cardinal Wolsey's chapel, and of Henry Algernon Percy, fifth earl of Northumberland, was still more numerous and splendid.

CHAPEL-in-the-Frith, in *Geography*, is a small town of Derbyshire, England. It stands on the side of a high convex hill, which rises from a contracted vale, formed by some high mountains. The church was erected at the commencement of the fourteenth century. Here are some small cotton manufactories which furnish employ to part of the lower class of inhabitants. This town is 166 miles N.W. from London, and has a small weekly market on Thursdays.

CHAPELAIN, JOHN, in *Biography*, a poet and man of letters was born at Paris in 1595, and having completed

his education under the best masters, became tutor to the children of the marquis de la Trousse, grand marshal of France, and afterwards steward to this nobleman. During an abode of 17 years in this family he translated "Guzman d'Alfarache," from the Spanish, and directed his particular attention to poetry. In this art he acquired reputation by a critique on the Adonis of the cavalier Marino, prefixed to a Paris edition of that poem, in 1623. By an ode addressed to cardinal Richelieu, a critique on the Cid, and other performances, he obtained the credit of an oracle in matters of taste. Conceiving himself capable of producing an original work, he undertook the composition of an epic poem on the subject of Joan d'Arc, but when the first 12 books of his "Pucelle, ou la France delivrée," appeared in 1656, ushered into the world with all the advantages of typography and engraving, and pushed by court influence through six editions, in eighteen months, the expectations of the public were disappointed, and the author's fame sustained a deadly blow, so that the name of Chapelain as a poet was regarded in France much in the same manner with that of Blackmore in England. The harshness of the style and versification of this poem became a subject of contemptuous satire; and Boileau, Racine, and la Fontaine are humorously said to have imposed upon themselves the penance, for committing any fault in language, of reading a certain number of pages of this poem. The learned Huet in vain endeavoured to vindicate and extol the Pucelle against the more effectual censures of Boileau and others: and thus the 12 additional books have ever since remained in MS. in the king's library. His interest at court, however, remained undiminished; and as his pensions were more ample than those of any other literary man, Boileau calls him "le mieux renté de tous les beaux-esprits." The list of pensioners, recommended by Colbert to Lewis in 1662, was formed by Chapelain; and this distinction secured him a degree of homage which counterbalanced the failure of respect which he had incurred as a poet. His private character was held in high estimation; and though he was not wholly exempt from the charge of avarice, he was not ambitious of posts of eminence, and wisely declined the office of preceptor to the first dauphin, to which he had been nominated by Montausier. Boileau himself is constrained to bear an honourable testimony to his moral qualities. He died in 1674, leaving property which few poets of far superior merit have acquired. His works, besides those already noticed, are, a few odes, a "Dialogue on the reading of old Romances," and some miscellaneous pieces on literary subjects. *Nouv. Dict. Hist.*

CHAPELET, in the *Munage*, a couple of stirrup-leathers, mounted each of them with a stirrup, and joining at top in a sort of leather buckle called the head of the chapellet, by which they are made fast to the pommel of the saddle, after being adjusted to the rider's length and bore. They are used both to avoid the trouble of taking up or letting down the stirrups every time that a gentleman mounts on a different horse and saddle, and to supply what is wanting in the academy saddles, which have no stirrups to them.

CHAPELET, armour of iron forming a circle with three branches of the same metal, by means of which the noyau of the mould of a piece of ordnance is fastened to the chape. They also give this name to a pump or chain pump. It is likewise given to an hydraulic engine for drawing water out of a wet or inundated foundation, where people are going to carry on masonry or other work.

CHAPELLE, CLAUDE EMANUEL L'HUILLIER, in *Bio-graphy*, a French wit and poet, was the natural son of Francis

L'Huillier, master of the accounts, and received his name from the village of La Chapelle, between Paris and St. Denys, the place of his nativity. His education was liberal, and he learned philosophy under the famous Gassendi. His genius, however, inclined to poetry of the light and easy kind, and he excelled in double rhymes. His disposition was convivial, and his habits were those of a man of pleasure. His "Journey to Montpellier," written jointly with Bauchaudmont, and consisting of a mixture of prose and verse, is a "model of that pleasurable facility which is more rare than correctness and elevation." Without availing himself of his connection and interest in order to obtain any posts of honour or profit, he was content with a moderate annuity, and prolonged a life of ease and indulgence to the age of 70 years. He died at Paris in 1686. A new edition of his "Journey" was published by Le Fevre de St. Marc, in 1755, 2 vols. 12mo. To this edition are also annexed some "Fugitive Pieces," in verse and Prose. *Nouv. Dict. Hist.*

CHAPELLE, JOHN DE LA, a member of the French academy, was born at Bruges in 1655, and obtained by his father's purchase the post of receiver-general of the finances at Rochelle. Abandoning the career of business, he became a dramatic writer, after the manner of Racine, whom he studied to imitate, but could not rival; and his performances owed their success in a great degree to the acting of Baron, and a due attention to stage effect. The subject of the most popular was Cleopatra. A farce entitled "Les Carrosses d'Orleans," maintained its place at the theatre. In 1687 La Chapelle became secretary to the prince of Conti, and he was dispatched by his patron to Switzerland on business of importance to his house. He was also employed by the king on public affairs; and he gave evidence of his patriotism and political knowledge in a series of "Letters from a Swiss to a Frenchman, on the true Interests of the Powers at War," the object of which was to dissuade Europe from its league against the French monarch. As a member of the French academy, into which he was admitted in 1688, and in the chair at its public sittings, which he often occupied, he conducted himself so as to gain applause. Although he incurred the displeasure of Despreaux, who was a formidable adversary, he was so well supported as to escape injury; and his private conduct was such as to conciliate general esteem. He died at Paris in 1723, at the age of 68 years. He wrote, besides the works above mentioned, "Historical Memoirs of the Life of Armand Bourbon, Prince de Conti," printed in 1699; and the "Loves of Catullus and Tibullus," forming 2 separate works, the basis of which are the facts and sentiments detailed by those poets. *D'Alembert, Hist. des Memb. de l'Acad. Fr.*

CHAPELLE *Agnon, La*, in *Geography*, a town of France, in the department of Puy-de-Dome; 5 miles N. of Ambert.

CHAPELLE *d'Angillon, La*, a town of France, in the department of the Cher, and chief place of a canton in the district of Sancerre; 16 miles N. of Bourges. The place contains 531, and the canton 4238 inhabitants; the territory includes 315 kilometres and 5 communes.

CHAPELLE *Aubry, La*, a town of France in the department of the Maine and Loire, 8 miles S. of St. Florent.

CHAPELLE *Basse, La*, a town of France in the department of the Lower Loire; 9 miles N. E. of Nantes.

CHAPELLE *Egalite, La*, a town of France, in the department of the Seine and Marne, and chief place of a canton in the district of Fontainebleau. The place contains 833 and the canton 6920 inhabitants. The territory comprehends 235 kilometres and 20 communes.

CHAPELLE la Erbrée, a town of France, in the department of the Ille and Vilaine, and district of Vitré; $1\frac{1}{2}$ league E. of Vitré.

CHAPELLE sur Erdre, La, a town of France, in the department of the Lower Loire, and chief place of a canton in the district of Nantes; 5 miles N. of Nantes. The place contains 1097 and the canton 7913 inhabitants: the territory includes $92\frac{1}{2}$ kilometres and 6 communes.

CHAPELLE de Guinchay, La, a town of France, in the department of the Saone and Loire, and chief place of a canton in the district of Mâcon; 2 leagues S. of Mâcon. The place contains 1376 and the canton 8176 inhabitants: the territory comprehends $77\frac{1}{2}$ kilometres, and twelve communes.

CHAPELLE la Moche, La, a town of France, in the department of the Mayenne; $4\frac{1}{2}$ leagues N.W. of Vilaine.

CHAPELLE sur Ouche, La, a town of France, in the department of the Yonne; 2 leagues S. of Sens.

CHAPELLE St. Laurent, La, a town of France in the department of the Two Sevres; 11 miles N.W. of Parthenay.

CHAPELLE St. Mesmin, La, a town of France in the department of Loiret, an^d chief place of a canton, in the district of Orleans; 3 miles W. of Orleans.

CHAPELLE Tailliferet, a town of France, in the department of the Creuse; $1\frac{1}{2}$ league S. of Gueret.

CHAPELLE La Thireuil, a town of France, in the department of the Two Sevres, and chief place of a canton, in the district of Parthenay; $4\frac{1}{2}$ leagues W.S.W. of Parthenay.

CHAPELLE en Vercors, La, a town of France, in the department of the Drôme, and chief place of a canton in the district of Die; 13 miles N. of Die. The place contains 1326 and the canton 4834 inhabitants; the territory includes 155 kilometres and five communes.

CHAPELLING, in *Seaman'ship*, is bringing a ship to the same tack she was previously on, when in a light breeze of wind, and close-hauled, she had been taken a-back, either through a sudden shift of wind, or want of attention or skill in the person at the helm. This is usually done, by instantly bracing sharp round the head sails, and keeping fast the jib and stay-sail sheets.

CHAPELNESS, in *Geography*, a cape of Scotland, on the coast of the county of Fife, in the Firth of Forth; $1\frac{1}{2}$ mile W. of Eliensfe.

CHAPELRY, *Capellania*, is used for a certain precinct belonging to a chapel, having the same relation to it that a parish has to a church.

CHAPERON, **CHAPERONNE**, or **CHAPERON**, properly signifies a bonnet garnished with a sort of hood, or covering of the head, having a tail hanging down in a point behind, anciently worn both by men and women, the nobles, and the populace, and afterwards appropriated to the doctors; and licentiates in colleges, &c. It was worn of different stuffs divided into two colours. During the time of the famous league, which terminated with the accession of Henry of Navarre to the crown of France, the different parties made themselves known and distinguished by the colours of their Chaperons. And the same sort of distinction took place during the great disputes between the Dukes of Orleans, Bourgogne, and Armagnac.

Hence the name passed to certain little shields, and other funeral devices, placed on the foreheads of the horses that drew the hearses in pompous funerals, and which are still called *chaperons*, or *shafferoons*; because such devices were originally fastened on the *chaperons*, or hoods, worn by those horses with their other coverings of state.

CHAPERON of a bit mouth, in the *Manège*, is only used for scatch-mouths, and all others that are not cannon-mouths, signifying the end of the bit that joins to the branch just by the banquet. In scatch-mouths the chaperon is round, but in others it is oval: and the same part that in scatch and other mouths is called chaperon, is in cannon-mouths called *fronceau*. See **BITT**.

CHAPETE, or **CHARPOTE**, in *Ancient Geography*, a frosty place of Asia, in Mesopotamia.

CHAPETONES, a denomination distinguishing those Spaniards who arrive from Europe to America, and who are the first persons in the country with respect to rank and power. As the Chapetones are raised to such preeminence in America by the conspicuous predilection of the court, they look down with disdain on every other order of men. The interior traffic of every colony, as well as any trade which is permitted with the neighbouring provinces, and with Spain itself, are carried on chiefly by the Chapetones who, as the recompence of their industry, amass immense wealth; while the Creoles, sunk in sloth, are satisfied with the revenues of their paternal estates.

CHAPITEAU d'une piece d'Artillerie, is composed of two small pieces of boards or planks joined together in such manner, as to form the figure of a tent, or of a roof with a pitch, and serves to cover the vent or touch-hole of a piece of Ordnance.

CHAPITERS, in *Architecture*, the crowns or upper parts of a pillar. See **CAPITAL**.

CHAPITERS with mouldings, are those which have no ornaments, as the Tuscan and Doric.

CHAPITERS with sculptures, are those which are adorned with leaves and carved works, the finest of which is of the Corinthian order.

CHAPITERS, in *Law*, were anciently a summary of such matters as were to be inquired of, or presented before justices in eyre, justices of assize, or of the peace, in their sessions.

Chapiters are now taken for articles delivered by the mouth of the justice, in his charge to the inquest: though it appears from Bracton and Britton, they were formerly written exhortations given by the justices for the good observation of the laws, and the king's peace; first read in open court, then delivered in writing to the grand inquest: which the grand jury, or inquest, were likewise to answer to upon their oaths, either affirmatively or negatively.

CHAPLAIN properly signifies a person provided with a chapel; or who discharges the duty thereof.

CHAPLAIN is also used for an ecclesiastical person, in the house of a prince, or a person of quality, who officiates in their chapels, &c.

With us there are forty-eight chaplains to the king, who wait four each month, preach in the chapel, read the service to the family, and to the king in his private oratory, and say grace in the absence of the clerk of the closet. While in waiting they have a table, and attendance, but no salary.

An archbishop may retain eight chaplains; a duke or a bishop, six; a marquis or earl, five; a viscount, four; a baron, knight of the Garter, or lord chancellor, three; a duchess, marchioness, countess, baroness, the treasurer and comptroller of the king's house, the king's secretary, dean of the chapel, almoner, and master of the rolls, two each; the chief justice of the king's bench, one: all of whom may purchase a licence or dispensation, and take two benefices with cure of souls. Stat. 22 Hen. VIII. c. 13.

Every judge of the king's bench and common pleas, the chancellor

chancellor and chief baron of the exchequer, the king's attorney and solicitor-general, may each of them have one, entitled to one benefice with cure, and non-resident. Stat. 25 Hen. VIII. c. 16.

And also the groom of the stole, treasurer of the king's chamber, and chancellor of the duchy of Lancaster, may retain each one chaplain. Stat. 33 Hen. VIII. c. 28. A chaplain must be retained by letters testimonial under hand and seal, or he is not a chaplain within the statute: and a chaplain thus qualified may hold his livings, though dismissed from attendance, during life; nor can a nobleman, though he may retain other chaplains in his family, qualify any of them to hold pluralities whilst the first are living. 4 Rep. 90.

The first chaplains are said to have been those instituted by the ancient kings of France, for preserving the chape, or cape, with the other relics of St. Martin, which the kings kept in their palace, and carried out with them to the war. The first chaplain is said to have been Gul. de Mesmes, chaplain to St. Louis. Previous to and at the last war each regiment had its chaplain. Regimental chaplains were afterwards reduced and put on half-pay during the war. There remained however on the establishment, a chaplain general, who directed the performance of church service, throughout the army.

CHAPLAIN in the order of Malta, is used for the second rank, or class, in that order; otherwise called *diaco*. The knights make the first class, and the chaplains the second.

CHAPLAINS of the pope, are the auditors, or judges, of causes in the sacred palace; so called, because the pope anciently gave audience in his chapel, for the decision of cases sent from the several parts of Christendom.

He hither summoned as assessors the most learned lawyers of his time; and they hence acquired the appellation of *capellani*, chaplains.

It is from the decrees formerly given by these, that the body of decretals is composed: their number pope Sixtus IV. reduced to twelve.

Some say, the shrines of relics were covered with a kind of tent, cape, or *capella*, i. e. little cape; and that hence the priests, who had the care of them, were called *chaplains*. In time these relics were repositied in a little church, either contiguous to a larger, or separate from it; and the same name, *capella*, which was given to the cover, was also given to the place where it was lodged; and hence the priest who superintended it came to be called *chaplain*.

CHAPLET, or CHAPELET, a string of beads, used in the Romish church, to keep account of the number of Pater-nosters and Ave-Marys, to be rehearsed in honour of God and the Holy Virgin.

Chaplets are otherwise called *Pater-nosters*. A ROSARY is a chaplet of fifteen decads of Ave-Marys.

Menage derives the word from *chapeau*, hat; because of the resemblance the thing bears to a hatband, or chaplet of roses, *chapeau de roses*. The modern Latins call it *capellina*; the Italians more frequently *corona*.

Larrey and P. Viret ascribe the first invention of the chaplet to Peter the Hermit, well known in the history of the croisades.

There is a chaplet of our Saviour, consisting of 33 beads, in honour of his 33 years living on earth, instituted by father Michael, the Camaldulian.

The Orientals have a kind of chaplets which they call chains, and which they use in their prayers, rehearsing one of the perfections of God on each link or bead. The

great mogul is said to have 18 of these chains, all of precious stones, some diamonds, others rubies, pearls, &c.

The Turks have likewise chaplets, which they bear in the hand, or hang at the girdle: but father Dandini observes that they differ from those used by the Romanists, in that they are all of the same bigness, and have not that distinction into decads; though they consist of six decads or 60 beads. He adds, that the mussu men have presently run over the chaplet, the prayers being extremely short, as containing only these words, *Praise to God*; or these, *Glory to God*, for each bead.

Besides the common chaplet, they have likewise a larger one, consisting of 100 beads, where there is some distinction, as being divided by little threads into three parts, on one of which they repeat 30 times *Soubhan Allah*, i. e. *God is worthy to be praised*; on another, *Ellamb Allah*, *Glory be to God*; and on the third, *Alla echer*, *God is great*. These thrice 30 times making only 90; to complete the number 100, they add other prayers for the beginning of the chaplet.

He adds, that the Mahometan chaplet appears to have had its rise from the *mea heracoth*, or hundred benedictions, which the Jews are obliged to repeat daily, and which we find in their prayer-books; the Jews and Mahometans having this in common, that they seldom do any thing without pronouncing some laud or benediction.

CHAPLET, or CHAPELET, in *Architecture*, a little moulding, cut or carved into round beads, pearls, olives, or the like.

A chaplet, in reality, is little else but a baguette enriched with sculpture. See BAGUETTE.

CHAPMAN, GEORGE, in *Biography*, an early English dramatic writer, and the first translator of all the works of Homer, was born in 1557, and partly educated at Trinity College, Oxford, where he was distinguished for classical erudition. From Oxford he removed at an early age to the Metropolis, and cultivated an acquaintance with the wits of that period, Shakespear, Spenser, Marlow, Daniel, &c. In 1595, he publicly commenced author, by printing a poem entitled "Ovid's Banquet of Sauce," &c. Before this time he must have been engaged in his translation of Homer, as his seven books of the Iliad appeared in 1596. Fifteen books were printed in 1600, and the whole poem, though published without date, appears by the dedication to prince Henry, not to have been later than 1603. Before this period he was a writer of comedy; and for several years he supplied the public with dramatic pieces, both tragic and comic, many of which were popular. He was a joint writer with Jonson, and rivalled him in fame. In 1614, he published his version of the Odyssey, and soon after completed his translation of all Homer's works by the *Batrachomyomachia* and Hymns. He also translated Mæneus and Hesiod; but some doubt exists whether the latter version was ever printed. Many other works were produced by him in the course of his laborious life, which terminated in 1634, at the age of 77 years. A monument of Grecian architecture was erected to him by his friend, Inigo Jones, in the church of St. Giles's in the Fields, which was destroyed with that edifice. Chapman was much esteemed in his time, both for his poetical and moral character: and though he may now be ranked among our extinct poets, his merit in introducing Homer to the knowledge of his countrymen ought ever to rescue his name from oblivion. His translations of that poet, though rude and incorrect, and rendered tiresome by a protracted measure of lines of 14 syllables, are not destitute of spirit, and afford several examples of the naturalization of the

the Homeric compounded epithets, which have been happily employed by his successors. Waller, as Dryden says, could never read Chapman's Homer without transport; and Pope has derived advantage from the attentive study of it. His critical additions furnish no favourable specimen of an accurate acquaintance with the Greek language. Biog. Brit.

CHAPMAN, EDMUND, an eminent surgeon, and accoucheur, had the merit of giving the first delineation and account of the obstetric forceps, invented by the Chamberlens, more than 60 years after their being first used by that family. Of this intelligent and ingenious practitioner, we have only been able to learn, that he was born about the end of the seventeenth, or the beginning of the last century, and after being well instructed in his profession, in some neighbouring county, where he is said to have practised a few years, he came to London, and soon distinguished himself by his superior skill and adroitness, in conducting difficult labours. The management he adopted consisted in turning the child and delivering by the feet, when it presented any other part than the head to the uterine orifice, and in some cases, when the head was the presenting part; and in using the forceps in many difficult births, in which it had been usual before to deliver with the crochet.

The Chamberlens, to whom, by general consent, the invention of the forceps is attributed, guarded the secret with so much caution, that they avoided calling it an instrument, least it should lead to a discovery. "My father, brothers, and myself, Dr. Hugh Chamberlen says, (preface to his translation of Mauriceau's Midwifery) "have attained to, and long practised a way of delivering women," &c. From Mauriceau we learn, that these fortunate deliveries were achieved by means of an instrument, but of what kind he was not able to inform us, and it remained concealed, or at the least no account of it was given to the public, until Chapman published his "Treatise on the Improvement of Midwifery, chiefly with regard to the Operation, with Cases," 8vo. 1732, that is, nearly seventy years from the time they were first used by the Chamberlens. Chapman's Treatise is a work of considerable merit. It contains a delineation and description of the forceps, in which he had made considerable improvements, with an ample account of the cases, in which they might be advantageously employed. Sometimes, he tells us, he made use of a fillet, but on the whole, he prefers the forceps. He condemns the practice of pushing back the os coccygis, in difficult births, which was recommended by Deventer, as well as the opinion, so strongly insisted on by that writer, that labour is frequently rendered tedious and difficult, by the uterus being placed obliquely in the pelvis. Chapman was also author of a small work, "A Reply to Douglas's short Account of the State of Midwifery in London," 8vo. 1737, in which he ably defends the cause of the men-midwives (or mid-men, as Douglas calls them) against the severe strictures of their adversary. Haller Bib. Chirurg.

CHAPOTENSIS, in *Writers of the Middle Age*, a kind of coin. We do not find any certain account of its value. Du-Cange inclines to think it the same as the CHATUS.

CHAPPAR, a courier of the king of Persia, who carries dispatches from court to the provinces, and from the provinces to the court.

The word, in the original Persian, signifies *courier*.

The posts, M. Tavernier tells us, are not established and regulated in Persia as among us: when the court sends out a chappar, the sophi's master of the horse furnishes him with a single horse, how long soever his journey be, and a man to run after him: when his horse is weary, he takes that of the

first horseman he meets with, who dares not make the least refusal, and sends his own horse by the man who follows him.

As for the master of the new horse he has taken, he must run, or at least, send after the chappar, to retake him, when the chappar dismounts some other horseman to change him.

CHAPPE, in *Heraldry*, the partition of an escutcheon, by two lines drawn from the middle point in chief to the two base angles of the shield.

The sections of the sides are to be of a different colour from the rest. Mackenzie calls it, *A chief party per bend dexter, or sinister, or both*.

CHAPPE D'AUTEROCHE, JOHN, in *Biography*, a French astronomer, was born at Mauriac, in Upper Auvergne, in 1728. His parents, who were persons of rank and opulence, afforded him every advantage of education, and placed him first in the Jesuits' College at Mauriac, and afterwards removed him to the College of Louis le Grand at Paris. In his earliest years he manifested a taste for mathematics and design; and employed his leisure hours in drawing plans and making calculations. In acquiring the elements of mathematics and astronomy, he was assisted by a Carthusian, named don Germain; and to the latter of these studies he was so ardently devoted, that he spent a considerable part of such nights as were favourable for his purpose in observing the heavenly bodies. Father de la Tour, who was then president of the college, conceived a high opinion of his talents and performances, and recommended him to M. Cassini, as a young person who deserved peculiar encouragement. Accordingly, this celebrated astronomer employed him in drawing a general map of France, and in the French translation of Halley's tables, which were published, with considerable additions, in 1752. In the following year, he was engaged by the French government in surveying the county of Bitche in Lorraine, and in ascertaining the true position of that town, in order to complete the local geography of the district to which it belonged. Having accomplished this undertaking to the satisfaction of his employers, he was elected a member of the Royal Academy at Paris, and in 1759, he was appointed assistant astronomer in the room of M. Lalande, who had been promoted to the rank of associate. In 1760, he was occupied in making observations on the two comets, which then appeared, and in forming, by means of his observations, a theory of their orbits. He communicated to the academy at the same time, an account of the zodiacal light, and of the aurora borealis, which he had a favourable opportunity for observing. At this period he prepared for an expedition to Tobolsk in Siberia, in order to observe the transit of Venus over the sun, which was to happen on the 6th of June, 1761; and after encountering many difficulties, and pursuing a route of about 800 leagues from Petersburg, arrived at the destined place of observation on the 10th of April. M. Ismaeloff, the governor of the town, to whom he presented the order of the empress, received him with respect, and afforded him every necessary assistance in accomplishing the object of his expedition. He lost no time in constructing an observatory, and in fixing and adjusting his instruments; and by means of a solar and lunar eclipse, he was enabled accurately to settle the longitude of the place. His observations of the transit, which were made with great precision, in the presence of M. Ismaeloff, count Pouchkin, and the archbishop of Tobolsk, were speedily transmitted both to Petersburg and Paris. The severity of the climate, which injured the abbe Chappe's health, and other circumstances, induced him to hasten his return; and having vi-

sited the mines at Catharineburgh, of which he has given an interesting account, he proceeded to Casan, and at length, after a journey of much fatigue and danger, arrived at Peterburgh. Declining the offer which the empress made him of the place that had been occupied by Mr. de Lisle, he returned to France in 1762, after an absence of two years. In the course of his peregrination to and from Tobolsk, he availed himself of such opportunities as occurred for investigating the nature of the soil and its productions; the rivers, mountains, volcanoes, animals, and minerals; the manners and customs of its inhabitants; and for collecting such particulars of information as might serve to improve an acquaintance with the extensive empire of Russia. Upon his return he applied with diligence to the arrangement of the various materials which he had collected; and from these he formed a narrative of his travels, illustrated with charts and several engravings of different kinds, and comprehended in a work, which appeared in 1768, in 3 vols. 4to. He was no less industrious in the discharge of his official duties, as assistant astronomer. In the prospect of the transit of the sun in June 1769, it was reasonably supposed, that it might be advantageously observed in the north-west part of Europe; but it was necessary to obtain a series of observations to the south-west, at the extreme point of California, viz. at Cape St. Lucar. The abbé Chappe offered his services, and repairing to Cadiz, set sail in a small vessel manned by eight persons only, for Vera Cruz; and from thence proceeded to Mexico, and reached California 19 days before the computed day of observation. At this time an alarming disorder prevailed in the district of California, where he proposed to make his observations, and he was advised to remove out of the reach of danger. But his zeal for the promotion of science was such, that before his departure from France, he replied to those who apprized him of the insalubrity of the climate, "That if he were sure of dying the day after making the proposed observation, that assurance should not deter him." Accordingly, he determined to remain at the village of St. Joseph, where he completed his observations in the most satisfactory manner. Three days after the transit, he was attacked with the disorder, which had before seized his companions; but his resolution was invincible. On the 18th of June, when he was thought to be in a state of convalescence, he insisted on sitting up to observe a lunar eclipse, and this occasioned a relapse. During the progress of his disorder, and as it approached to the fatal crisis, whilst he declared his conviction that he should not survive, he also expressed his satisfaction, that the object of his mission had been accomplished before his death, which happened August 1st, 1769, in his 42d year. His papers were transmitted by M. Pauli, a French engineer, the only survivor of this expedition, to the French Academy, and afterwards published under the direction of the younger Cassini. The Abbé Chappé was of a lively, cheerful, social disposition, upright in his views, and candid in his conduct: devoted to the pursuit of science, and in a great degree regardless of all considerations of private interest. The brief history above given evinces his unconquerable firmness and intrepidity.

CHAPPEL, or CHAPEL. See CHAPEL.

CHAPPEL, WILLIAM, in *Biography*, a pious and learned prelate, was born in 1582 at Lexington in Nottinghamshire, and educated at Christ's college, in the university of Cambridge, of which he became fellow in 1607. Having no prospect of advancement, he continued at college and devoted himself to the business of tuition, for which his talents, disposition, and general character peculiarly qualified him. As a disputant he was skilful and formidable; and it is said that

on occasion of an act performed when king James visited the university in 1624, he pushed his respondent, Dr. Roberts of Trinity college, so hard, that, unable to maintain the contest, he fainted away. The king attempted to support him, but without success; upon which he declared himself happy that so redoubtable a champion was at the same time so good a subject. By the interest of Laud, bishop of London, he was promoted, in 1633, to the deanery of Cashel in Ireland; and to the provostship of Trinity college, Dublin, in 1634. Subservient to the views of government in opposing that puritanical spirit, which very much prevailed in both kingdoms, he conducted himself with that temper and steadiness of discipline which answered the purpose of his appointment; and in recompence of the services which he performed, he was promoted, in 1638, to the bishopricks of Cork, Cloyne, and Ross, and was allowed also to hold his provostship till the year 1640. Apprehensive, however, of the gathering storm, he wished to exchange his Irish preferments for some small bishopric in England. In 1641, articles of impeachment were exhibited against him before the lords, to which he was unable to give a satisfactory reply; and that his conduct, whatever might be the general tenour of it, was in some degree censurable, we may reasonably presume from the circumstance of his having for his two warmest adversaries primate Usher and Dr. Masters, bishop of Meath, and also from his avowed complaisance for his great patrons, Laud and Wentworth. At length he obtained leave to embark for England; but at Tenby, soon after his arrival, he was committed to gaol, on account of his having left Ireland without licence, and detained in custody for seven weeks. His misfortunes were further aggravated by the loss of the ship in which most of his property and his books were embarked. Thus reduced almost to a state of indigence, he retired to his native county; and having afterwards fixed his residence at Derby, he died there in 1649. Although he was a man of acknowledged learning, his publications were few. His "Methodus Concionandi," was printed at London in 1648, 8vo., and an English translation, entitled, "The true Method of preaching," appeared in 1656. His other works were "The Use of Holy Scripture," Lond. 1653, 8vo., and his own life "Vita Gulielmi Chappel," twice printed. Biog. Brit.

CHAPPEL HILL, in *Geography*, a post-town of America, in Orange county, N. Carolina, seated on a branch of New-hope creek, which discharges itself into the N.W. branch of Cape Fear river. This spot has been selected for the seat of the university of North Carolina, which was opened for students in 1796. This town is placed on a beautiful eminence, and commands an extensive prospect of the surrounding country; 12 miles S. by E. of Hillsborough, and 472 S.W. of Philadelphia. N. lat. 35° 40'. W. long. 79° 6'.

CHAPPES, in *Geography*, a town of France, in the department of the Aube, and district of Bar-Sur-Seine; 10 miles S.E. of Troyes.

CHAPPES, or CHAPES, in *Military Language*, are barrels that are made use of for covering others filled with powder, the better to preserve it, and to prevent any of it from being lost by passing or finding its way through between the flaves of the barrels containing it when they are moved, shaken, or jolted. The name of *chappe* or *chape*, is also given to a plastering of cement, which is spread all over the vaults of fouterains, bomb-proofs, and magazines, to prevent any moisture or humidity from penetrating. This appellation is likewise given to a composition of earth, horse-dung, and hair, that is employed for covering the mould of a cannon or mortar.

CHAPPOY, in *Geography*, a town of France in the department of Sura; $2\frac{1}{2}$ leagues S.S.E. of Salins.

CHAPRARAL, a town of South America, in the country of Chili, and jurisdiction of Coquimbo.

CHAPTALIA, in *Botany*, Ventenat. See *PERDICUM*.

CHAPTER, *Capitulum*, a community of ecclesiastics belonging to a cathedral, or collegiate church.

The chief or head of the chapter, is the dean; the body consists of canons, or prebendaries, &c. See *DEAN*.

The chapter has now no longer any share in the administration of the diocese, during the life of the bishop; but succeeds to the whole episcopal jurisdiction during the vacancy of the see.

The origin of the chapters is derived from hence, that anciently the bishops had their clergy residing with them in their cathedrals, to assist them in the performance of sacred offices, and the government of the church; and even after parochial settlements were made, there was still a body of clerks who continued with the bishop, and were indeed his family, maintained out of his income. After the monastic life grew into request, many bishops chose monks rather than seculars for their attendants.

These bodies, either of monastics or seculars, then had the same privilege of choosing the bishop, and being his council, which the whole clergy of the diocese had before; but, by degrees, their dependence on the bishop grew less and less; and then they had distinct parcels of the bishop's estate assigned them for their maintenance; till at last, the bishop had little more left than the power of visiting them. On the other hand, these capitular bodies by degrees also lost their privileges; particularly that of choosing the bishop, for which the kings of England had a long struggle with the pope: but at last Henry VIII. got this power vested in the crown; and now the deans and chapters have only the shadow of it.

The same prince likewise expelled the monks from the cathedrals, and placed secular canons in their room; those he thus regulated, are called *deans and chapters of the new foundation*; such are Canterbury, Winchester, Worcester, Ely, Carlisle, Durham, Rochester and Norwich: such also are the chapters of the four new sees, of Peterborough, Oxford, Gloucester, and Bristol.

CHAPTER is also applied to the assemblies held by religious and military orders, for deliberating on their affairs, and regulating their discipline.

Papias says they are so called, *quod capitula ibi legantur*.

The establishment of general chapters of religious orders is owing to the Cistercians, who held the first in 1116, and were soon followed by the other orders.

CHAPTER is also used for a division of a book; contrived for keeping the matters treated thereon more separate, clear, and distinct.

The ancients were unacquainted with the division of books into chapters and sections. Papias says, the name chapter, *caput*, arose hence, *quod sit alterius sententia caput*, or *quod capit totam summam*. St. Augustine compares chapters to inns, inasmuch as these refresh the reader, as those the traveller.

The division of the Bible into chapters is attributed by some to Stephen Langton, archbishop of Canterbury, in the reigns of king John and Henry III. But it was really done by Cardinal Hugo, who flourished about the year 1240, the author of the first Scripture Concordance, with a view of rendering this work an useful index to the Scripture. See *BIBLE* and *CONCORDANCE*. The chapters were again subdivided, not into verses, but by the letters A, B, C, D, E, F, G, placed in the margin at an equal distance from each

other, according to the length of the chapters. In some, all the seven letters were used; in others fewer, as the length of the chapters required. In 1445, Rabbi Nathan, a famous Rabbi among the Western Jews, finished a Concordance to the Hebrew Bible, in the manner of Hugo's above mentioned; and introduced the division of the Hebrew Bible into chapters: he also improved on his plan, by using the ancient division into verses, and by numbering them, fixing the numerical letters in the margin at every fifth verse. Athias, in his edition of the Bible, 1661 and 1667, introduced the Indian figures, and placed them at every verse. Vatablus published a Latin Bible, in which the same kind of division was adopted; though some say this division and distinction by numbers were first used in R. Stephens's Latin Bible, published at Paris, 1557. R. Stephens made the same division of the chapters of the New Testament into verses, for the sake of a concordance to the Greek Testament, which was printed by his son H. Stephens.

CHAPTERS, *the three*, is a phrase famous in *Ecclesiastical History*, signifying a volume published by Theodoret, an adherent of Nestorius, against St. Cyril; consisting of a letter of Ibas priest of Ndesla, to Maris a bishop of Persia; of extracts from the works of Diodorus of Tarsus, and Theodore of Mopsuestia, wherein the same doctrines were taught, that were contended for by Nestorius; and of two pieces of Theodoret, the one against the council of Ephesus, the other against the anathemas of St. Cyril.

These make the famous three chapters; which were first condemned by an edict of Justinian, A. D. 544. and since by various councils, and many popes.

CHAPTREL. See *IMPOST*.

CHAPUZEAU, SAMUEL, in *Biography*, a native of Geneva, who became preceptor to William III. king of England, and afterwards governor of the pages of George, duke of Brunswick-Lunenborg, in which situation he died "old, blind, and poor," at Zell, in 1701. Of his various works in history, politics, and belles lettres, we shall mention his "Description of Lyons," 1656; "An Account of Savoy;" "L'Europe vivante," or political state of Europe, in 1666; "Present State of the electoral House of Bavaria," 1673; "Le Theatre Francois," 1674; several comedies under the title of "La Muse enjouée, ou le Theatre comique." His arrangement and publication of Tavernier's voyages and travels, first printed in French, 1675, 4to, may be reckoned among his most useful labours. In 1694, he published the plan of an "Historical, Geographical, and Philosophical Dictionary," to which he had devoted 15 years; but it never appeared. He complained that Moreri had made great use of his MSS. in compiling his own dictionary. Gen. Biog.

CHAQUILON, in *Geography*, a town of Persia, in the province of Segestan, now in ruins; 90 miles N.E. of Zareng.

CHAR, a town of Arabia; 140 miles N.W. of Mecca. —Also, a river of France, which runs into the Boutonne, near St. Jean d'Angeli.

CHAR, in *Ichthyology*. See *SALMO alpinus*, and *CHARR*, or *CHARRE*.

CHAR de Neptune, in *Natural History*, one of the numerous synonymous names of *MADREPORA muricata*, which see.

CHAR of lead, denotes the quantity of thirty pigs.

CHARA, in *Astronomy*, the name of one of the CANES venatici.

CHARA, in *Botany*, (supposed to be fancifully derived from χαίρω, because, says Professor Martyn, it is the joy or delight of the water; or rather, if it be worth while to add one uncertain conjecture to another, because it delights in water)

ter.) Linn. gen. 567. Schreb. 1397. Juss. 18. Vent. vol. 2. 71. Gært. 528. Class and order, *cryptogamia algae*, Linn. Sp. Pl. *Monandria monandria*, Linn. Syst. Nat. *Monandria monogynia*, Smith Flor. Brit. Nat. Ord. *Inundata*, Linn. *Naiades*, Juss. *Allied to Filices*. Vent.

Gen. Ch. Male. Cal. none. Cor. none. Stam. Filament none; anther globular, projecting before the germ, and placed rather beneath it, at the outside of its calyx, one-celled, not opening. Female. Cal. Perianth four-leaved; leaflets awl-shaped, unequal, permanent; sometimes none. Cor. none. Pist. Germ top-shaped, spirally striated; style none; stigmas five, simple. Per. Berry ovate-oblong, spirally striated, one-celled, containing the seeds within a very slender crust. Seeds several, very small, spherical. Schreb.

Eff. Ch. Male. Cal. and Cor. none; anther before the germ, beneath. Fem. Cal. four-leaved. Cor. none. Stigmas five. Whole herb constantly immersed in water.

Obs. Authors are much at variance with respect to the structure of this flower. Haller and Gærtner are of opinion, that the yellowish or red globules which are found near the germs, cannot answer the purpose of the anther. "Of what use, inquires the latter author, can be a cellular anther which never opens? What effect can be produced by pollen which is not dispersed, and which, if it were dispersed, is so light and oleaginous, that it cannot remain on the germ, but must instantly rise to the surface of the water? It is therefore sufficiently evident, that these globules are not real anthers; but are either mere air-vessels designed to enable the plant to float on the water, or abortive germs filled with unimpregnated seeds." See Gært. de fruct. vol. 1. Intro. p. 34. Dr. Smith acknowledges that as the plant flowers under water, there can be no wonder if the nature of its anther and pollen be obscure; but he has not a doubt with respect to the part in question being a proper anther, and recommends to further inquiry the opinion of the very able Mr. Correa, who thinks that the impregnation may be performed within the stem, by a clandestine communication between the anther and germen, and that the five leaves which crown the germen, are not (as has been supposed) the stigma, but the tips of a five-leaved calyx closely enfolding that part in a spiral manner. The analogy of *Hippuris*, to which this genus is nearly allied, induces him, also, to conceive that the flower is really a naked one, and that the four leaflets which have been thought to constitute the calyx of the female flower, and which are sometimes wanting, are no other than proper leaflets of the plant. Under this persuasion he has removed the genus to *Monandria Monogynia*, with the following essential character: Cal. none. Cor. none. Anther sessile. Style none. Berry with many seeds. See Eng. Bot. 336, and Flor. Brit. vol. 1. p. 4. Gærtner calls the fruit a one-celled, many-seeded nut; and accordingly thus describes that of the most common species. "Pericarp, a nut clothed with a membranous integument, which never splits or separates spontaneously from the nut; shell ovate-globular, crustaceous, brittle, rather thick considering the size of the nut. Seeds bedded in a pale, friable, herbaceous fleshy substance, which fills the whole cavity of the nut." But from this description the fruit is properly a berry.

Sp. 1. *C. vulgaris*, Linn. Sp. Pl. 2. Lam. 1. Mart. 2. Hedwig Theor. tab. 32, 33. Eng. Bot. tab. 336. Lam. Ill. Pl. 742. fig. 1. (*Equisetum foetidum* sub aqua repens; Bauh. Prodr. 25. Ger. emen. 1115.) "Stem without prickles, striated; leaves awl-shaped, jointed." Whole herb foetid, brittle. Stem a foot long, thread-shaped, twisted. Leaves about eight in a whorl, erect-spreading, acute, compound, channelled above, bearing the flowers. Anther naked, sessile, depressed, fleshy,

in its decay cracking into chinks. Germ surrounded by four leaflets adjoining to the anther, egg-shaped, five-toothed at the tip. Berry with a thickish bark. This, in common with the other species, is often clothed with a greyish gritty matter, which has been supposed to constitute part of the plant; but is nothing more than an adventitious incrustation of calcareous earth deposited from the water, which is never found on plants growing in clay-pits or any pure grounds. The plant in its natural state is smooth and of a bright green colour, and is the *C. vulgaris* β of Dr. Smith, and the *Chara minor caulibus & foliis tenuissimis* of Ray's Synoptis. The figure in English Botany was drawn from a specimen covered with the calcareous crust. 2. *C. hispida*, Linn. Sp. Pl. 3. Lam. 2. Mart. 3. Eng. Bot. Pl. 463. Lam. Ill. Pl. 742. fig. 33. (*Equisetum f. Hippuris mucosus*; Pluk. Alm. tab. 193. fig. 6.) "Prickles on the stem capillary, crowded." Linn. "Stems and leaves spinous-hispid." Lam. "Stem furrowed; leaves awl-shaped, jointed; leaflets whorled; prickles on the stem setaceous, and deflexed." Dr. Smith. Habit of the former, but larger; with a stem often five times as thick, rather furrowed than striated, prickly chiefly on its upper part. Flowers similar to those of *C. vulgaris*. 3. *C. tomentosa*, Linn. Sp. Pl. 1. (*Equisetum fragile*; Moris. hist. 3. tab. 29. fig. 4. E. S. *Hippuris lacustris*; Pluk. alm. tab. 29. fig. 4.) "Prickles of the stem egg-shaped." The English plants which have been referred to this species by Hudson, Withering, and Sibthorp, are supposed by Dr. Smith to be only a variety of the preceding. We have specimens now before us, gathered many years since in the outlet of Malham farm, in the Craven district of Yorkshire, which appear to us to be the *C. tomentosa* of Linnæus, but the plant is so masked by its calcareous crust, that we will not venture to pronounce it specifically distinct from *C. hispida*. 4. *C. flexilis*, Linn. Sp. 4. Lam. 4. Mart. 4. Eng. Bot. tab. 1070. minor. Lam. Ill. Pl. 742. fig. 2. major. "Joints of the stem without prickles, transparent, broader upwards." Linn. "Without prickles, even, transparent; leaves cylindrical, obtuse, somewhat microuate." Dr. Smith. Whole plant smooth, not striated. There are two varieties figured by Vaillant (Aët. Paris. 1719. tab. 3. fig. 8, 9.) one larger and the other smaller. Specimens of both are before us, both gathered, we believe, in some part of Yorkshire; and it appears to us that Linnæus formed his specific character from the former; Dr. Smith his, from the latter. All the species are annual, and grow in ponds and slow ditches, flowering in July and August.

CHARABASA, in *Ancient Geography*, a town in Africa Propria, according to Ptolemy.

CHARABAUN, or TSIERIBON, in *Geography*, a seaport town on the north coast of the island of Java, situated in a country which produces abundance of rice, sugar, coffee, pepper, cotton, &c. which is purchased by the Dutch at a low price: about 130 miles east of Batavia. N. lat. 6° 5'. E. long. 109° 4'.

CHARABE, or CARABE, is sometimes used for *amber*, (which see); as also for the juice of the poplar-tree.

CHARABEY, in *Geography*, a town of Persia, in the province of Mazanderan; 60 miles W. of Asterabat.

CHARACENE, in *Ancient Geography*, a country of Asia, being the southern district of Susiana. According to Ptolemy, it was the territory of the town of *Charax*, which see.

CHARACENI, a denomination given by Pliny to the inhabitants of *Charax*, on the southern coast of the Tauric Chersonesus.

CHARACINA, a small country of Asia in Cilicia, in which Ptolemy places the town of *Fluviopolis*.

CHARACITANI, in *Ancient Geography*, a people of Spain, placed by Plutarch in the Tarragonense district. He adds, that they inhabited deep caverns, near the Tagus, into which they retired when they were pillaged by their neighbours.

CHARACOMA, a town of Laconia, situated on the road that passes from Arcadia to Sparta, and to the north of that city.

CHARACOMA, a name given by Ptolemy to a town of Arabia Petrea. Some have denominated it *Characomba*.

CHARACTER, in a general sense, signifies a mark or figure, drawn on paper, metal, stone, or other matter, with a pen, graver, chisel, or other instrument, to signify, or denote any thing. The word is χαρακτες; formed from the verb χαρασσειν, *insculpere, to engrave, impress, &c.*

The various kinds of characters may be reduced to three heads, viz. *literal characters, numeral characters, and abbreviations.*

CHARACTER, literal, is a letter of the alphabet, serving to indicate some articulate sound, expressive of some idea, or conception of the mind. See **ALPHABET**.

These may be divided, with regard to their nature and use, into *nominal, real, and emblematical*. *Nominal characters* are those we properly call *letters*; which serve to express the names of things. See **LETTER**.

Real characters are those that, instead of names, express things and ideas. *Emblematical, or symbolical characters*, have this in common with real ones, that they express the things themselves; but they also have this further, that they in some measure personate them, and exhibit their form: such are the hieroglyphics of the ancient Egyptians. See **HIEROGLYPHIC**.

CHARACTERS, literal, may be again divided, with regard to their invention and use, into *particular and general, or universal*.

Particular characters, are those peculiar to this or that nation; or that have been so: such are the Roman, Italic, Greek, Hebrew, Arabic, Gothic, Chinese, &c. characters. See each of these articles.

Universal characters, are also *real characters*, and make what some authors call a *philosophical language*.

The diversity of characters used by the several nations to express the same idea, is found the chief obstacle to the advancement of learning: to remove this, several authors have taken occasion to propose plans of characters that should be universal, and which each people should read in their own language. The character here is to be real, not nominal; to express things and notions; not, as the common ones do, letters, or sounds: yet, to be mute, like letters, and arbitrary; not emblematical, like hieroglyphics.

Thus, the people of every nation should retain their own language, yet every one understand that of each other, without learning it; only by seeing a real or universal character, which should signify the same thing to all people; by what sounds soever each expressed it in their particular idiom.

For instance, by seeing the character destined to signify *to drink*, an Englishman should read *to drink*; a Frenchman, *boire*; Latin, *bibere*; a Greek, *πινεν*; a Jew, *שָׁחַ*; a German, *trincken*; and so of the rest: in the same manner as seeing a horse, each people express it after their own manner; but all mean the same animal. This real character is no chimera; the Chinese and Japanese have already something like it. They have a common character which each of those nations understand alike in their several languages; though they pronounce it with such different sounds, that

they do not understand a tittle of the speech of one another.

The first, and most considerable attempts for a real character, or philosophical language, in Europe, are those of bishop Wilkins, and Dalgarnie: but these, with how much art soever they were contrived, have yet proved ineffectual.

M. Leibnitz had some thoughts the same way: he thinks those great men did not adopt the right method; and adds, it was probable, indeed, that, by this means, people, who do not understand one another, might easily have a commerce together; but that they have not fixed on true real characters.

According to him, the characters should resemble those used in algebra: which, in effect, are very simple, yet very expressive; without any thing superfluous or equivocal; and contain all the varieties required.

The real character of bishop Wilkins has its just applause: Dr. Hook recommends it, on his own knowledge and experience, as a most excellent scheme; and, to engage the world to the study of it, published some fine inventions of his own relating to it. See **LANGUAGE**.

M. Leibnitz tells us, he had under consideration *an alphabet of human thoughts*; in order to a new philosophical language, on his own scheme; but his death prevented this from being brought to maturity.

M. Lodwick, in the *Philosophical Transactions*, gives us a plan of *an universal alphabet*, or character of another kind: this was to contain an enumeration of all such single sounds, or letters, as are used in any language; by means whereof people should be enabled to pronounce truly and readily any language; to describe the pronunciation of any language that should be pronounced in their hearing; so that others accustomed to this language, though they had never heard the language pronounced, should at first be able truly to pronounce it: and, lastly, this character is intended to serve as a standard to perpetuate the sounds of any language. *Abridgm. vol. iii. p. 373.*

In the *Journal Littéraire*, an. 1720, we have a very ingenious project for an universal character: the author, after obviating the objections that might be made against the feasibility of such schemes in the general, proposes his own: his characters are to be the common Arabic, or numeral figures. The combinations of these nine are sufficient to express distinctly an incredible quantity of numbers, much more than we shall need terms to signify our actions, goods, evils, duties, passions, &c. Thus is all the trouble of framing and learning any new characters at once prevented; the Arabic figures having already all the universality required.

The advantages are immense: for, 1. We have here a stable, faithful interpreter; never to be corrupted or changed, as the popular languages continually are. 2. Whereas the difficulty of pronouncing a foreign language is such as usually gives the learner the greatest trouble, and there are even some sounds which foreigners never attain to; in the character here proposed, this difficulty has no place: every nation is to pronounce them according to the particular pronunciation that already obtains among them. All the difficulty is, the accustoming of the pen and the eye to affix certain notions to characters that do not, at first sight, exhibit them. But this trouble is no more than we find in the study of any language whatever.

The inflexions of words are here to be expressed by the common letters: for instance, the same character shall express *a filly* or *a colt*, *a horse* or *a mare*, *an old horse* or *an old mare*, as accompanied with this or that distinctive letter, which shall shew the sex, youth, maturity, or old age: a letter is

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also to express the bigness or size of things; thus, v. g. a man with this or that letter, to signify a *great man*, or a *little man*, &c.

The use of these letters belongs to the grammar, which, when once well understood, would abridge the vocabulary exceedingly. An advantage of this grammar is, that it would only have one declension, and one conjugation: those numerous anomalies of grammarians are exceeding troublesome, and arise hence, that the common languages are governed by the populace, who never reason on what is best: but in the character here proposed, men of sense introducing it, would have a new ground wherewith to build regularly.

The difficulty, however, is not in inventing the most simple, easy, and commodious character, but in engaging the several nations to use it; there being nothing they agree less in than the understanding, and pursuing of their common interest. The consideration of an universal language, with respect to the mode of its formation, as well as its advantages and practicability, will be resumed under the article **LANGUAGE**.

CHARACTERS, literal, may be again divided, with respect to the nations among whom they have been invented, and used, into *Greek characters*, *Roman characters*, *Hebrew characters*, &c.

The character now ordinarily used throughout Europe, is the *Latin character* of the ancients, which was formed from the Greek, and that from the Phœnician, which Cadmus brought into Greece.

The Phœnician character was the same with that of the ancient Hebrew, which subsisted to the time of the Babylonish captivity; after which they used that of the Assyrians, which is the square Hebrew, now in use; the ancient being only found on some Hebrew medals, commonly called "Samaritan Medals."

Postellus and others shew that, beside the Phœnician, the Chaldee, Syriac, and Arabic characters were likewise formed from the ancient Hebrew.

The French were the first who, with the Latin of St. Gregory, admitted the Latin characters. And in a provincial synod, held in 1091, at Leon in Spain, the use of the Gothic characters invented by Ulphilas was abolished, and the Latin ones established.

Medallists observe, that the Greek character, consisting only of majuscule letters, has preserved its uniformity on all medals as low as the times of Gallienus; there being no alteration found in the turn of the character, notwithstanding the many considerable ones both in the use and pronunciation. From the time of Gallienus, it appears somewhat weaker and rounder: from the time of Constantine to Michael, the space of 500 years, we find only Latin characters; and after Michael, the Greek characters recommence, but from that time they began to alter with the language, which was then a mixture of Greek and Latin.

The Latin medals preserve both their character and language as low as the translation of the seat of the empire to Constantinople. Towards the time of Decius, the character began to alter, and to lose of its roundness and beauty: some time after it retrieved itself, and subsisted tolerably till the time of Justin; when it fell into the last barbarity mentioned under Michael; though it afterwards grew worse, and degenerated into the Gothic: so that the rounder and better formed the character is on a medal, the greater pretence it has to antiquity.

CHARACTERS, numeral, are those used to express numbers.

Numeral Characters are either *letters*, or *figures*, otherwise called digits. The kinds now chiefly in use, are the *Common* and the *Roman*: to which may be added the *Greek*,

and another called the *French character*; as also the letters of other alphabets which have been made use of to express numbers. The common character is that ordinarily called the *Arabic*, as supposed to have been invented by the Arab astronomers; though the Arabs themselves call it the *Indian character*; as if they had borrowed it from the people of India.

The *Arabic characters* are ten, viz. 1, 2, 3, 4, 5, 6, 7, 8, 9, 0; the last is called *cipher*.

The Arabic character is used almost throughout Europe, and that on almost all occasions; in commerce, in measuring, in astronomical calculations, &c.

The *Roman character*, consists of the majuscule letters of the Roman alphabet: whence probably its name: or, perhaps, from its being used by the ancient Romans on their coins, and in the inscriptions of their public monuments, erected in honour of their gods and great men; on their sepulchres, &c.

The numeral letters that compose the Roman character are in number seven, viz. I, V, X, L, C, D, M. The I denotes one, V five, X ten, L fifty, C a hundred, D five hundred, and M a thousand. The I, repeated twice, makes two, II; thrice, three, III; four is expressed thus, IV, I before V or X, taking an unit from the number expressed by each of those letters. To express six, an I is added to a V, VI; for seven, two, VII; and for eight, three, VIII: nine is expressed by an I before X, IX; agreeably to the preceding remark.

The like remark may be made of the X before L or C, except that the diminution is by tens, not units: thus, XL signifies forty, and XC, ninety; an L followed with an X, sixty, LX, &c. The C before D or M, diminishes each by a hundred.

Besides the letter D, which expresses five hundred, that number may also be expressed by an I before a C inverted, thus, IC; and thus, in lieu of the M, which signifies a thousand, is sometimes used an I between two C's, the one direct, the other inverted: agreeable to this, six hundred may be expressed IDC; and seven hundred, IDCC, &c.

The addition of C and D before, or after, raises CID by tens, thus, CCID, 10000; CCCID, 100,000, &c.

This is the common way of notation, formerly used by the Romans; who also expressed any number of thousands by a line drawn over any numeral less than a thousand; e. g. V, 5000; LX, 60,000: so likewise M is 1,000,000; MM is 2,000,000, &c.

Besides which, (I.) certain liberties or variations have been admitted, at least by some modern writers; e. g. IIX, 8; IICIX, 89. (II.) And certain characters have been used, which seem to have been derived from the letters; e. g. M, by which they express (Mille) 1000, was formed from CX, or CIO; half of which, viz. IO, stood for 500. (III.) And for the easier writing of these characters, 1. IC seems to have been altered into D; 2. IDC into Λ , or ∇ ; 3. CID into ∞ or \propto ; whence Ψ $\overline{\Psi}$, 1000; Ψ Ψ , 200, V. X.

In Roman inscriptions, we meet with the characters Θ and ∞ , used to express a thousand. The usual note of a thousand, is either I between two CC's (direct and reversed) thus, CIO; or else X, thus, CX. The former figure, when closed at top, exactly resembles an ancient M, thus, Θ ; and the latter, when shut up, the figure of 8, inclined thus ∞ .

We also find in some inscriptions, the character \oplus , which is X between two CO's, but closed on all sides. But the learned Dr. Taylor seems to suspect the accuracy of the copy

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copy of the inscription from whence this character is taken. See Phil. Trans. N^o 482. § 2.

As to the origin and use of the character X , so often met with on the coins, utensils, and manuscripts of the ancients; see X .

Greek numerals. The Greeks had three ways of expressing numbers. (I.) The most simple was, for every single letter, according to its place in the alphabet, to denote a number from α 1 to ω 24; in which manner the books of Homer's Iliad are distinguished. (II.) Another way was by dividing the alphabet into, (1.) 8 Units: α 1, β 2, &c. (2.) 8 Tens: ι 10, κ 20, &c. (3.) 8 Hundreds: ρ 100, σ 200, &c. N.B. Thousands they expressed by a point, or accent under a letter, e. g. α 1000. β 2000, &c. (III.) A third way was by six capital letters, thus, I [ι for $\mu\iota$] 1, II [$\pi\iota$ for $\mu\iota$] 2, III [$\rho\iota$ for $\mu\iota$] 3, IV [$\tau\iota$ for $\mu\iota$] 4, V [χ for $\mu\iota$] 5, VI [ψ for $\mu\iota$] 6, VII [ϕ for $\mu\iota$] 7, VIII [θ for $\mu\iota$] 8, IX [ζ for $\mu\iota$] 9, X [ξ for $\mu\iota$] 10, XI [\omicron for $\mu\iota$] 11, XII [π for $\mu\iota$] 12, XIII [σ for $\mu\iota$] 13, XIV [τ for $\mu\iota$] 14, XV [κ for $\mu\iota$] 15, XVI [ι for $\mu\iota$] 16, XVII [ρ for $\mu\iota$] 17, XVIII [σ for $\mu\iota$] 18, XIX [τ for $\mu\iota$] 19, XX [χ for $\mu\iota$] 20, XXI [ψ for $\mu\iota$] 21, XXII [ϕ for $\mu\iota$] 22, XXIII [θ for $\mu\iota$] 23, XXIV [ζ for $\mu\iota$] 24, XXV [ξ for $\mu\iota$] 25, XXVI [\omicron for $\mu\iota$] 26, XXVII [π for $\mu\iota$] 27, XXVIII [σ for $\mu\iota$] 28, XXIX [τ for $\mu\iota$] 29, XXX [κ for $\mu\iota$] 30, XXXI [ι for $\mu\iota$] 31, XXXII [ρ for $\mu\iota$] 32, XXXIII [σ for $\mu\iota$] 33, XXXIV [τ for $\mu\iota$] 34, XXXV [χ for $\mu\iota$] 35, XXXVI [ψ for $\mu\iota$] 36, XXXVII [ϕ for $\mu\iota$] 37, XXXVIII [θ for $\mu\iota$] 38, XXXIX [ζ for $\mu\iota$] 39, XL [ξ for $\mu\iota$] 40, XLI [\omicron for $\mu\iota$] 41, XLII [π for $\mu\iota$] 42, XLIII [σ for $\mu\iota$] 43, XLIV [τ for $\mu\iota$] 44, XLV [κ for $\mu\iota$] 45, XLVI [ι for $\mu\iota$] 46, XLVII [ρ for $\mu\iota$] 47, XLVIII [σ for $\mu\iota$] 48, XLIX [τ for $\mu\iota$] 49, L [χ for $\mu\iota$] 50, LI [ψ for $\mu\iota$] 51, LII [ϕ for $\mu\iota$] 52, LIII [θ for $\mu\iota$] 53, LIV [ζ for $\mu\iota$] 54, LV [ξ for $\mu\iota$] 55, LVI [\omicron for $\mu\iota$] 56, LVII [π for $\mu\iota$] 57, LVIII [σ for $\mu\iota$] 58, LIX [τ for $\mu\iota$] 59, LX [κ for $\mu\iota$] 60, LXI [ι for $\mu\iota$] 61, LXII [ρ for $\mu\iota$] 62, LXIII [σ for $\mu\iota$] 63, LXIV [τ for $\mu\iota$] 64, LXV [χ for $\mu\iota$] 65, LXVI [ψ for $\mu\iota$] 66, LXVII [ϕ for $\mu\iota$] 67, LXVIII [θ for $\mu\iota$] 68, LXIX [ζ for $\mu\iota$] 69, LXX [ξ for $\mu\iota$] 70, LXXI [\omicron for $\mu\iota$] 71, LXXII [π for $\mu\iota$] 72, LXXIII [σ for $\mu\iota$] 73, LXXIV [τ for $\mu\iota$] 74, LXXV [κ for $\mu\iota$] 75, LXXVI [ι for $\mu\iota$] 76, LXXVII [ρ for $\mu\iota$] 77, LXXVIII [σ for $\mu\iota$] 78, LXXIX [τ for $\mu\iota$] 79, LXXX [χ for $\mu\iota$] 80, LXXXI [ψ for $\mu\iota$] 81, LXXXII [ϕ for $\mu\iota$] 82, LXXXIII [θ for $\mu\iota$] 83, LXXXIV [ζ for $\mu\iota$] 84, LXXXV [ξ for $\mu\iota$] 85, LXXXVI [\omicron for $\mu\iota$] 86, LXXXVII [π for $\mu\iota$] 87, LXXXVIII [σ for $\mu\iota$] 88, LXXXIX [τ for $\mu\iota$] 89, LXXXX [κ for $\mu\iota$] 90, LXXXXI [ι for $\mu\iota$] 91, LXXXXII [ρ for $\mu\iota$] 92, LXXXXIII [σ for $\mu\iota$] 93, LXXXXIV [τ for $\mu\iota$] 94, LXXXXV [χ for $\mu\iota$] 95, LXXXXVI [ψ for $\mu\iota$] 96, LXXXXVII [ϕ for $\mu\iota$] 97, LXXXXVIII [θ for $\mu\iota$] 98, LXXXXIX [ζ for $\mu\iota$] 99, LXXXXX [ξ for $\mu\iota$] 100, LXXXXXI [\omicron for $\mu\iota$] 101, 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are expressed; thus, $ijij^{xxx}$, ninety; $ijij^{xxxj}$, ninety-one; $ijij^{xxij}$, &c.

It is principally used in the chambers of accounts, in the accounts given in by treasurers, receivers, farmers, and other persons concerned in the management of the revenue.

CHARACTERS, in *Printing*, denote the letters or types, by the various arrangement whereof are composed forms; whence impressions are taken, by means of a press, on paper. For the method of casting these *Characters*, see *Letter Foundery*. For other characters in *Printing*, see *CORRECTION*.

CHARACTER, is also used in several of the arts, for a symbol, contrived for a more concise, immediate, and artful conveyance of the knowledge of things.

In this sense of the word, Paulus Diaconus refers the invention of characters to Ennius; who, he says, contrived the first eleven hundred. To these were many more added by Tyro, Cicero's freedman, and by Philagyrus, Fannius, and Aquila, freedmen of Mæcenas.

Lastly, L. Annæus Seneca made a collection of them, reduced them into order, and increased their number to five thousand. Tyro's notes may be seen at the end of Gruter's inscriptions.

Valerius Probus, a grammarian, in the time of Nero, laboured to good purpose in explaining the notes of the ancients. P. Diaconus wrote an ample treatise of the explication of the characters in law, under the reign of the emperor Conrad I.; and Goltzius another for those of medals.

Characters, or symbols, are now chiefly affected in the several parts of mathematics; particularly in algebra, geometry, trigonometry, and astronomy: as also in medicine, chemistry, music, &c. The principal of each kind we shall here subjoin.

CHARACTERS used in *Arithmetic and Algebra*.

a, b, c , and d , the first letters of the alphabet, are the signs, or characters that denote given quantities; and x, y, z , &c. the last letters, are the characters of quantities sought. Some for the former, use consonants, or large letters; and vowels, or small ones, for the latter.

Stifelius first used the capitals A, B, C , &c. for the quantities, unknown or required. Afterwards, Vieta used the capital vowels A, E, I, O, U, Y , for quantities, unknown or required, and the consonants B, C, D , &c. for known or given numbers. Harriot changed Vieta's capitals into the small letters a, e, i, o, u , for unknown, and b, c, d , &c. for known quantities. And Des Cartes changed Harriot's vowels for the latter letters x, y, z , &c. and the consonants for the first letters, a, b, c, d , &c.

Note, Equal quantities are denoted by the same character.

For the method of expressing the powers of quantities. See *ALGEBRA*.

m, n, r, s, t , &c. are characters of indeterminate exponents, both of ratios and powers; thus x^m, y^n, z^r , &c. denote indeterminate powers of different kinds; mx, ny, rz , different multiples, or submultiples of the quantities x, y, z , according as m, n, r , are either whole numbers or fractions.

+ the sign of addition, is called the *affirmative*, or *positive* sign, and is read *plus*, or *more*; thus $9 + 3$, is read *9 plus 3*; or *9 more 3*: that is, the sum of 9 and 3, equal to 12.

When this character is set before any single quantity, it denotes that it is an affirmative or positive quantity; when it is set between two or more quantities, it denotes their sum, shewing that the latter are to be added to the former. It is not easy to ascertain when, or by whom, this sign was first introduced; but we owe it probably to the Germans,

and it seems to have been first used by Stifelius in his arithmetic printed in 1544. The early writers on algebra used the word *plus* in Latin, or *piu* in Italian, for addition; as they used *minus*, or *meno*, or merely the initial m , for subtraction: and thus these operations were denoted in Italy by Lucas de Burgo, Tartalea, and Cardan, while the signs + and - were employed much about the time in Germany by Stifelius, Scheubelius, and others, for the same operations.

— Before a single quantity, shews the quantity to which it is prefixed to be a negative quantity.

Between quantities, it is also the sign of subtraction, and is read *minus*, or *less*; thus $14 - 2$, is read *14 minus*, or abating 2; that is, the remainder of 14, after 2 has been subtracted, viz. 12. This sign first occurs in Stifelius.

= Is the sign of equality: thus, $9 + 3 = 14 - 2$; signifies *9 plus 3*, to be *equal* to *14, minus 2*.

This character was used by Robert Recorde, and after him by Harriot: Des Cartes in lieu of it uses ∞ .

Wolfius, and some other authors, use the same character, =, for the identity of ratios; or to denote the terms to be in a geometrical proportion; which most authors express thus: :

× Is the sign of multiplication, denoting the quantities on either side to be multiplied into one another, and was introduced by Oughtred; thus, 4×6 , is read *4 multiplied by 6*; or the factum, or product of 4 and $6 = 24$; or the rectangle between 4 and 6.

Ordinarily, however, in algebra, the sign is omitted, and the two quantities put together: thus bd expresses the product of the two numbers denoted by b and d , which suppose 2 and 4, the product whereof is 8, signified by bd .

Wolfius, and others, make the sign of multiplication a dot (.) between the two factors: thus 6.2 signifies the product of 6 and $2 = 12$.

Where one or both the factors are compounded of several letters, they are distinguished by a line drawn over them: thus, the factum of $a + b - c$ into d , is wrote $d \times \overline{a + b - c}$.

Guido Grandio; and after him Leibnitz, Wolfius, and others, to avoid the perplexity of lines, in lieu thereof distinguish the compound factors, by including them in a parenthesis, thus $(a + b - c)d$.

The parenthesis (), as a vinculum, was invented by Albert Girard, and used in such expressions as these $\sqrt[3]{(72 + \sqrt{5120})}$, and $B(Bq + Cq)$, both for universal roots, and multiplication, &c. The straight-lined vinculum — was used by Vieta for the same purpose: thus $\overline{A - B}$ in $\overline{B + C}$.

÷ Is the character of division, and was introduced by Dr. Pell: thus, $a \div b$ denotes the quantity a to be divided by b .

Indeed, ordinarily, in algebra, the quotient is expressed fraction-wise; thus, $\frac{a}{b}$ denotes the quotient of a divided by b .

Wolfius, &c. make the sign of division (:) thus, $8 : 4$ denotes the quotient of 8 divided by $4 = 2$.

If either the divisor or dividend, or both, be composed of several letters, v. g. $a + b$, divided by c ; instead of writing

the quotient fraction-wise, thus, $\frac{a + b}{c}$, Wolfius, &c. include the compound quantities in a parenthesis; thus, $(a + b : c)$, or $(a + b) : c$.

⊙ Is the character of *involution*, or of producing the square of any quantity, by multiplying it by itself.

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↳ The character of *evolution*, or of extracting the roots out of the several powers, the reverse of ☉. Both these characters were used by Dr. Pell.

7 Is the sign of *majority*, or of the excess of one quantity beyond another: some use this \sqcap , or this 7.

∠ Is the sign of *minority*. These two characters were first introduced by Harriot, and have been since used by Wallis and Lamy. Other authors use others; some this \sqcap .

∞ The sign of *similitude*, commended in the Miscellanea Berolinensia, and used by Leibnitz, Wolfius, and others; though the generality of authors use none.

The same character is used by other authors for the difference between two quantities, while it is yet unknown which is the greater. It was introduced for this purpose of denoting a general difference by Dr. Wallis.

√ Is the character of radicality, and shews that the root of the quantity, to which it is prefixed, is extracted, or to be extracted: thus $\sqrt{25}$, or $\sqrt[3]{25}$, denotes the square root of 25, viz. 5; and $\sqrt[3]{25}$, the cube root of 25. This sign is derived from the initial R or r of radix or root, which was used at first by Pacioli, Cardan, &c. The character $\sqrt{}$ seems to have been first used by Stifelius in 1544, and by Robert Recorde in 1557. At first they used the initial of the name after it, to denote the several roots: as \sqrt{q} the quadrate or square root, and \sqrt{c} the cubic root. But the numeral indices of the root were prefixed by Albert Girard, just as they are now used, viz. $\sqrt[2]{}$, $\sqrt[3]{}$, $\sqrt[4]{}$, the 2d, 3d, or 4th root. See Root.

This character sometimes affects several quantities distinguished by a line drawn over them, thus, $\sqrt{b+d}$, denotes the square root of the sum of b and d .

Wolfius, &c. in lieu hereof, includes the roots composed of several quantities in a parenthesis, adding its index: thus, $(a+b-c)^2$ denotes the square of $a+b-c$, ordinarily written $a+b-c^2$.

: Is the character of arithmetical proportion disjunct; thus, $7:3::13:9$, intimates 3 to be exceeded by 7, as much as 9 by 13; viz. by 4.

:: This is the character of identity of ratio, and geometrical proportion disjunct; thus, $8:4::30:15$, expresses the ratio of 30 to 15, to be the same with that of 8 to 4; or that the four terms are in geometrical proportion, viz. 8 to 4, as 30 to 15. This character was introduced by Oughtred.

Wolfius, in lieu hereof, uses the character of equality =; which he prefers to the former, as being more scientific and expressive.

÷ The character of geometrical proportion continued, implying the ratio to be carried on without interruption: thus, 2, 4, 8, 16, 32, ÷ are in the same uninterrupted proportion. This mark was introduced by Oughtred.

When one or more terms in an equation are wanting, their places are usually marked with one or more asterisks; as, $y^2 + py + \frac{1}{4}p^2 - py - \frac{1}{2}p^2 \} = 0 \cdot y^2 * - \frac{1}{4}p^2 + q = 0$. See

ALGEBRA and ARITHMETIC.

CHARACTER of Decimals. See SEPARATRIX.

CHARACTERS used in Astronomy.

♃ Herschel, or Georgian planet. ♀ Venus.
♄ Saturn. ☿ Mercury.
♅ Jupiter. ☼ The Sun.
♆ Mars. ☾ The Moon.
♁ The Earth, or ♂.

♈ Aries.

♉ Taurus.

♊ Gemini.

♋ Cancer.

♌ Leo.

♍ Virgo.

♎ Libra.

♏ Scorpio.

♐ Sagittarius.

♑ Capricornus.

♒ Aquarius.

♓ Pisces.

The characters for the Sun, Moon, Mars, Mercury, Jupiter, Venus, and Saturn, are used to denote the days of the week, viz. Sunday, Monday, &c.

With regard to the mythological signification of these characters, we may observe, that antiquaries and astrologers, according to whose opinion the planets were first distinguished by them, considered them as the attributes of the deities of the same name. The circle, in the earliest periods, among the Egyptians, was the symbol of divinity and perfection, and seems with great propriety to have been chosen by them as the character of the sun; especially as, when surrounded by small strokes projecting from its circumference, it may form some representation of the emission of rays. Some have thought, however, that the character of the sun, ☉, is the picture of a buckler; the middle point of which represents the umbo or boss; and it is observed, that the bucklers of the ancients used to be bright, in order to dazzle the eyes of their enemies, (vid. Plautum, art. i. sc. 1.) Hyde, (de Rel. Vet. Pers. p. 106.) informs us, that the Persians often call the sun by a word which signifies a buckler; and in MSS. the character is often a buckler, seen in a side view; often a cone, which was sacred to the sun, (Porphyr. ap. Euseb. Præp. Evang. p. 98.) A circle is mentioned as an Egyptian character of the sun, by Clemens of Alexandria, (Strom. l. v. p. 657. ed. Potteri). The semicircle is, in like manner, the image of the moon, the only one of the heavenly bodies that appears under that form to the naked eye; and accordingly it is thus mentioned by Clemens, (ubi supra.) As to the characters of the planets, the common opinion is, that they were taken from the symbols of those deities whose names they bear: thus, the character of Mercury ☿ is his caduceus or wand, with serpents twisting round it; that of Venus ♀, a looking-glass, with a handle; that of Mars ♂, a lance and buckler; that of Jupiter ♃, his thunderbolt; or, as others more generally agree, the first letter Z of his name in Greek, with a stroke through it, as a mark of abbreviation; and that of Saturn ♄, a sickle or scythe. (Riccioli, Almag. vii. c. 1. vol. x. p. 480.) Salmasius, (Plin. Exercit. p. 1237,) supposes, that all the characters are the initial letters of the Greek names of the planets. Kircher, somewhat fancifully, (Œdip. Egypt. t. ii. pars 2. p. 402.) compounds the characters of the planets out of ☉ and ☿, a cross +, the mark used for the four elements, and ♈, the character of Aries, which, he says, denotes fruitfulness.

CHARACTERS of the Aspects, Nodes, &c.

S or ☿ Conjunction. Bq Biquintile.
SS Sennifextile. Vc Vcincunx.
* Sextile. ♂ Opposition.
Q Quintile. ♏ Scorpion's head, or ascending node.
□ Quartile, or quadrature. ♐ Scorpion's tail, or descending node.
Td Tridecile.
Δ Trine.

CHARACTERS of Time.

A. M. (ante meridiem) or M. morning.

O. or M. noon.

P. M. (post meridiem) or A. afternoon.

CHARACTERS, Chemical. The reasons that have chiefly led

CHARACTERS.

led to the invention and use of chemical characters, are the two following; namely, their conciseness, and the facility which they afford of concealing from the uninitiated the knowledge of valuable or curious facts. The latter reason is that by which the ancient chemists were for the most part influenced; the former is that which has induced some modern chemists to their adoption.

In the early ages of chemistry, or rather of alchemy, this science was intimately connected with astrology; and, being cultivated chiefly by the Alexandrian Greeks, and the Saracens after their conquest of Egypt, it is no wonder (especially when the supposed importance of the study is taken into consideration) that hieroglyphics should be adopted, to express both the substances of experiment, and the processes to which they were subject.

The extensive destruction of chemical books in Egypt, by order of Dioclesian, and the combustion of the Alexandrian library by the Arabs, in all probability occasioned the loss of many curious facts and processes, and the characters in which they were recorded: the utter incomprehensibility also of many of the early manuscripts on these subjects that are yet extant, (especially those written in Greek or Arabic), has considerably diminished the number of characters which it is at all worth while to be at the trouble of representing.

In the table of ancient chemical characters, *Plate Chemistry*, are comprehended all that are to be found in the printed works of chemists, from the time of Roger Bacon to Bergman. It is obvious, even on a cursory inspection, that some of these are borrowed from the science of astronomy; that others are mere arbitrary signs; and that others are rude types or hieroglyphics: the whole being destitute of any uniform system, and very little applicable to the use of chemistry, after it had assumed a scientific form.

Bergman, being aware of the uselessness of the old signs, has rejected all except those employed to denote chemical substances: to these he has added others to represent those bodies which were unknown to the older chemists; and has formed the whole into a system, capable of expressing in a tabular form, with brevity and clearness, the results of single and compound affinity, which was the only purpose to which they were applied by this eminent chemist.

When Lavoisier had invented the system of chemistry which is at present received, and had reformed the nomenclature in conformity with it, two of his countrymen, Messrs. Hassenfratz and Adet, chose to employ themselves in the formation of a species of stenography to correspond with the terms of the new system; but the good sense of the age being convinced that to add to the necessary difficulties of the most comprehensive of all sciences was wholly needless, has so unanimously rejected the fetters which these gentlemen have taken the trouble to forge, that any criticism upon the subject would be entirely superfluous.

CHARACTERS in Commerce.

D ^o Ditto, the same.	℔ Pound weight.
N ^o Numero, or number.	C. or Ⓔ Hundred weight, or 112 pound.
F ^o Folio, or page.	q ^r Quarters.
R ^o Recto, } folio.	℥ Per, or by. As p ann.
V ^o Verso, }	by the year. p cent.
l. or £. sterling, Pound sterling.	R ^x Rixdollar.
s. Shillings.	D ^c Ducat.
d. Pence, or Deniers.	P. S. Postscript.

CHARACTERS in Geometry and Trigonometry.

|| Is the character of parallelism; implying two lines or

planes to be equidistant from one another. See PARALLEL.

△ A triangle. See TRIANGLE.	≡ Equality of sides.
□ A square.	< An angle.
▭ A rectangle.	⊥ A right angle.
○ A circle.	⊥ A perpendicular.
≡ Equality of angles.	

° A degree; thus, 75° implies 75 degrees.
' A minute, or prime; thus, 50' implies 50 minutes. ", ""', """, &c. the characters of seconds, thirds, fourths, &c. of a degree; thus, 5", 6", 18""', 20""', denote 5 seconds, 6 thirds, 18 fourths, and 20 fifths.

Note. The same characters are sometimes used, where the progression is by tens, as it is here by sixties.

CHARACTERS in Grammar, Rhetoric, Poetry, &c.

, Comma.	' Apostrophe.
; Semicolon.	' Emphasis, or accent.
: Colon.	˘ Brevé.
. Period.	ˆ Dialysis.
! Exclamation.	^ Caret, and circumflex.
? Interrogation.	“ Quotation.
() Parenthesis.	† and * References.
[] Crotchet.	§ Section, or Division.
- Hyphen.	¶ Paragraph.

LL. D. Doctor of Laws, or of the Civil and Canon Law.

SS. T. D. Sacro-Sanctæ Theologiæ Doctor, or D. D. i. e. Doctor in Divinity.

J. V. D. Doctor of Civil and Canon Law.

M. D. Doctor in Physic.

V. D. M. Verbi Dei Minister, Minister of the Word of God.

A. M. Artium Magister, Master of Arts.

A. B. Artium Baccalaureus, Bachelor of Arts.

F. R. S. Fellow of the Royal Society.

F. A. S. Fellow of the Antiquarian Society.

CHARACTERS used in the Arithmetic of Infinites.

The character of an infinitesimal, or fluxion; thus, \dot{x} , \dot{y} , &c. express the fluxions, or differentials of the variable quantities x and y ; two, three, or more dots, denote second, third, or higher fluxions. See FLUXION.

This method of denoting the fluxions, we owe to sir Isaac Newton, the inventor of fluxions: it is adhered to by the English; but foreigners generally follow M. Leibnitz, and in lieu of a dot prefix the letter d to the variable quantity; on pretence of avoiding the confusion arising from the multiplication of dots, in the differencing of differentials.

d The character of a differential of a variable quantity, thus, dx is the differential of x ; dy the differential of y . The character was first introduced by M. Leibnitz; and is followed by all but the English. See CALCULUS Differentialis.

CHARACTERS among the Ancient Lawyers, and in Ancient Inscriptions.

§ Paragrapho.	P. P. Pater Patriæ.
ff. Digestis.	C. Code.
E. Extra.	CC. Consules.
S. P. Q. R. Senatus Populusque Romanus.	T. Titulus, &c.
BAV. Bonis avibus, or Bonis auspiciis.	P. P. D. D. Propria pecunia dedicavit.
Scto. Senatusconsulto.	D. D. M. Dono dedit Monumentum.

CHARACTERS in Medicine and Pharmacy.

R Recipe.	3 A Drachm.
\bar{a} , $\bar{a}\bar{a}$, or $\bar{a}\bar{a}$, or $\bar{a}\bar{a}$.	3 A Scruple.
℔ A Pound, or pint.	gr. Grain.
3 An Ounce.	℥ or \mathcal{L} . Half of any thing.

Cong.

CHARACTERS.

Cong. Congius, a gallon.
Coch. Cochleare, a spoonful.
M. Manipulus, a handful.
P. A pugil.
P. Æ. Equal quantities.

S. A. According to art.
Q. S. A sufficient quantity.
Q. pl. As much as you please.
P. P. Pulvis Patrum, or Je-
 suit's Bark.

CHARACTERS used in Music.

Characters of the musical notes, with their proportions.

	A Large	8.		
	A Long	4.		
	Breve	2.		
	Semibreve	1.		
	Minim	$\frac{1}{2}$.		
	Crotchet	$\frac{1}{4}$.		
	Quaver	$\frac{1}{8}$.		
	or Semiquaver	$\frac{1}{16}$.		
	or Demisemiquaver	$\frac{1}{32}$.		

✱ Character of a sharp note. This character at the beginning of a line or space, denotes all the notes in that line or space to be taken a semitone higher than in the natural series. And the same affects all their octaves, above and below, though not marked.

When the character is prefixed to any particular note, it shews that note alone to be a semitone higher than it would be without such character.

b. Character of a flat note. This character, at the beginning of a line or space, shews, that all the notes in that line or space are to be taken a semitone lower than in the natural series; affecting, in like manner, all the octaves, both above and below. When it is prefixed accidentally to any note, it shews that note alone to be a semitone lower than it would otherwise be.

Character of a natural note. Where, in a line or series of artificial notes, marked at the beginning for either sharps or flats, the natural note happens to be required, it is denoted by this character.

Character of treble clef.

Mean clef.

Bass clef.

CHARACTERS of Time.

2, or $\frac{2}{4}$, or $\frac{4}{8}$, characters of common or duple time, signifying the measure of two crotchets to be equal to two notes; of which four make a semibreve.

Characters that distinguish the movements in common time; the first implying slow, the second brisk, third, very quick.

$\frac{3}{4}$, $\frac{3}{8}$, $\frac{3}{16}$, characters of the simple triple time, whose measure is equal either to three semibreves, or to three minims, &c.

$\frac{6}{8}$, or $\frac{6}{16}$, or $\frac{6}{32}$, characters of mixed triple time, where the measure is equal to six crotchets, or six quavers, &c.

$\frac{9}{8}$, or $\frac{9}{16}$, or $\frac{9}{32}$, characters of compound triple time.

$\frac{12}{8}$, or $\frac{12}{16}$, or $\frac{12}{32}$; or $\frac{12}{4}$, or $\frac{12}{2}$, characters of the fourth species of triple time; called the measure of twelve times.

Rests or Pauses of Time.

Large Rest	Long Rest	Breve Rest	Semibreve Rest	Minim Rest	Crotchet Rest	Quaver Rest	Semiquaver Rest	Demisemiquaver Rest	Single bar	Double bar	Repeat	Repeat	Close	Slur	Tye	Direct

See the *Plate TIME-TABLE ancient and modern.*

CHARACTERS on Tomb-stones.

S. V. Siste, Viator; Stay, Traveller.
M. S. Memoria Sacrum; Sacred to Memory.
D. M. Diis Manibus.
IHS. Jesus.

XP. A character found on ancient monuments, about the meaning whereof authors are not agreed. See *CATACOMB.*

CHARACTERS, in *Secret Writing.* See *CIPHER.*

CHARACTERS, in *Swift Writing*, or short-hand. See *STENOGRAPHIA.*

CHARACTER is also used for a certain manner, air, or assemblage of qualities, resulting from several particular marks, which distinguish a thing from any other, so as it may be known thereby.

Thus, we say, the character of Achilles; generosity and greatness of mind formed the character of the Romans; Cicero had a character of politeness, which is wanting in Demosthenes; every passion has its peculiar character.

The writers of characters are, Theophrastus, whose fragments are still extant; Du Moulin, in his *Exemplar Morum*; Paschal, in his *Characteres Virtutum & Vitiurum*; M. de la Chambre, in his *Characters of the Passions*; and De la Bruyere, in his *Characters and Manners of the Age.*

The drawing of characters is one of the most splendid, and, at the same time, one of the most difficult ornaments of historical composition. For characters are generally considered as professed exhibitions of fine writing; and an historian, who seeks to shine in them, is frequently in danger

CHARACTERS.

of carrying refinements to excess, from a desire of appearing very profound and penetrating. He brings together so many contrasts, and subtle oppositions of qualities, that we are rather dazzled with sparkling expressions, than entertained with any clear conception of a human character. A writer, who would characterise in an instructive and masterly manner, should be simple in his style, and should avoid all quaintness and affectation; at the same time not contenting himself with giving us general outlines only, but descending into those peculiarities which mark a character, in its most striking and distinctive features. The Greek historians sometimes give eulogiums, but rarely draw full and professed characters. The two ancient authors who have most laboured this part of historical composition, are Sallust and Tacitus. In describing characters, as well as in relating transactions, the historian should always shew himself to be on the side of virtue. To appear neutral and indifferent with respect to good and bad characters, and to affect a crafty and political, rather than moral turn of thought, will, besides other bad effects, derogate greatly from the weight of historical composition, and will render the strain of it much more cold and uninteresting. See HISTORY.

CHARACTER, is a term in common with all the arts, implying something peculiar and original. In *Musick*, perhaps more than in any other art, this term is wanted; as a movement or composition, said to be of a distinct cast or character, implies invention. Without some specific stamp or impression, to awaken in the hearer the idea of some passion, affection, or sensation, it is of no character, but resembles Shakespeare's "Fellow without mark or likelihood."

It is but in modern times that this kind of stamp has been aimed at or expected. Neither Corelli nor Geminiani stamped the melodies of their movements with any thing but a kind of wafer seal, regularly barred indeed. Pure and sweet harmony, masterly fugues, and pleasing effects are produced in most of their productions; but that innate and striking cast of melody, which is instantly felt, which distinguishes a movement from all others, and which, without learned modulation, studied combinations, or ingenious arrangement of the parts, seizes the attention, impresses itself on the hearer's memory, never to be effaced, is wanting.

Handel has choruses of every species of character, and more songs than any composer of his time. "Return, O God of Hosts," is a sublime supplication. "He was despised and rejected," is impressed with a deep and dignified sorrow. "He shall feed his flock like a shepherd," has a true pastoral cast.

Pergolesi, Jomelli, Piccini, and Sacchini, have produced airs of character so frequently, that it is now formed into a principle by men of original genius, such as Paisiello, Cimarosa, and Sarti in Italy, and Emanuel Bach, Haydn, and Mozart in Germany, who have seldom let a movement go out of their hands ere they have affixed their seal to it.

Gluck produced great effects by harmony, energy, and bold modulation; but his melodies have seldom any peculiar mark of pathos, grace, or novelty.

CHARACTER, in *Poetry*, especially the epopea and drama, is the result of the manners, or that which each person has peculiar and singular in his manners, whereby he is distinguished from others. In the drama characters are chiefly displayed by means of sentiments and passions; but in the epopea, or epic poetry, which comprehends a greater compass of time and action, and which therefore allows a more full display of characters, they are displayed chiefly by means of actions.

As it is the business of an epic poet to copy after nature, and to form a probable interesting tale, he must study to give all his personages proper and well supported characters; such as display the features of human nature. This is called by Aristotle giving manners to the poem. It is by no means necessary that all his actors be morally good; imperfect, nay, vicious characters may find a proper place; though the nature of epic poetry seems to require, that the principal figures exhibited should be such as tend to raise admiration and love, rather than hatred and contempt. But whatever the character be which a poet gives to any of his actors, he must take care to preserve it uniform, and consistent with itself. Every thing which that person says or does, must be suited to it, and must serve to distinguish him from any other. Poetic characters may be divided into two kinds, general and particular: the former are such as are wise, brave, and virtuous, without any farther distinction; the latter express the species of bravery, of wisdom, of virtue, for which any one is eminent; they exhibit the peculiar features which distinguish one individual from another, which mark the difference of the same moral quality in different men, according as it is combined with other dispositions in their temper. In drawing such peculiar characters, genius is chiefly exerted. In this part Homer has particularly excelled; Tasso approaches the nearest to Homer; and Virgil has been the most deficient.

It has been the practice of all epic poets to select some one personage, whom they distinguish above all the rest, and make the hero of the tale. This is considered as essential to epic composition, and is attended with several advantages. It renders the unity of the subject more sensible, when there is one principal figure, to which, as a to centre, all the rest refer. It tends to interest us more, in the enterprise which is carried on; and it gives the poet an opportunity of exerting his talents for adorning and displaying one character with peculiar splendour. It has been asked, who then is the hero of *Paradise Lost*? The Devil, it has been answered by some critics; and in consequence of this idea, much ridicule and censure have been thrown upon Milton. But these critics have mistaken that author's intention, by proceeding upon a supposition that, in the conclusion of the poem, the hero must needs be triumphant. Whereas Milton followed a different plan, and has given a tragic conclusion to a poem, otherwise epic in its form. For Adam is undoubtedly his hero; that is, the capital and most interesting figure in his poem. Blair's *Lectures on Rhetoric*, &c. vol. iii.

The poetical character, Bossu observes, is not properly any virtue or quality in particular; but it is a composition of several, mixed and combined in various degrees, according to the occasions of the fable, and the unity of the action. All the simple qualities that enter this compound, must not have the same rank, nor be equal to each other: since, in that case, one prevailing on one occasion, and another on another, the character will appear changeable; and the poem, as well as the hero, will seem animated with several souls.

There must, therefore, be one to reign over all the rest; and this must be found in some degree in every part: just as the same hero, in several paintings, should have the same lines and features, how different soever his postures and passions may be.

This first quality in Homer's Achilles, is wrath; in Ulysses, dissimulation; and in Virgil's Æneas, mildness: each of which may, by way of eminence, be called the character of those heroes.

These are never to go alone, but always are to be accompanied

panied with others, to give them the greater lustre; either by hiding their defects, as in Achilles, whose anger is palliated by great courage: or by making them center in some solid virtue, as in Ulysses, whose dissimulation makes a part of his prudence; and Æneas, whose mildness is chiefly employed in a submission to the will of the gods.

These secondary qualities of courage, prudence, and submission, make the goodness of the characters of those heroes, and even of the poems.

Boslu adds, that the quality of courage must always have a share in the character of a hero, to serve as a support to the rest: the heroic character, therefore, he makes a compound of three kinds of qualities. Those of the first kind are necessary and essential to the fable; those of the second are the supplements, or embellishments of the first; and courage, which sustains the other two, makes the third.

The first, which is the chief, is to be some universal quality, to have place on all occasions, and to distinguish the hero wherever he is found.

For the unity of character, we have Horace's express command, *Sit quodvis simplex duntaxat & unum*. Boslu adds, that the character is not less the soul of the hero, and the whole action, than the fable is of the poem; and of consequence the unity must be as exact in the one as the other: which accordingly we find observed both by Homer and Virgil.

The unity of character is somewhat different from that of the manners: in the latter, the unity or equality consists in not giving contrary sentiments to the same person; which is not sufficient to the unity of character: but to this must be added, that the same spirit must always appear on all occasions, whether contrary or otherwise: thus, Æneas shewing great goodness in the first part of the poem, and much valour in the second, but without discovering any of his former piety, and gentleness; there had been no offence against the evenness of the manners, but much against the unity of the character.

So that besides the qualities which have their particular place on different occasions, there must be one to have place throughout, and to reign over all the others. Without this there is no character: as would be the case, should a poet give his hero the piety of Æneas, and the courage of Achilles, without considering the severity of the one, and the mildness of the other.

A hero, it is true, may be made as brave as Achilles, as mild, or pious, as Æneas, and, if the writer thinks proper, as prudent as Ulysses; but it would be a mere chimera to imagine a hero, with the particular courage of Achilles, the piety of Æneas, and the prudence of Ulysses, at the same time.

The unity of character is not only to be kept in the hero, and the several other persons of the piece; but also in that of the poem itself: that is, all the characters, how opposite soever, must center and re-unite in that of the hero; and be so swayed by it, as that this alone may seem to govern throughout the whole. Thus Homer makes wrath prevail throughout the whole Iliad; and artifice and dissimulation throughout the Odyssey; the hero's character is perceived every where, has its full sway, and is favoured by the similitude of the characters of some of the other persons. Virgil had a great difficulty to grapple with to preserve his unity; because of the direct opposition between the humours of his hero, and those of some other of his persons, as Turnus, Mezentius, Dido, &c. He therefore takes care not to carry those opposite characters to their full length, but moderates and restrains them: and as that moderation could not flow naturally from the persons themselves, it is produced either by some passion, as in Dido; or some dependence, as

in Turnus and Mezentius. To this artifice he adds episodes, accommodated to the general character, by which he interrupts the particular actions, which require an opposite character.

Claudian's conduct, in this respect, is unpardonable; from the horrible characters of Pluto and the Furies, with all the terrors of hell, he passes to the gaiety and pleasures of the Graces, gilded palaces, flowery fields, &c. He has as many different prevailing characters in his three books, as Homer and Virgil in their sixty. See DRAMA and EPOPEA. For the characters in Comedy and Tragedy; see these articles.

CHARACTER is also used for certain visible qualities, which claim respect or reverence to those who are vested with them.

The majesty of kings gives them a character which procures respect from the people. A bishop should sustain his character by learning and solid piety rather than by worldly lustre, &c.

CHARACTER is also used among Divines, especially those of the Romish church, for an indelible mark, or impression, which certain sacraments are supposed to leave behind them in those who receive them. The sacraments that leave this character are incapable of being repeated. The character is generally supposed to be something physical. The sacraments of baptism, confirmation, and ordination, in particular, leave such indelible character.

CHARACTER, in *Natural History*, is synonymous with the definition of the genera of animals, plants, &c.

CHARACTERISTIC, in the general, is that which characterizes a thing or person, i. e. constitutes its character, whereby it is distinguished from all others.

CHARACTERISTIC is peculiarly used in *Grammar*, for the principal letter of a word; which is preserved in most of its tenses and moods, its derivatives and compounds.

The characteristic frequently shews its etymology; and ought constantly to be retained in its orthography; such is the letter *r* in *course*, *fort*, &c.

The characteristics are of great use in the Greek grammar, especially in the formation of the tenses; as being the same in the same tenses of all verbs of the same conjugation, excepting in the present tense, which has several characteristics; and the future, the aoristus primus, the preterperfect, and the plusquam perfect tense of the fourth conjugation, which have two characteristics. The characteristics of the conjugations in the Hebrew grammar are the letters prefixed to, or inserted between, the radical letters: e. g. נ of Niphal, ה and ו of Hiphil, ח of Hophal, and חת of Hitpahel. These technical terms have obtained such long possession in Hebrew grammar, that it would be difficult, and perhaps improper to expel them, or to substitute others in their room. The chief inconvenience attending them is, that they represent only the position or situation of the letters in the different modes or voices, but give no intimation of the meaning conveyed by these modes.

CHARACTERISTIC of a *Logarithm*, is its index or exponent. This term was first used by Briggs in his *Arithmetica Logarithmica*, to denote the integral or first part of a logarithm towards the left hand; and this expresses one less than the number of integer places or figures in the number corresponding to that logarithm, or how far the first figure of this number is removed from the place of units: thus, 0 is the characteristic of all numbers from 1 to 10; 1 the characteristic of all from 10 to 100; 2 of all from 100 to 1000, &c. See LOGARITHM.

CHARACTERISTIC triangle of a curve. See CURVE.

CHARADE, is the name of a new species of composition, or literary amusement. It owes its name to the Idler

who invented it. Its subject must be a word of two syllables, each forming a distinct word; and these two syllables are to be concealed in an enigmatical description, first separately, and then together. The exercise of charades, although it may not be very instructive, is innocent and amusing; and may serve to try the inventive talents of children, and to occupy their intervals of leisure.

CHARADRA, in *Ancient Geography*, a town of Greece, in the Phocide, according to Herodotus. It was seated on an eminence, below which flowed the river Charadrus, about 20 stadia from Lilæa, according to Pausanias. Notwithstanding the vicinity of this torrent, the inhabitants were in frequent want of water.—Also, a place of Greece, in Epirus, situate, according to Polybius, near the gulf of Ambracia.—Also, the name of one of the towns founded by Pelops, according to Strabo, situate in Messenia.

CHARADRIUS, in *Ornithology*, a genus of the *gralla* order, in which the bill is roundish and obtuse; nostrils linear; feet three-toed, and formed for running.

Species.

HIATICULA. Breast black; front blackish, with a white band; crown fuscous, legs pale yellow. Linn. Fn. Suec. *Pluvialis torquata minor*, Briss. *Gavia littoralis*, Klein. *Iaticula cetti*. *Petit pluvier à collier*, Buff. *Sea lark*, Albin, Willughby, &c. *Ringed plover*, Penn. Lath. Donovan. &c.

The length of this bird is from six to seven inches; the bill is of an orange colour; at the base, and at the tip, or anterior half, black; the upper mandible is also black at the base, and a black space extends from thence through the eyes to the ears; the forehead is white, and behind this is another mark of black. The chin, throat, and broad collar extending backwards from thence are white, and beneath this is another collar of black, encircling the neck behind. Its breast and under parts are white; back and wing-coverts pale brown; quills dusky; the two middle feathers of the tail are greyish brown, becoming almost black towards the ends, the three next on each side the same, but having the tips white, the last but one white, with a brown band, the outer one white, marked with a single spot. The plumage of the male inclines more to ash colour, and the white on the forehead occupies a greater space than in the female.

These birds inhabit Europe and America: they migrate into England in the spring, and leave us in autumn. They lay four eggs an inch and an half in length, and of a pale ash-colour, spotted, and blotched with black, upon the ground under some shelter, for they make no nest. They run very fast, sometimes taking short flights, and twittering loud at the same time, then alight and run again, and, if still disturbed, will either fly away, or secrete themselves in some holes till the danger is over.

A variety of this bird, β , is described as an inhabitant of Spain; the plumage is greyish, with the collar and abdomen white. Another, γ , is mentioned as a native of America; the colour of this is greyish-ash, the front and collar white; lower half of the tail black, tipped with ferruginous. This last kind was brought from Owhyhee.

PLUVIALIS. Body black, spotted with green; beneath whitish; legs cinereous. Linn. Fn. Suec. *Pluvialis viridis*, Raii. *Pluvialis aurea minor*, Briss. *Gavia viridis*, Klein. *Piviere*, Cetti. *Kleiner brauch vogel*, Wirsing. *Le pluvier doré*, Buff. *Golden or green plover*, Albin. Penn. Lath. Donovan. &c.

This species inhabits almost every part of the world. On the European continent they are met with chiefly in hilly or mountainous situations, in Sweden, Denmark, Lapland, Iceland, and as far south as Aleppo. It breeds on several of

the unfrequented mountains of Britain, and especially in the heathy hills of the Scottish islands. In America, it appears on the coast of Labrador and Hudson's bay, and from thence to New York, as low as Carolina. It has been observed in China, and in some of the islands of the South Seas; and a supposed variety of it, *pluvialis dominicensis aurea* of Brisson, is mentioned as a native of St. Domingo. The length of this bird is ten inches and a half; the bill is about one inch, and of a dusky colour; the irides dull red. The upper part of the plumage is dusky, spotted with greenish yellow; round the eyes and the chin almost white; sides of the head and body, together with the neck, same as the upper parts, but paler; middle of the belly dusky yellow; the greater quills are dusky; tail barred, dusky, and dull yellow; legs black. In some individuals the belly is black, in others black and white. The male and female differ very little. In young birds the spots are not of a full yellow colour, as in the adults, but incline more to grey. The supposed variety before noticed as a native of St. Domingo, has the body blackish, varied with yellowish, and beneath white; and the lower part of the neck and breast pale grey; tail brown, having the margins of the feathers spotted with yellowish white.

RUBIDUS. Red, varied with black spots, and sprinkled with white; two middle tail-feathers fuscous, with ferruginous margins, the rest whitish, Lath. Gmel. *Ruddy plover*, Lath.

Inhabits Hudson's bay. The bill of this bird is straight and black; the head, neck, breast, and scapulars, with the wing and tail-coverts, of a ruddy colour, spotted with black, and powdered with white; the outer webs of the first four quills are brown; the inner white, tipped with brown; the rest white above and brown beneath; legs black; toes divided at their origin. At Hudson's bay it is known by the name of *Mitschaychekiskawesibis*.

HIMANTOPUS. White; back and wings black; bill black, and longer than the head; legs red, and very long, Scopoli, &c. *Charadrius himantopus*, Linn. *Charadrius autumnalis*, Hasselquist. *Himantopus*, Briss. *L'Echasse*, Buff. *Long-legged plover*, Penn. Lath. Donovan. &c.

This singular bird is distinguished by the remarkable disproportion of the legs, compared with the body, the former being nearly eighteen inches in length, while the body, measuring from the tip of the bill to the extremity of the tail, is only thirteen inches. The bill is two inches and a half long, slender, and black; irides red; the forehead, round the eye, and all the under parts are white; the crown of the head, back, and wings, glossy black; the hind part of the neck marked with dusky spots; rump white; tail the same, inclining to grey, the outer feathers quite white; legs red; the outer and middle toes connected at the base. The species inhabits the south of Europe, Africa, Asia, and America; rarely visits England. Donovan. Brit. Birds.

CALIDRIS. Bill and legs black; lores and rump greyish; body beneath white, and without spots, Georg. It. *Calidris grisea minor*, Briss. *Le sanderling*, Buff. *Sanderling*, or *Curwillet*, Penn. Lath.

The sanderling inhabits Europe, Asia, and America. In England it inhabits the sea-coasts of Cornwall chiefly. The length of this bird is eight inches. The bill one inch long, and black, the fore part of the head, sides under the eyes, and beneath, from the chin to the vent, white; through the eyes a greyish streak; the upper part of the head, neck, and body streaked with black; back and scapulars brownish grey, edged with dirty white; wing-coverts and quills dusky; tail ash-colour, with pale margins; legs black. The plumage of the female is paler in some parts than the male.

A variety

CHARADRIUS.

A variety of this species is found in Newfoundland, which has the upper parts of a brownish ash-colour, mixed with brown, and streaked with black; forehead and under parts cinereous white; lesser and middle wing-coverts black, fringed with ash-colour; the greater cinereous with whitish edges; quills and tail dusky; legs black.

APRICARIUS. Breast and abdomen black; body dotted with fuscous, white, and pale yellow; legs cinereous, Lath. *Charadrius apricarius*, Linn. *Pluvialis aurea freti Hudsonis*, Briss. *Le pluvier doré à gorge noire*, Buff. *Spotted plover*, Edwards. *Alwargrim plover*, Arct. Zool.

Size of the golden plover. The plumage above black, spotted with orange; at the base of the upper mandible the feathers are black; front, eye-brows, lower eye-lid, flanks, and vent white; wings and tail with brown and black bands; legs black. This inhabits the northern parts of Europe, as Sweden, Denmark, Iceland, and Greenland.

RUBRICOLLIS. Cinereous; body beneath white; head and neck black, with a large, square, rufous-chestnut spot on each side, Lath. *Charadrius rubricollis*, Gmel. *Red-necked plover*, Lath.

This inhabits the South Seas. The bill is flesh-coloured, at the tip black; the upper part of the plumage is ash-colour, with a slight mixture of white, the breast and under parts are white; quills and tail dusky; legs flesh-colour. Length about seven inches and a half.

ALEXANDRINUS. Fuscous; front, collar behind, and abdomen white; lateral tail feathers on each side white; legs black, Lath. *Pluvialis torquata*, Briss. *Le Pluvier à collier*, Buff. *Alexandrine Plover*, Lath. Gen. Syn.

Inhabits Egypt near the Nile. This is the size of a lark; the bill is black; forehead white, passing backwards in a streak over the eye; from the base of the bill a streak of black runs through the eye and reaches behind to the ears; top of the head, back, and wings brown; round the neck a collar of white; belly white; quills blackish grey; four middle tail feathers dusky brown; tail much rounded; legs black.

The Linnæan *Charadrius aegyptius* is considered as a variety of this species. This is distinguished by having a black band on the breast; eye-brows white; tail-feathers with a black band, and white tip; and legs blue. This bird inhabits the sunny plains of Egypt, and feeds on insects. Another variety, called the red-eyed plover, has the crown of the head black, and the legs red.

PHILIPPINUS. Fuscous; region of the eyes, collar, and tail black; front, body beneath, and tip of the tail-feathers white. *Petit Pluvier à collier de Luçon*, Sonnini, &c. Size of the last, and is a native of the Philippines.

NOVÆ SELANDIÆ. Green-ash, face and collar black; annular stripe on the head, band on the wings, and body beneath white. *Charadrius Novæ Seelandiæ*, Gmel. *New-Zealand plover*, Lath. Inhabits New-Zealand. It is known in Queen Charlotte's Sound by the name of *Doodooroa ātoa*. This is rather larger than the ringed plover; the bill is of a red colour tipped with black; legs red.

GREGARIUS. Cinereous, beneath white; breast with a black semicircle, on the hind part rufous; tail-feathers white, with a black band. *Charadrius gregarius*, Pallas. *Gregarious Plover*, Lath.

Described by Pallas as being common in the fields about the Volga, Jaick, and Samara, where it appears in flocks; it is not seen farther north than 54 degrees; and is by some called the "Hen of Steppes." This is the size of a lap-wing. The bill in shape and size the same as in that bird; crown of the head brown, mottled with white; forehead white, passing in a streak over each eye to the hind head; through the eyes a black streak. The body is of an ash-

colour, somewhat approaching to that of the turtle; tail even at the extremity; legs furnished with an imperfect back toe.

ASIATICUS. Greyish fuscous; front, eyebrows, throat, and abdomen white. *Charadrius Asiaticus*, Pallas. *Asiatic plover*, Lath.

Inhabits the salt lakes in the deserts of Tartary; and is a rare and solitary bird. In size it rather exceeds the ringed plover. The crown of the head, back, and wings are greyish ash-coloured brown; tail brown, with the feathers whitish at the edges, and tipped with black; legs red.

TARTARICUS. Collar cinereous; breast ferruginous; band on the chin and breast black; abdomen white; wings and tail fuscous. Pallas, &c. Observed near the salt lakes of southern Tartary. Supposed by some to be a variety of the dotterel.

MONGOLUS. Cinereous fuscous; front beneath white; throat and breast ferruginous; chin with a black semicircle. Pallas, &c. *Mongolian plover*, Lath. This inhabits the salt lakes about the Mongolian country in tolerable plenty. It is the size of the common dotterel.

VOCIFERUS. Bands on the breast, neck, and front of the cheeks black; tail pale yellow, with a black band; legs yellow. Gmel. Linn. *Pluvialis virginiana torquata*, Briss. *Le Pluvier à collier de Virginie*, Briss. Kilder Buff. *Chattering plover or kill-deer*, Catesby. *Noisy plover*, Arct. Zool.

The length of this bird is nine inches and three quarters. Bill an inch long and black; eye-lids red; the forehead is white: between the eyes, across the head, a bar of black passing on each side to the hind head: the chin and fore part of the neck white: at the lower part of the neck, the white encircles it like a ring, and is accompanied by a bar of black all round; on the breast is another black bar, and, except those, all the under parts are white. The hind part of the head, neck, and upper part of the body and wings, are dusky brown; rump and tail rusty orange; the latter much rounded in shape, tipped with white, and barred near the end with black; legs pale yellow. This species inhabits America; it is a clamorous and restless bird. In Virginia it is called the kill-deer, from its note resembling the pronunciation of that word. There is a variety of this species which has the breast varied with black; front white; crown and collar black; bill and legs bluish; three outer tail feathers tipped with white. This is the *Charadrius torquatus* of Linnæus, and *Pluvier à collier de St. Domingue*, Buff. Pl. Enl.

JAMAICENSIS. Dusky fuscous, beneath white; breast spotted black and white; tail varied with whitish, rufous, and black; bill black, collar and legs white. Gmel. *Pluvialis jamaicensis torquata*, Briss. *Large grey snipe*, Brown. *Collared plover*, Lath.

Size rather less than that of the noisy plover; length eight inches; bill an inch long, and black; upper part of the head, neck, body and wings, dull brown; throat, fore part of the neck, belly, thighs and vent, white; at the lower part of the neck the white passes round as a collar; quills dull brown: tail whitish, varied with rufous and blackish. Inhabits Jamaica, where it frequents the banks of rivers.

MORINELLUS. Breast ferruginous; band over the eyes, and line on the breast white; legs black. *Charadrius Morinellus*, Linn. &c. *Petit Pluvier, ou le Guignard*, Buff. *Dotterel*, Penn. Albin. Lath. &c.

The Dotterel is from nine to ten inches in length. The bill an inch long, and of a black colour: the forehead an intermixture of dusky and grey: over the eyes is a white band which bends downwards, and passes to the hind head; the sides of the head and throat are white: the hind part of the neck, the back and wings, greyish brown; the feathers margined with pale ferruginous, but those of the lower part

CHARADRIUS.

of the back and rump incline to grey; fore part of the neck cinereous olive mixed with a little white next the throat; the lower part of the neck is bounded with a line of black, beneath which is another of white; the breast and sides are of a pale dull orange; middle of the belly black; lower parts and thighs rufous white; tail olive brown, with a black band, and white tip; the two outer feathers edged with white; legs black. The female differs in being rather larger, in having the black on the belly mixed with white, and the general colour of the plumage more obscure.

These birds are common in the northern parts of Europe, where they may be supposed to breed. Linnæus says they are very frequent in Dalecarlia and the Lapland Alps, and that they visit Sweden in May. They are known to breed in the north of Russia and Siberia. In England, they occur in greatest plenty in the counties of Cambridgeshire, Lincolnshire, and Derbyshire. With us they are migratory, appearing in flocks of eight, or ten in number the latter end of April, and stay till the end of May or June, when they are very fat, and are much esteemed for the table. It is supposed they breed in the mountains of Cumberland and Westmorland, as they appear there in May, and are not observed there after the breeding season. We are informed in the Flora Scotica, that they breed on several of the Highland hills. The manners of the Dotterel prove it a silly bird. There is a variety of this bird which has the crown varied with white, grey brown and yellowish mixed with white, with the two middle tail-feathers brown, and the lateral ones white.

FALKLANDICUS. Brown-clouded; front, neck beneath, and abdomen white; annular stripe on the head ferruginous; breast and band on the crown black. Lath. *Rufly-crowned Plover*, Portlock Voy.

This species, which is about seven inches and a half in length, inhabits the Falkland islands. The bill and legs are blackish; body beneath white; stripe encircling the head of the male resembling a crown.

SIBIRICUS. Front varied with black and white; crown barred with blackish; breast brown, terminated by a white band; belly ferruginous. Lepech. It. *Charadrius Sibiricus*, Gmel. A native of Siberia.

OBSCURUS. Black, beneath ochraceous; front and chin whitish; collar dusky with pale striz. Gmel. &c. *Dusky Plover*, Lath.

This was found by the English circumnavigators in Dusky Bay, New Zealand, where the natives call it *Hapoho-ëra*. In point of size, it rather exceeds the common snipe. The bill is black; forehead pale reddish white; plumage on the upper part dusky, edges of the feathers paler; chin and fore part of the neck dusky white; lower part of the neck, breast, and under parts, dusky yellow ochre colour, with a tinge of red; neck marked with pale and dusky streaks, and transversely mottled on the sides with narrow lines; legs bluish; claws black.

FULVUS. Above blackish, the feathers edged with tawny: beneath whitish; breast fulvous spotted with black; wings with a white band. *Charadrius Fulvus*, Gmel. *Fulvous Plover*, Lath.

This bird inhabits the shores and marshy places of Otaheite. The size is rather less than that of the lapwing; the bill is dusky; irides bluish black; its forehead and throat are dusky white; belly dusky white spotted with black; wing coverts black, spotted with fulvous, the lower order brown black, tipped with white; quills brownish black, with white shafts; tail brown, with whitish bands; legs blue; claws black and blunt. A variety of this bird, in the late Leverian Museum, had the bill brown, legs yellowish, and the wings destitute of the white band. This was probably

a young bird, the length being only eight inches; while that before described measured twelve inches and a half; the plumage on the upper part was brown, and had the feathers margined with golden yellow; the under part of the body was white, except the breast, which was of a dusky pale brown; the quills were brown, having the end half of the shafts white: the secondaries as long as the quills, and both of them reaching to the end of the tail and concealing it: the tail was two inches long, brown, and marked with obscure pale brown spots on each side of the webs: legs about two inches long, and of a pale yellow colour. The native place of this variety could not be ascertained.

LEUCOGASTER. Fulvous: body beneath, front, white line above and beneath the eyes white; legs pale blue. Gmel. &c. *White bellied Plover*, Lath.

Described from a specimen in the late Leverian Museum. The length six inches; bill one inch; the plumage on the upper part dirty brown; secondaries and prime quill feathers of equal length; some of the first white for half their length from the base, with white shafts; six of the middle tail feathers brown, the next white at the tip and base, the three exterior ones white, the last but one with a brown spot on the inner web near the tip, and the third black at the extremity. Native place unknown. Lath. &c.

SPINOSUS. Quill feathers, breast, and legs black: hind head crested; tail feathers half white; spurious wing armed with a spur. Lath. *Charadrius Spinosus*, Linn. *Pluvialis Senegalensis armata*, Briss. *Le Pluvier a aigrette*, Buff. *Spur-winged Plover*, Lath.

This corresponds in size with the golden plover; the bill is an inch long, and black; irides red; crown of the head and throat are black, passing a little way down the neck before. The back part of the neck, and upper part of the body and scapulars are grey; sides of the head, and all the under part from the throat to the vent yellowish white, except a crescent of black on the breast, the convex part uppermost. The lesser wing-coverts are black, the middle ones grey, the greater yellowish white. On the fore part of the wing just within the bend, is a slightly incurvate black spur, about half an inch in length. The tail is yellowish white, tipped with black, and legs are black. This singular bird inhabits the marshy places of Lower Egypt. Sonnini, speaking of the natural productions of Rosetta, tells us the most numerous and generally diffused of all the aquatic birds in this part were the spur-winged plovers; "noisy animals (adds this writer) which might likewise be called mannerly, for they have a hafty and almost continual movement of the head and neck, drawing them up briskly, and then quickly stretching them forward almost as if they were making hafty and eager bows." Hasselquist acquaints us it inhabits the marshy places of Lower Egypt in the month of September, and that it is also found in other parts of the neighbourhood, and is called *Dominican*, the neck being black, with white sides, and not inaptly resembling the collar part of the habit of that order of religious.

A variety of the spur-winged plover found in Russia, and which is frequent near Aleppo, about the river Coic, is of a chestnut-colour above, with the neck and lower part of the belly white; and the breast, wings, and tip of the tail black. This is the black-breasted Indian plover of Edwards, p. 47. The spur-winged plover of Edwards, pl. 280, is supposed to be the female. Another kind of spur-winged plover, *Le pluvier armé de Cayenne*, is inserted by Dr. Latham in his General Synopsis as a variety of this bird; and also appears as such in the Gmelinian edition of the *Systema Naturæ*. In Latham's Ind. Ord. this is, however, described as a distinct species, under the title of *Charadrius Cayanus*.

CAYANUS. Head, back part of the neck, and pectoral band

band black; annular band on the hind-head, fore part of the neck, belly, and base of the tail white; spurious wing armed with a spur. Lath. Ind. Orn.

This is a native of Cayenne. Its length is nine inches; the bill an inch long, of a dusky colour; back part of the head and nape of the neck white mixed with grey; the fore parts and sides black, passing back to the nape, and occupying all the hind part of the neck, and thence extending forward on the fore part above the breast; space between this and the chin white; the middle of the back and wings are rufous grey; scapulars and quills black; under parts from the breast white; legs yellowish.

PILEATUS. Crested; front carunculated; body above rufous grey, beneath white; crown, chin, and tip of the wings, and tail black, Lath. *Charadrius pileatus*, Gmel. *Pluvier coiffé du Senegal*, Buff. *Hooded plover*, Lath.

The length of this bird is ten inches and a half; the bill is yellow, red towards the end, and black at the tip. The forehead is covered with a carunculated yellow membrane passing round the eyes; the head and just the contiguous part of the neck is black. The hind-head is furnished with a few short pointed feathers, pendent like a small crest, beneath which the hind-head is white. Above the plumage is rufous grey, all the under parts are white, with a few dusky dashes down the fore part of the neck; the quills and end of the tail black; legs red. This inhabits Senegal.

CORONATUS. Fuscous, head above black, circle on the crown, belly, greater wing-coverts and tail white; the last with a broad black band near the tip. *Charadrius coronatus*, Gmel. *Pluvier couronné du cap de Bonne Esperance*, Buff. *Wreathed plover*, Lath.

This bird inhabits the Cape of Good Hope. Its length is twelve inches. The bill is reddish, and dusky towards the point; the hind part of the neck, and upper part of the body are brown, glossed with greenish purple; as far as the neck the breast is grey; belly white; quills black; legs rust-colour.

BILOBUS. Rufous grey; eye-brows, abdomen, and band across the wing white; crown of the head, and bar on the wings and tail black; front with a pendent wattle. *Charadrius bilobus*, Gmel. *Le pluvier à lambeaux*, Buff. *Le pluvier de la côte de Malabar*, Pl. Enl. *Wattled plover*, Lath.

This bird, which inhabits the coast of Malabar, is the size of the golden plover. The bill is yellow; on the forehead is a bare skin hanging down in a pointed flap on each side of the jaw; and the legs are pale yellow.

MELANOCEPHALUS. Cærulean grey; head, hind part of the collar, and back black; eye brows, neck in front, and breast pale rufous. Lath. *Charadrius melanocephalus*, Gmel. *Le pluvier du Senegal*, Buff. *Black-headed plover*, Lath.

A native of Senegal. The length is seven inches. The bill black, and an inch in length; upper part of the head black; all the tail-feathers, except the two middle ones, marked with black near the ends, with the extreme tips white. The under parts from the chin pale rufous, deepest on the breast, where it is mottled with transverse dusky markings, and towards the vent nearly white; legs cinereous grey; claws black.

INDICUS. Brown, beneath white; breast with two brown bands; tail-feathers white at the base. Lath. *Le petit pluvier des Indes*, Briff. *Indian plover*, Lath.

Inhabits India; and is about the size of the common lark.

CURONICUS. White; bill blackish; band on the nape and frontal lunate mark black; cap cinereous; ocular band waved with blackish; back, wings, and tail cinereous; legs reddish. *Charadrius curonicus*, Beseke, Sch. der Berl.

Naturf. Gef. vii. p. 463. Gmel. &c. A native of Curonia.

NÆVIUS. Above varied with cinereous, black, and white; beneath white; band below the eye dotted with black; bill and legs blackish. Naturf. Gef. vii. p. 464. Native place unknown.

Gmelin describes two other birds as species of the charadrius genus, namely, *gallicus*, and *coromandelicus*, both which are referred by Dr. Latham in his Ind. Orn. to the new genus cursorius, those having the bill roundish, incurvated at the tip, and terminating acutely, besides differing in other general particulars from the charadrius. See CURSORIUS.

CHARADRUS, in *Ancient Geography*, a river of Greece, which passed near the town of Charadra, and soon after discharged itself in the Cephissus, according to Pausanias.—Also, a river of the Peloponnesus in Messenia.—Also, a torrent of the Peloponnesus in the Argolide, in the route from Argos to Mantinæ. It ran south of Hyllia, and flowed into the Argolic gulf. Another torrent of the same name passed N. W. of Hyllia, and discharged itself into the river Inachus.—Also, a torrent of Achaia, the course of which was from south to north. Its mouth was near the promontory of Rhium. The waters of this stream were said to aid the females of animals that drank them in the act of conception, and therefore they were brought from a great distance for this purpose.—Also, a torrent of Arcadia, which ran at a small distance to the north of Orchomene, and discharged itself into a lake not far distant towards the east.—Also, a strong and ancient place of Asia in Cilicia; situate on the sea-coast, in the vicinity of mount Cragus, according to Strabo.

CHARAG, the tribute which Christians and Jews pay to the grand signior.

It consists of ten, twelve, or fifteen francs *per ann.* according to the estate of the party. Men begin to pay it at nine, or at sixteen years old; women are dispensed with, as also priests, rabbins, and religious.

CHARAGIO, in *Geography*, a town of the island of Corfica, or department of Golo, two miles S. of Cervione.

CHARAIMS, a sect of the Jews in Egypt. They live by themselves, and have a separate synagogue; and as the other Jews are remarkable for their eyes, so these are for their large noses, which run through all the families of this sect. These are the ancient Essenes. They strictly observe the five books of Moses, according to the letter, and receive no written traditions. It is said that the other Jews would join the Charaims, but those not having observed the exact rules of the law with regard to divorces, they think they live in adultery.

CHERAMOKOTAN, in *Geography*, one of the small Kurile islands in the Northern Pacific Ocean. N. lat. 49° 50'. E. long. 154° 54'.

CHARANCY, a town of France, in the department of the Moselle, and district of Longwy; 3½ leagues W.S.W. of Longwy.

CHARANDAS, in *Ancient Geography*, a place of Asia, situate on the Bosphorus of Thrace, and called also Delphinus.

CHARANDRA, a gulf of the Red Sea, in which Ptolemy Philadelphus built a town, called *Arfinoe*. which see.

CHARANTIA, in *Botany*, Dod. See MOMORDICA *Balsamina*.

CHARAS, MOSES, in *Biography*, early distinguished by his skill in chemistry and pharmacy, was born at Uzès, a town in Upper Languedoc, about the year 1618. He first settled at Orange, but at the end of a few years, in the hope of being able to exhibit his talents to more advantage, he removed to Paris. In this expectation he was not disappointed, as he was soon fixed on to read the lectures on chemistry,

mistry, at the Royal Garden there. This office he filled for nine years, until October 1685, when having embraced the doctrine of Luther, he was obliged, by the revocation of the edict of Nantes, which took place at that time, to quit France. He came thence to London, and was received by our king Charles II. with great kindness. After residing five years in England, he went to Holland, took his degree of doctor in medicine at Leyden, and at length, on the pressing solicitation of the Spanish envoy, he went to Madrid, invited thither to undertake the care of the health of the king of Spain. What success he had with his patient, we are not told; it was probably not considerable, as he suffered him to be imprisoned in the Inquisition, where he was detained four months, and did not escape, until he had made a full recantation of his errors. He was now upwards of seventy-two years of age. He then returned to Paris, and was admitted a member of the Royal Academy. At Paris he continued until January 17th, 1698, when he died, aged eighty years.

In 1668, he published, in 8vo. "A Chemical Analysis," of the famous electary; the "Theriaca Andromachæ," with an account of each of the ingredients entering the composition of that heterogeneous compound. He had the good sense to attribute its salutary powers to the opium and spices contained in it, and therefore, contrary to the then received opinion, determines that age impairs, and not improves its efficacy. "Nouvelles Experiences sur la Vipere, les effets de son venin," &c. 1669, 8vo. Paris. A drop of the oil of tobacco instilled into a wound inflicted on the viper, kills it immediately. He gives a neat anatomical description of the viper, and even describes the bag, the repository of the poison, but insists the liquor only becomes poisonous when the animal is irritated; contrary to the experiments of Sig. Redi, who had shewn that the liquor taken from a dead viper, and instilled into a wound through a quill, is as malignant as when injected by the bite of the enraged animal. Redi defended his experiments, and was answered by Charas in 1672, who still retained his opinion. The same year he published, "Pharmacopœa royale galenique, et chimique," which, as well as his other works, have passed through several editions. Haller Bib. Med. Eloy Dict. Hist.

CHARASM, in *Geography*. See KHARASM.

CHARATZAIKA, a fortress of Siberia, on the confines of China; 84 miles S.W. of Silengisk.

CHARAVARI. This appellation is given by the Poles to a sort of very large breeches, which take in the tails and greatest part of all their clothes, when they set out on horseback on a long journey or march, or when it rains, or the roads are bad and dirty. These are buttoned over the stomach, and reach quite down to their heels. This sort of culotte forms an essential part of the attire or dress of a Hulan.

CHARAVEND, a town of Persia, in the province of Irak-Agemi; 120 miles S.E. of Ispahan.

CHARAUNI, or CHAURANCEI, in *Ancient Geography*, a people of Scythia, on the other side of the Imaus. Ptolemy assigns to them a town called *Carauna*. They correspond to the *Kauria* or *Karia* of the present times.

CHARAX, CHARA-CAIA, a promontory of the Tauric Chersonesus, N.E. of Criuemetopon, and W. of the promontory Corax, mentioned by Ptolemy and Pliny.—Also, a commercial port, placed by Strabo in Africa Propria, and called by Ptolemy *Pharax*.—Also, a town of Asia Minor in Caria, said by Steph. Byz. to have been called, in his time, *Trallis*.—Also, a town of Asia, situate in the interior, and between the mountains of the Lesser Armenia, according to Ptolemy.—Also, a town or burgh of Asia in Parthia, according to Ptolemy.—Also, a commercial place of Asia Minor in Bithynia, placed by Steph. Byz. in the gulf of Nicomedia.—

Also, a promontory of the isle of Crete.—Also, a place of Asia Minor in Phrygia, placed by Nicetas, cited by Ortelius, between Lampis and Grafogala.—Also, a town of the island of Corsica, mentioned by Strabo.—Also, a town of Sufiana, situate between the Tigris and the Eulaus, upon the banks of a canal which connected these rivers.

CHARAX, in *Ichthyology*, a name given by Ælian, Appian, and many other Greek writers to the fish called by later writers Carassius. *Cyprinus Carassius* of Linnæus, who distinguishes it by having ten rays in the anal fin, and the lateral line straight. See *CYPRINUS Carassius*.

CHARAX *dorso leviter convexo, pinna ani radiis 31*, is the name and character given by Gesner to the Bimaculated Salmon, *Salmo bimaculatus*, which see.

CHARBANUS, in *Ancient Geography*, a mountain of Asia, in Media, which, according to Pliny, lay in the road from Babylon to Ecbatana. It is supposed to have been a part of mount Zagrus.

CHARBON, in the *Manege*, signifies that little black spot or mark that remains after a large spot, in the cavity of the corner teeth of a horse. About the seventh or eighth year, when the cavity fills, the tooth being smooth and equal, it is said to be raised.

CHARBONNIER, in *Zoology*, the name under which Buffon describes the Brant-fox, *Canis Alopex* of Gmelin. It is distinguished by having the tail straight, and tipped with black. The species inhabits Europe, Asia, and Chili in South America.

CHARBONNIERE, in *Ornithology*. The Great Titmouse or Ox-eye of English writers is described by Buffon under the name of Charbonniere and Grosse Mésange. See *PARUS major*. Buffon also describes the Colemouse under the name of Petite Charbonniere. See *PARUS ater*.

CHARBUISOOKA, in *Geography*, a river of Kamtschatka, which runs into the Penzinskoi gulf; 70 miles S.S.W. of Tigilskoi.

CHARCAS, *Audience of*, a province of South America, regarded before the grand alteration in 1778, as a dependency of Peru, is equal in the extent of its jurisdiction to that of Lima, but with this disadvantage, that many parts of it are not so well inhabited; some abounding with immense deserts and impenetrable forests, while others are full of extensive plains, which are intercepted by the stupendous heights of the Cordilleras. The denomination of Charcas formerly included many populous provinces of Indians, whom the Inca Capai Yupanque subjected to his empire; but he carried his arms no farther than the provinces of Tutyra and Chaqui, where he terminated his conquests towards Callafuyo. On the death of this monarch, his son Inca Roca, the sixth in the succession of those emperors, pushed his conquests farther in the same part, till he became sovereign of all the intermediate nations to the province of Chuquisaca, where was afterwards founded the city of Plata, at present the capital of the whole province of Charcas. See *PLATA*. The jurisdiction begins on the north side at Vilcanota, belonging to the province of Lampa, in the diocese of Cusco, and reaches southward to Buenos Ayres. Eastward it extends to Brasil, being terminated by the meridian of demarcation; and westward, part of it reaches to the South Sea, particularly at Atacama, the most northern part of it; on this side the remainder of Charcas borders on the kingdom of Chili. These vast tracts of land give one archbishop, and five bishops his suffragans, viz. the archbishop of Plata, and the bishops of La Paz, Santa Cruz de la Sierra, Tucuman, Paraguay, and Buenos Ayres. See these articles.

CHARCHA, or BETH-SOLOCE, KARK, or ESKI-BAGDAD, in *Ancient Geography*, a town of Asia, seated on the left bank of the Tigris; S.E. of Birta.

CHARCOAL,

CHARCOAL.

CHARCOAL, in *Chemistry*. Under the article **CARBON** are mentioned the chemical properties of charcoal; nothing further therefore remains to be described except the method of preparing the substance and a few other particulars intimately dependent upon it.

Charcoal is prepared either by burning or distillation; of these the first is the simplest, most ancient, and usual method, on which account we shall begin with it.

The business of charcoal burning takes place during the whole of the summer months, and is for the most part carried on in the woods to save the expence of carriage. Two or three families commonly unite for this purpose, dwelling in tents or temporary huts during the time in which they are thus employed for the convenience of being near their business. After they have felled the timber, and it is become sufficiently dry, the process of converting it into charcoal is begun by raising a plot of ground a little higher than the surrounding surface, and bringing it to a slightly convex form by beating it, and thus forming a hard, dry, and solid floor. In the center of this area is placed a circle of sticks adjoining each other and composing a vertical hollow cylinder from three to four inches in diameter, and about six feet high. Round this interior cylinder are ranged successive concentric circles formed by truncheons from one to ten inches in diameter, care being taken that the truncheons in any one circle are of the same diameter, and that one built of the largest wood be always succeeded by one of the smallest wood, in order that there may be as few interstices as possible. The outermost circle is composed of brush-wood. When the pile measures from twenty to thirty feet in diameter, it is sufficiently large; a coating is now laid on of turf, the grassy side next to the wood, and dry earth is heaped up round the bottom of the pile, and well rammed in order to prevent the admission of air. Three or four screens formed of large hurdles well stuffed with brushwood, are also prepared in order to protect the pile from the violence of the wind. All the preparations being now completed, the pile is kindled by dropping lighted chips down the hollow cylinder in the center, which, in proportion as they are consumed, are supplied by others during the first three or four days, at the end of which period, the kindling of the pile is completed. The top of the cylinder is now closed, and a row of holes, each about two inches in diameter, is pierced at the

base of the pile, by which the requisite quantity of air is supplied, and a passage is afforded for the smoke and vapours. When the smoke nearly ceases to issue from these holes, a second row is opened, about six or eight inches above the first, which are now closed; in this manner the fire is conducted to the top of the pile in about a fortnight; at which time the pile is covered up with earth as accurately as possible, till the fire is completely extinguished. Those pieces that are found not to be sufficiently charred are called *brands*, and are employed as fuel for the next fire.

Although charcoal prepared by the above method is fully adequate to all the purposes of fuel to which this substance is applied, yet in the manufacture of gunpowder, and for some other uses, it is of essential importance to procure a charcoal of greater purity than common. This was formerly done by selecting the stems of willow, alder, and some other of the aquatic trees, and charring them in the usual manner, but with peculiar care. Of late, however, a considerable improvement in the preparation of the finer charcoal has taken place, by charring or distilling the wood in closed iron cylinders. For this purpose a large cylinder of cast iron fixed in masonry over a grate, and furnished at one end with a door capable of being accurately closed, and terminating at the other in a curved pipe, is filled with the chips of any kind of wood; the door being then closed, and a fire lighted in the grate, the empyreumatic acid and all the other volatile parts of the wood are driven off by the heat, which is increased till the contents of the cylinder are red hot. The fire is then withdrawn, the cylinder is allowed to cool, and a black shining and remarkably pure charcoal (in greater proportion also to the quantity of wood employed than by the usual way) is procured, admirably fitted for the use of the gunpowder-makers, and apparently possessed of the same qualities from whatever kind of wood it is made.

The proportion of charcoal yielded by particular woods is liable to be so materially affected by the age, and the dryness of the wood, as to render it almost impossible to obtain any correct result in the great way. The following table, from experiments in the small way by Mr. Musket, will, however, be found to be interesting, as all the woods before being charred were thoroughly dried and prepared, as nearly as possible in the same circumstances.

100 Parts of Lignum vitæ afforded	26.0	of Charcoal of a greyish colour resembling coak
Mahogany - -	25.4	- - tinged with brown, spongy and porous
Laburnum - -	24.5	- - velvet black, compact, very hard
Chestnut - -	23.2	- - glossy black, compact, firm
Oak - -	22.6	- - black, close, very firm
Holly - -	19.9	- - dull black, loose and bulky
Sycamore - -	19.7	- - fine black, bulky, moderately firm
Walnut - -	20.6	- - dull black, close, firm
Beech - -	19.9	- - dull black, spongy, firm
Norway pine - -	19.2	- - shining black, bulky, very soft
Elm - -	19.5	- - fine black, moderately firm
Sallow - -	18.4	- - velvet black, bulky, loose and soft
Ash - -	17.9	- - shining black, spongy, firm
Birch - -	17.4	- - velvet black, bulky, firm
Scottish pine - -	16.4	- - tinged with brown, moderately firm

The author of the Rural Economy of the midland counties observes, that in making charcoal, men accustomed to the business cut and cord in wood in the winter, and burn during the summer season. The minutiae of the process of which are there, he says, these. The site, or hearth, being determined upon, the sward is pared off, and the sods

laid on one side. The wood usually about the cord is then laid in a ring, somewhat wider than the intended hearth; beginning on the outer circumference of the ring with the smallest of the round-wood, laying the larger pieces of top-wood, and the cloven roots, or butt-ends, towards the center. With these last, some of them nearly as large as bushel-blocks,

CHARCOAL.

blocks, they begin to make their pile, leaving a kind of chimney in the middle, (a vertical aperture, from a foot to eighteen inches wide), and round this core of roots set up the top-wood, (which has previously been cut at the time of cording, in such a manner, that no forkedness or other awkward crookednesses are left; or, if not cut in this manner, or cut improperly, it is prepared by the colliers themselves, previous to laying it ready for setting), joining the blocks, or rather fitting them in, as close to each other as possible; placing the convex side of the logs outward, forming the pile in the shape of an inverted bowl, nearly semiglobular. The pile being formed, it is covered over with fods, which are pointed, to keep in the heat the better, and the seams are filled up with fine pulverised mould. The chimney is now filled with short pieces of dry wood; near the top a live coal is put; over this one layer more of dry pieces; and upon these a close cap of fod is placed: nevertheless, this one coal, not larger than the fist, and excluded from the open air, is sufficient to set the whole pile on fire. As the pieces in the chimney burn away, they are replaced by fresh ones: thus feeding the fire with fresh fuel. Paired hurdles are placed on the windward side of the heap, to prevent the fire from acting partially.

When the fire begins to work itself out, at the outward skirts of the bottom of the pile, it is known that the coal is fully burnt, (or rather the wood sufficiently charred), which it will be, in a pile of ten cord, in fine dry weather, in seven or eight days. The fire, during the whole time, is carefully kept from breaking out, by throwing mould or ashes upon the weak parts: so that, though the fire passes through every part of the wood, little or none of the matter of heat escapes. It is observable, he says, that notwithstanding the intense heat, no part seems to be consumed; not the bark only, but even the moss upon it, comes out as entire as when it went in: the only apparent change is, in its being rendered friable and of a black colour. Wood that is charred, seems, he says, to be only very highly dried. It shrinks considerably during the process of charring; but there is no visible derangement of parts. One of the smaller pieces, which is not broken in the drawing, appears as entire when it comes out as when it went into the pile. The brittleness after charring, however, shows that the texture of the wood is altered by the action of the fire. As soon as the fire is out of the coal, on the outside of the heap, the workmen begin to draw; which is done by running a peel between the coal and the hearth, raising up the coal in such a manner as to let the mould and ashes of the fods fall through between the pieces, upon the inward parts, still full of fire. If this makes its appearance in any particular spot, a peel full of ashes is immediately thrown against it. Having got sufficiently near to the fire, the coals raised by the peel are raked off with long, wide-toothed, iron rakes; the teeth about a foot long, and standing about six inches apart; the handle and head of wood, except a plate of iron on the back, with which the small coal is gathered together. No sieve, nor any rake with finer teeth than the above, is used. The coal being light, it is readily brought to the surface of the ashes and dirt; and, when there, is easily collected with the back of the rake. The side, thus drawn, being rounded up and secured with ashes, another, the coolest part, is drawn in the same manner. The drawing is an infernal business: the men working among fire and heat enough to suffocate Satan himself. Such pieces as still retain fire, after they are drawn, are quenched with water; which the workmen have in plenty standing by them, in pails. If a large piece contain much fire, (which hides itself chiefly in the

chinks of the large pieces), it is plunged boldly into the water. If the heap itself prove too refractory to be kept under by the ashes alone, a sufficient quantity of water is thrown upon it, to keep the fire under. Such large pieces as are suspicious are laid on one side, in order that those which take fire may be the more readily discovered. A waggon attends to take away the coal as fast as it is drawn: for, if it take fire, or get wet in the hands of the burners, it is at their risk; and, while in the waggon, it is at the risk of the waggoner. Every particle burnt is so much entire waste.

The quantity of ashes arising from a charcoal hearth, he says, is considerable. There were four cart loads taken up from two small hearths, and a load or two more still remained.

The dust of charcoal has been found, by repeated experience, to be of great benefit to land, especially to such soils as are stiff and four. It is to be used in the same manner as foot and wood-ashes. See *ASHES* and *SOOT*.

And the author quoted above observes, that charcoal ashes are in good esteem in the midland districts as a manure, particularly for turnips, and for fining grass land. They arise principally from the fods used in covering, but in part from the bits of coal which break off in raking it out of the ashes. There cannot be any doubt but that all the refuse of charred materials that become reduced into a powdery state during the process of drawing the coal, is highly beneficial, when applied on the more stiff and heavy sorts of land as a manure, as much advantage has been derived from it in the experience of different cultivators.

The microscope discovers a surprising number of pores in charcoal: they are disposed in order, and traverse it lengthwise; so that there is no piece of charcoal, how long soever, but may be easily blown through. If a piece be broken pretty short, it may be seen through with a microscope. In a range the eighteenth part of an inch long, Dr. Hook reckoned one hundred and fifty pores; whence he concludes, that in a charcoal of an inch diameter, there are no less than five millions seven hundred and twenty-four thousand pores.

It is to this prodigious number of pores that the blackness of charcoal is owing: for the rays of light, striking on the charcoal, are received and absorbed in its pores, instead of being reflected; whence the body must of necessity appear black, blackness in a body being no more than a want of reflection.

Mathematical instrument makers, engravers, &c. find charcoal of great use to polish their brass and copper-plates, after they have been rubbed clean with powdered pumice-stone. Mr. Boyle says, that the more curious burn it a second time, and quench it in a convenient fluid. Plates of horn are polishable the same way, and a glass may be afterwards given with tripoly.

Charcoal and foot-black are the two most durable and useful blacks of the painter, and the varnish-maker. Those of the former kind are used both as pigments and pencils; and charcoal crayons prepared from the willow are preferred on account of their softness. See concerning them *Lewis's Commercium Phil. Techn.* p. 536.

Charcoal tinges glass in fusion yellow, reddish, &c. and by baking stains it yellow. See *ibid.* p. 628. See also his observations on the differences of different charcoals, &c. and of the manner of distinguishing between the vegetable and animal, *ibid.* p. 336. and *seq.*

Charcoal was anciently used to distinguish the bounds of estates and inheritances; as being supposed incorruptible, when let very deep within the ground. In effect, it pre-
serves

serves itself so long, that there are many pieces found entire in the ancient tombs of the northern nations.

M. Dodart says, there is sometimes found charcoal made of corn, probably as old as the days of Cæsar: he adds, that it has kept so well, that the wheat may be still distinguished from the rye; which he looks on as a proof of its incorruptibility.

CHARCUON, in *Geography*, a town of Persia, in the province of Farfistan; 70 miles S.E. of Schiras.

CHARD, an ancient town of Somersetshire, England; is situated in the southern part of the county, and consists of 248 houses, which are disposed in two streets intersecting each other. This place was anciently denominated Cerdie, which name, according to Mr Collinson, it obtained from Cerdie, a Saxon chief, who was repeatedly engaged against the Britons in this part of the island. Two or three springs rise in the immediate vicinity of the town, and this part of the county is so high, that the streams of water may be turned either north into the Bristol channel, or south into the British channel. Chard, in the reign of Edward I. was made a free borough, and sent members to parliament nine times; but it afterwards lost this privilege. A market was formerly kept here on Sundays, but the market day is now Monday, and is well supplied with corn, and vast quantities of potatoes. Collinson's History of Somersetshire, 4to. vol. ii.

CHARDIN, JOHN, in *Biography*, the son of a jeweller at Paris, of the Protestant persuasion, who distinguished himself as a traveller. He was born at Paris in 1643, and followed the profession of his father. At the age of 21, he set out on his travels, and remained for a considerable time in Persia. After his return in 1670, he printed at Paris an account of the coronation of Soliman III. king of Persia, together with the principal events that introduced his reign. In the year 1671 he again departed for the east, and having spent several years in Persia and the East Indies, he collected various particulars of curious information concerning the state of those countries, which he published after his return to Europe. In 1681 we find him in London, where he was knighted by Charles II. and appointed his majesty's jeweller. He married the daughter of a French refugee in London, and died in this city in the year 1713. A collection of his travels was published in 10 vols. 12mo. in 1711, and in 4 vols. 4to. in 1735, at Amsterdam. They were translated into English, German, and Flemish; and as they contain authentic and valuable information, with regard to the religion, manners, products, and commerce, &c. of the countries he visited, they obtained an extensive circulation. Among other curious particulars, he records several medical facts; and particularly an account of his own case, when he was attacked with a dangerous fever at Gombron, and cured by the country physicians, who employed the repeated affusion of cold water. This fact has suggested an useful hint to modern practitioners.

CHARDIN. See JARDYN.

CHARDOGNE, in *Geography*, a town of France in the department of the Meuse, and district of Bar-le-Duc; 4 miles N. of it.

CHARDON, in *Conchology*. The French distinguish a species of ray by this name, the *Raja fullonica* of Linnæus, which see.

CHARDON *pour monter a Passaut*, in *Military Language*. When the use of crampons (creepers or cramp-irons) was not at all known, the soldier, to avoid slipping down in mounting the breach, or to the assault, took off one shoe. At present he makes use of a *crampon*, or *chardon* of iron, which is fastened with a strap and buckle, or by means of a screw to the heel of the shoe. But this last method does not

seem to be sufficiently firm or solid, particularly for assaults of much danger.

CHARDONS, points of iron, like those of darts, placed on the top of a grate, or the coping of a wall, to prevent any person's getting over them.

CHARDONNET, *Chardonnet jaune*, &c. in *Ornithology*, the name under which Buffon and other French authors describe *Fringilla tristis*, which see.—Called by Pennant and Latham the American Goldfinch.

CHARDS, in *Gardening*, is a term which is applied to different parts of different sorts of vegetables after they have undergone a sort of blanching, and are become tender by being tied up or covered in some way or other. Thus in the *artichoke* they are the leaves, which have been wrapped up during the autumn and winter with straw bands, the tops of the plants being only just left out. And in the *white beet* they are the downy shoots of the tops of such plants as have been covered with long dry dung during the winter season.

CHARE CULLOU, in *Geography*, a town of Asia, in the province of Cabul; 42 miles S.W. of Cabul.

CHARENTE, a river of France, which rises in the department of the Upper Vienne, passes by, or near to, Civray, Ruffec, Verteuil, Mansle, Angoulême, Jarnac, Cognac, Saintes, Rochefort, &c. and discharges itself into the sea, about eight miles below Rochefort, opposite to the isle of Oleron.

CHARENTE, *department* of, a district or division of France, taking its name from the river Charente, which passes through it, and formed of Angoumois, and a part of Saintonge. It is bounded on the north by the departments of Upper Vienne, and the Two Sevrès; on the east by those of Upper Vienne and Dordogne; on the south by those of Dordogne, and Lower Charente, which bounds it also on the west. Its length from N.E. to S.W. is about 56 miles, its average breadth 30 miles, its territorial extent about 6310 kilometres, or about 1,153,684 square acres, and its population about 321,477 persons. It is divided into five communal districts, which comprehend 28 cantons, and 455 communes. Its capital is Angoulême. This department, in the 11th year of the French æra, contributed 2,978,069 francs, and was charged with an expence towards the support of administration, justice, and public instruction, of 279,619 francs, 66 cents.

CHARENTE, *Lower, department* of, is situated on the sea-coast, north of the river Gironde, and takes its name from the river Charente, which crosses it near its center: it is composed of Aunis and a part of Saintonge. It is bounded on the north by the departments of La Vendée, and the Two Sevrès; on the east, by a part of that of the Two Sevrès, and by that of Charente; on the south, by the departments of Dordogne and Gironde; and on the west by the ocean. Its length is somewhat more than 80 miles, and breadth unequal, being towards the south about 10 miles, towards the north about 20, and in some parts nearly 40. Its territorial extent is 7247½ kilometres, or about 1,404,460 square acres, or 716,814 hectares: its population consists of about 402,105 persons: it is divided into six communal districts, comprehending 37 cantons, and 506 communes; its contributions amount to 4,105,914 francs, and it is charged with expences to the administration, judiciary, and public instruction, amounting to 331,035 francs, 66 cents. The capital is Saintes.

CHARENTENAY, a town of France, in the department of the Yonne, 7 miles S. of Auxerre.

CHARENTON, JOSEPH-NICHOLAS, in *Biography*, a French Jesuit, was born at Blois in 1659; and having spent 15 years as a missionary in Persia, settled at Paris, and pursued his studies till his death in 1735. Besides a translation of two devotional pieces of Thomas a Kempis, he also published "The General History of Spain, by Father Mariana,

translated into French, with historical, geographical, and critical notes, medals, and maps," 5 vols. 4to. Paris 1725; to which he has added a valuable preface. This work is held in considerable estimation.

CHARENTON, in *Geography*, a town of France, in the department of the Cher, and chief place of a canton, in the district of St. Amand; 5 miles E. of it. The place contains 1148, and the canton 5307 inhabitants; the territorial extent comprehends 255 kilometres, and 11 communes.—Also, a town of France in the department of the Seine, and chief place of a canton, in the district of Sceaux. The place contains 825, and the canton 7773 inhabitants: the territorial extent includes 68 $\frac{7}{10}$ kilometres, and 11 communes.

CHARERA, *La*, a town of the island of Cuba; 5 miles W. of Havana.

CHARERI, a town of the kingdom of Naples, in the province of Calabria Ultra; 9 miles S. of Girace.—Also, a river of Naples, which runs into the sea 10 miles S.S.E. of Girace.

CHARES, in *Biography*, a famous statuary, was a native of Lindus, and a disciple of Lysippus; and his name is transmitted to us as the fabricator of the Rhodian Colossus of the Sun, which was a metal statue of an immense bulk. See COLOSSUS.

CHARES, in *Ancient Geography*, a river of Peloponnesus, in the Argolide, near which, according to Plutarch, was fought a severe battle between Aratus and the tyrant of Argos.

CHARGE, in *Electricity*, in a strict sense, denotes the accumulation of the electric matter on one surface of an electric, as a pane of glass, Leyden phial, &c. whilst an equal quantity passes off from the opposite surface: or, more generally, electrics are said to be charged, when the equilibrium of the electric matter on the opposite surfaces is destroyed, by communicating one kind of electricity to one side, and the contrary kind to the opposite side; nor can the equilibrium be restored till a communication be made by means of conducting substances between the two opposite surfaces. And when this is done, the electric is said to be discharged. The charge properly refers to one side, in contradistinction from the other; since the whole quantity in the electric is the same *before* and *after* the operation of charging; and the operation cannot succeed, unless what is gained on one side be lost by the other, by means of conductors applied to it, and communicating either with the earth, or with a sufficient number of non-electrics. In order to facilitate the communication of electricity to an electric plate, &c. the opposite surfaces are coated with some conducting substance, usually with tin-foil, within some distance from the edge; in consequence of which the electricity communicated to one part of the coating is readily diffused through all parts of the surface of the electric in contact with it; and a discharge is easily made by forming a communication with any conductor from one coating to the other. If the opposite coatings approach too near each other, the electric matter forces a passage from one surface to the other, before the charge is complete. And some kinds of glass have the property of conducting the electricity over the surface, or of being permeable to it, so that they are altogether unfit for the operation of charging and discharging. Mr. Canton supposes that this quality of glass is owing to its unvittrified parts. If, indeed, the charge is too high, and the glass plate or phial too thin, the attraction between the two opposite electricities forces a passage through the glass, and makes a spontaneous discharge, and the glass becomes unfit for farther use. See CONDUCTORS, ELECTRICS, LEYDEN PHIAL, &c.

CHARGE, in *Military Affairs*, has chiefly these three meanings, viz. an attack, an accusation, and a load or quantity of powder. The French make use of it technically in the first of these general meanings, in two different senses, using the

terms *charge précipitée*, and *charge à volonté*. The *charge précipitée* is given when the four times are precisely marked, as *charges vos arms, un, deux, trois, quatre*; and is chiefly applicable to the drill. The *charge à volonté* is executed in the same manner as the *charge précipitée* with this difference only, that the soldiers do not wait for the specific words.

It was a maxim with most of the ancients to charge with vast shouts, mixed with their martial music. The Gauls, the Germans, the Parthians, and all the barbarians in general, observed this custom. The Turks have preserved it, and march towards the enemy with the most terrible howlings: they believe, and not without reason, that these howlings animate the soldier, divert his thoughts from the dangers which surround him, and strike a terror into the enemy. The Romans, and some of the Grecians, such as the Argians, the Mantinæans, and the Macedonians, did the same; but they did it by rule; so that what was among the Barbarians, no better than a confused noise, excited by an impetuous motion, was among the others a matter of discipline. As soon as they came in sight of the enemy, they gave a general shout before they advanced nearer to him; and this shout was called "the shout of battle;" and it was from the manner in which it was given, the general formed his judgment of the disposition of his troops. The Samnites and the Etrurians had the same custom as the Romans. In an engagement between the latter and the Samnites, which terminated in the retreat of both, they kept looking at each other a long time, before either gave the shout; neither being willing to give it first. Crassus, as we are informed by Plutarch, after being harassed by the Parthians during a whole day, resolved to charge them with all his forces. He ordered the shout of battle; but he could perceive, by the feebleness with which it was given, that his soldiers were not in spirits; and that, therefore, he could entertain but little hope of success; accordingly, he was entirely defeated. The first shout used to be given by a signal from the trumpets, which soon after sounded to charge; the troops then put themselves in motion; and ran up to the enemy, exciting each other from time to time with repeated shouts. The Romans at the same time struck their javelins, or swords, against their targets, which still augmented the noise, and carried with it a very terrible air. If they happened to be repulsed, they set up a new shout every time they returned to the charge, but it was never given by the party which attacked. The second line, when it did not charge with the first, kept its shout till its turn for setting off came; as did likewise the reserve. These troops gave louder and louder shouts, in proportion as they redoubled their efforts. Some of the Greeks did not shout in charging, but only sung a kind of air, which they called "the hymn of battle." We still find traces of this custom among the Arnauts, inhabitants of Macedonia, at present subject to the Turks. These people, stout and bold like their ancestors, engage with a rapid pace: the chief sings, and his troops answer, while they press forward with an accelerated velocity. These hymns should be short, and consist of short verses, set to a lively air. Horace speaks in one of his odes of a poet called Tyrtæus, who, in the wars of Messina, animated by his verses the Lacedæmonians to such a degree, that they thereby gained a complete victory. The Lacedæmonians, however, did not always follow this custom. In the time of Thucydides, they marched, in silence, to the sound of flutes, and by its cadence regulated their steps, the better to preserve their ranks. This, without doubt, suggested to marshal Saxe the first idea of marching to time, which much contributed to the perfection of the military art. Although the step of the Romans was not only regulated, but animated by the sound of warlike instruments, they thought the shout necessary.

necessary at the time of their charging the enemy. As they charged running, the rapidity of their motion, joined to the noise of their own shouts, and of the trumpets and horns, inflamed them, and filled them with a sort of fury, which their leaders nevertheless knew how to moderate by the exactness of their discipline. Plut. in Crassum. Livy, l. x. c. 22. Cæsar de Bello Civili, lib. iii.

CHARGE de mine, or *Charge of a mine*, is the quantity of powder that is put into its chamber for the purpose of springing it, or making it explode.

CHARGE of powder, in *Artillery Matters*, is the quantity of powder put into a piece of ordnance for saluting, sealing, proving, or rejoicing; or for propelling, projecting, or throwing from it shot, bullets, shells, grenades, &c.

Various charges of powder are best adapted to the different uses to which artillery is applied, as field service, battering in breach, garrison-service, firing *en ricochet*, &c. &c.

The charge of powder for proving guns is equal to the weight of the ball; but for service the charge is one-half, or one-third of the weight of the ball, or even less; and, indeed, in most cases of service, the quantity of powder is too great for the proposed execution.

In the British navy, the allowance for thirty-two pounders is but seven-sixteenths of the weight of the bullet. But a late author is of opinion, that if the powder in all ship cannon whatever was reduced to one-third weight of the ball, or even less, it would be a considerable advantage, not only by saving ammunition, but by keeping the guns cooler and quieter, and at the same time more effectually injuring the vessels of the enemy. With the present allowance of powder, the guns are heated, and their tackle and furniture strained, and this only to render the bullet less efficacious. For a bullet which can but just pass through a piece of timber, and loses almost all its motion thereby, has a much better chance of rending and fracturing it, than if it passed through with a much greater velocity. See Robins's Tracts, vol. i. p. 290, 291.

Professor Euler concludes, from certain calculations, by means of which he has formed a table, representing the charges for the greatest velocity, that those assigned by Mr. Robins are much too great. See True Principles of Gunnery investigated and explained, &c. 1777. p. 129. 266.

Mr Robins observes, that the charge is not to be determined by the greatest velocity that may be produced; but that it should be such a quantity of powder as will produce the least velocity necessary for the purpose in view; and if the windage be moderate, no field-piece should ever be loaded with more than $\frac{1}{2}$, or at the utmost $\frac{2}{3}$ of the weight of its bullet in powder; nor should the charge of any battering piece exceed $\frac{1}{3}$ of the weight of its bullet. Tracts, &c. vol. i. p. 266, &c.

Different charges of powder, with the same weight of ball, produce different velocities in the ball, which are in the subduplicate ratio of the weights of powder; and when the weight of powder is the same, and the ball varied, the velocity produced is in the reciprocal subduplicate ratio of the weight of the ball: and this corresponds both to theory and practice. See Dr. Hutton's paper on Gun-powder, in the Phil. Transf. for 1778, p. 50. and his Tracts, vol. i. p. 266. This, however, is on a supposition that the gun is of an indefinite length; whereas, on account of the limited length of guns, some variation from this law occurs in practice, as well as in theory; in consequence of which it appears, that the velocity of the ball increases with the charge only to a certain point, which is peculiar to each gun, where the velocity is the greatest: and that, by farther increasing the charge, the velocity is gradually diminished, till the bore is quite full of powder. By an easy fluxionary process, it

appears, that, calling the length of the bore of the gun b , the length of the charge, producing the greatest velocity,

ought to be $\frac{b}{2.718281828}$, or about $\frac{1}{3}$ of the length of the bore; where 2.718281828 is the number whose hyperbolic logarithm is 1. But for several reasons, says Dr. Hutton, in practice, the length of the charge, producing the greatest velocity, falls short of that above mentioned, and the more so as the gun is larger. From many experiments, he has found the length of the charge, producing the greatest velocity, in guns of various lengths of bore, from 15 to 40 calibres, as follows:

Length of bore in calibres.	Length of charge for greatest velocity.
15	$\frac{1}{3}$
20	$\frac{1}{3}$
30	$\frac{1}{3}$
40	$\frac{1}{3}$

See CANNON.

CHARGE, in *Gunnery*, implies not only the quantity of powder put into a piece of ordnance for firing it with, but also the shot, shells, grenades, &c. with which it is loaded.

The success of a campaign, of a siege, or defence, often depends on the skilful and judicious application of artillery. But in almost every application of it, there is more powder than is either proper or necessary made use of; and our pieces of ordnance have in general by far too much windage.

CHARGE, in *Military Language*, denotes an attack either of infantry or of cavalry.

CHARGE bayonet, is a word of command given to infantry to rush on the enemy and attack them at the point of the bayonet.

CHARGE, to sound a, is a signal given by sound of trumpet for cavalry to commence the attack.

CHARGE, in *Military or Martial Law*, is the specification of any crime or offence, for which a commissioned officer, non-commissioned officer, or soldier, is tried by a court-martial. In all charges of this nature, the time and place, or when and where the crime or offence was committed, must be set forth with accuracy and precision.

CHARGE, in *Heraldry*, is applied to any figures or things which occupy the field of a shield of arms, and are placed either throughout the whole superficies of the escutcheon, or else in some special part of the same, whether it be animal, vegetable, or any other matter. Anciently, arms were simple and plain, consisting of few figures, distinctly placed in the field: the heralds of those times, as we find by their writings, being of opinion, that the less that appeared in a coat, the more honourable it was. As coats of arms increased in number, a deviation from their original plainness soon became unavoidable; and a conspicuous variation from each other was absolutely requisite, in order to their making a due armorial distinction between families. This was at first effected, either by a repetition, on the same escutcheon, of some one or other of those particular figures, which had before been used as charges, or by placing in the field two or more distinct bearings. This mode, however, was soon found to be inadequate to the purpose; for the continual multiplication of arms had exhausted all the variations that could be made with respect to the figures then used in heraldry, and required additional marks of distinction. Hence was introduced, from time to time, such a multitude of new charges, that there is scarcely any thing, either natural or artificial, that either is not, or hath not been, represented in the coat-armour.

Charges peculiar to the art and usage of armory, as the cross, chief, pale, fesse, &c. are called *proper charges*; and frequently ordinaries.

Bloom restrains the term charges to those additions, or re-

wards of honours, frequently placed on escutcheons, as cantons, quarters, girones, flaiques, &c.

CHARGE, in *Law*, denotes the instructions given to the grand jury with respect to the articles of the inquiry, by the judge who presides on the bench.

CHARGE, also signifies a thing done that bindeth him who doth it; or that which is his to the performance of it; and **DISCHARGE** is the removal of that charge. Lands may be charged in various ways; as, by grant of rent out of it, by statutes, judgments, conditions, warranties, &c.

Lands in fee-simple may be charged in fee; and where a man may dispose of the land itself, he may charge it by a rent, or statute. Lit. sect. 648. Moor. Ca. 129. Dyer 10. If one charge land in tail, and land in fee-simple, and die, the land in fee only shall be chargeable. Bro. Cha. 9. Land intailed may be charged in fee, if the estate-tail be cut off by recovery: if tenant in tail charge the land, and afterwards levy a fine or suffer a recovery of the lands, to his own use; this confirms the charge, and it shall continue. 1 Rep. 61. If one join-tenant charge land, and afterwards release to his companions, and die, the survivor shall hold it charged; but if it had come to him by survivorship, it would be otherwise. 6 Rep. 76. 1 Shep. Abr. 325. He that hath a remainder, or reversion of land, may charge it; because of the possibility that the land will come into possession, and then the possession shall be charged. But where one leases land for life, and grants the reversion or remainder over to A. B. who charges the land, and dies, and the tenant for life is heir to the fee; in this case he shall hold it discharged, for he had the possession by purchase, though he had the fee by descent. Bro. 11. 16. 1 Rep. 62.

If a rent be issuing out of a house, &c. and it falls down, the charge shall remain upon the soil. 9 E. IV. 20. But when the estate is gone upon which the charge was grounded, then, generally, the charge is determined. Co. Litt. 349. And in all cases where any executory thing is created by deed, then, by consent of all the parties, it may be, by deed, defeated and discharged. 10 Rep. 29.

CHARGE, in the *Manege*, a sort of unguent, made of oil, honey, grease, turpentine, and sometimes of lees of wine, and other matters, applied externally to a horse, &c. for the cure of strains, bruises, and swellings.

CHARGE, a military term for a few detached passages for trumpets, side-drums, and kettle-drums, performed when on the point of charging or attacking the enemy. "Sound the charge" is the command given to the trumpets; "Beat the charge" to the drums.

CHARGÉ, Fr. loaded, crowded with parts. This is said of *Musical*, when the subordinate parts are so loud and busy that the principal melody cannot be heard through them. See *CARICATA*, which has the same meaning in Italian. Rameau and Gluck have been accused of this redundancy of notes in their operas; the former from a systematic determination to give to every base its full harmony; the latter, perhaps, from a desire to please the French in their own way, by pursuing the method of Lulli and Rameau, but he likewise gratified his own taste in manifesting his ingenuity by giving to each part a different subject in the accompaniment, and also in giving way to the force and fire of his own genius. Piccini, in his early productions, put the instrumental performers in his operas to hard labour by giving them so many notes to execute, that he has been said at Naples, "to put the orchestra in flames." But this was in his comic operas, full of quarrels and *imbroglios*. The *Buona figliuola maritata* required more rehearsals than any opera that was ever performed in this country. But he did not crowd his score from pedantry or system, but to produce effects by the instruments

which it would have been ridiculous for even comic singers to attempt. When Piccini gave way to his native fire and invention, it was for something ingeniously planned, and which when well executed, interested and delighted the audience.

CHARGE, or rather **OVERCHARGE**, in *Painting*, is an exaggerated representation of any person, wherein the likeness is preserved, but at the same time ridiculed.

Few painters have the genius necessary to succeed in these charges: the method is, to select and heighten something already amiss in the face, whether by way of defect or redundancy; thus, v. g. if nature have given a man a nose a little larger than ordinary, the painter falls in with her, and makes the nose extravagantly long; or if the nose be naturally too short, in the painting it will be a mere stump; and thus of the other parts.

De Piles observes, that there are charged outlines which please, because they are above the lowliness of ordinary nature, and carry with them an air of freedom, with an idea of a great taste, which deceives most painters, who call such excesses the grand manner. And although, to such persons, who have a true idea of correctness, simplicity, and elegance of nature, these excesses may seem superfluous, as they only adulterate the truth, yet one cannot forbear to commend some things that are overcharged in great works, when the distance whence they are to be viewed softens them to the eye; or when they are used with such discretion as makes the character of truth more apparent. It ought, however, to be remarked, that, in the antique statues, which are allowed to be the rule of beauty, nothing appears charged, nothing affected; nor is there any thing of that kind in the works of those who have always imitated them; as Raphael, Domenichino, Nicolo Poussin, and some others.

CHARGE of lead, is thirty six pigs. See **LEAD**, **PIG**, &c.

CHARGE, in *Sea-Language*, is sometimes used for burden; thus, a *ship of charge* is such as draws much water, or swims deep in the sea: though sometimes an unwieldy ship, that will not ware nor steer, is called a ship of charge.

CHARGED, in *Heraldry*. A shield, carrying on it some figure or impress, is said to be charged therewith.

So, also, when one bearing, or charge, has another figure added upon it, it is properly said to be charged. This was the ancient method of blazon; but it is now laid aside.

CHARGED cylinder, in *Gunnery*, is that part of the gun which contains the powder and ball.

CHARGEOIR, a charge for great guns.

CHARGERS, are also either bandoleers, or little flasks that contain powder for charging and priming.

CHARGER, in *Military Language*, is likewise a term made use of to denominate a horse which an officer is mounted on in action.

CHARGER un Canon, un Mortier, un Fusil, &c. is to put into it the powder, the ball, the shell, the cartridge, &c.

CHARGER l'ennemi, to charge the enemy; is to march towards the enemy directly in front, receiving his first fire, but reserving your own. You are then sure to fight to advantage, as you have gained ground, a circumstance that seldom fails to ensure success to the assailants, and to discourage those who are attacked. This phrase is also employed to denote the pressing upon, pursuing an enemy, and the obstructing and shutting up his communications, ways, and passages.

CHARGER l'épée à la main, to charge sword in hand. Before the use of the bayonet, the soldier took his musket by its rest in his left hand, and charged the enemy with his sword

sword in his right; which method of charging must have been very incommodiôus, fatiguing, and difficult. M. le maréchal de Puysegur, in his art of war, derives this phrase from the time when the musket was used without the bayonet.

CHARGES MILITAIRES; all employments, offices, or appointments by brevet, from a field-marshal of France down to the lowest subaltern officer, were called *charges militaires*. But the office or appointment of intendant general of stores and provisions, and all those of a similar nature, constituting the suite of an army, and part of its stall, do not come under the denomination of *charges militaires*.

CHARGEUR, an artilleryist, whose duty or business it is to charge or load the cannon.

CHARGEY, in *Geography*, a town of France, in the department of the Upper Saône, and district of Gray; 1 league N. of Gray.

CHARIDEMUM PROMONTORIUM, in *Ancient Geography*, *Gabo del Gata*, a promontory of Spain, at the extremity of the coast of Bætica.

CHARIENTISMUS, in *Rhetoric*, a figure wherein a taunting expression is softened by a jest.

CHARILLOS, Los, in *Geography*, a town of South America, in Peru, and in the jurisdiction of Lima.

CHARIN, or **CARIN**, **LEWIS**, in *Biography*, an eminent scholar and physician, was born at Lucern in Switzerland, in the beginning of the 16th century. In the early part of his life he was preceptor to part of the family of the Fuggers. In Basle, where he died in 1569, he was in considerable repute for his skill in the practice of medicine; but his name is recorded principally for having left by his will provision for founding, and supporting for ever, three scholarships in the university of that city. Eloy. Dict. Hist.

CHARINA, in *Ancient Geography*, a place of Asia, in Chambadene, to the east of mount Zagrus in Media.

CHARINDAS, a river of Asia, in Media, according to Ptolemy.

CHARIOPOLIS, a place situated towards Thrace and Macedonia.

CHARIOT. See **COACH**. Chariots were used both for military purposes, and in the Olympic games. *War-chariots* were very generally used by the ancient inhabitants of various nations. We learn from Homer, and from the Sacred Writings, that they were used in many parts of the eastern world for military purposes. Among the Medes and Persians they had chariots with two wheels, which were generally drawn by four horses a-breast, with two men in each; one of distinguished birth and valour who fought, and the other only for driving the chariot. Cyrus, however, thought this method very expensive, and of little service; because the equipment of 300 chariots required 1200 horses and 600 men, of whom only 300 fought; the other 300 who were persons of distinction, and capable of performing signal service, being occupied merely as charioteers or drivers. To remedy this inconvenience, he altered the form of the chariots, and doubled the number of fighting men that rode in them, by putting the drivers into a condition to fight, as well as the others. He caused the wheels of the chariots to be made stronger, so that they might not be so easily broken; and their axle-trees to be made longer, that they might thus become more firm and steady. At each end of the axle-tree he caused scythes to be fastened that were three feet long, and placed horizontally; and he caused others to be fixed under the same axle-tree with their edges turned to the ground, that they might cut in pieces men or horses, or whatever the impetuous violence of the chariots should overturn. It appears from several passages in ancient

authors, that, in after times, they armed the beam or pole to which the horses were fastened with pikes, having iron points which projected forward; the yokes of the horses had also pointed irons three cubits in length; and the hinder part of the chariot was armed with several rows of sharp knives to hinder any force encountering behind. Between the spokes of the wheels were placed javelins, and even the fellys of the wheels were furnished with scythes, which tore every thing they met with to pieces. The driver of one of these carriages was called the charioteer; and his seat was a kind of little tower, made of very solid wood, and raised breast high. Sometimes the tower was large enough to hold several armed men, who threw showers of darts and arrows at the enemy. Chariots of this kind were in use for many ages in all the eastern countries. They were regarded as the principal strength of the armies, as the most certain instruments of victory, and as an apparatus the best adapted to strike the enemy with consternation and terror. In proportion, however, as the military art improved, the people found the inconveniences attending them, and at length laid them aside. For, in order to obtain any advantage from them, it was necessary to fight in immense plains, where the ground was very even, and where there were no rivulets, grottoes, woods, or vineyards. Several methods were also contrived, in process of time, to render them absolutely useless. A ditch was cut in their course which was sufficient to stop their progress. Sometimes an able and experienced general, as Eumenes in the battle which Scipio fought with Antiochus, attacked the chariots with a detachment of slingers, archers, and spearmen, who, spreading themselves on all sides, poured such a shower of stones, arrows, and lances upon them, the whole army shouting at the same time so loud, that they terrified the horses of the chariots, and occasioned such disorder among them, as often made them turn round, and run foul upon their own forces. At other times they rendered the chariots ineffectual and inactive, only by marching over the space which separated the two armies, with an extraordinary swiftness, and advancing suddenly upon the enemy. The strength and execution of the chariots depended on the length of their course; and this gave impetuosity and rapidity to their motion, without which they were feeble and insignificant. It was after this manner that the Romans under Sylla, at the battle of Chæronea, defeated and put to flight the enemy's chariots by raising loud peals of laughter, as if they had been at the games of the circus, and by crying out that they should send more. Diod. Sic. l. xvii. Q. Curtius l. iv. Xenoph. Cyrop. lib. vi. Livy, l. xxxvii.

In the western world war-chariots were much used in ancient times. Accordingly we find that those who fought from chariots of this kind, constituted the most remarkable corps in the armies of the ancient Britons. This formidable corps seems to have been chiefly composed of persons of distinction, and the very flower of their youth. As this singular art of war was, at the period to which we now refer, almost peculiar to the ancient Britons, and they greatly excelled and delighted in it, we shall give a brief description of the different kinds and constructions of their war-chariots, and of their way of fighting from them. Before Britain was invaded by the Romans, if we consider the imperfect state of some of the most necessary and useful arts in the country, we could hardly expect to find in it wheel-carriages of any kind, much less chariots for state, for pleasure, and for war, of various forms, and of elegant and curious workmanship. It appears, however, from the concurring testimonies of many writers of the most unquestionable credit, that there were such chariots in prodigious numbers, even in the most remote and uncultivated parts of this island in these ancient times.

times. (Tacit. vit. Agric. c. 12. 36. Cæs. de Bell. Gall. l. iv. c. 24. 32. l. v. c. 16. 19. Xiphilin. ex Dionc in Sever. Dio Cassius l. lx. Mela. l. iii. c. 5. Strabo. l. iv. p. 200. Diod. Sicul. l. v. c. 346.) The wheel-carriages and war-chariots of the ancient Britons are mentioned by Greek and Roman authors under several different names, particularly the following six, viz. *Benna*, *Petoritum*, *Currus*, or *Carrus*, *Covinus*, *Effedum*, and *Rheda*. The *Benna* seems to have been a kind of carriage used rather for travelling than for war. It contained two or more persons who were called *Combenones*, from their sitting together in the same machine. It probably derived its name from the British word *Ben*, head or chief; and these carriages might have obtained this appellation from the high rank of the persons who used them. The *Petoritum* seems to have been a larger kind of carriage than the former, and is thought to have derived its name from having four wheels, as *pedwar* in the British language and *peteres* in the Æolic dialect of the Greek tongue, (which was spoken by the people of Marseilles in Gaul) signify four. The *Carrus*, or *Currus*, was the common cart or waggon, used by the ancient Britons in time of peace, for the purposes of agriculture and merchandize, and in time of war, for carrying their baggage, and wives and children, who commonly followed the armies of all the Celtic nations. The *Covinus* was a war-chariot, and a very terrible instrument of destruction; being armed with sharp scythes and hooks for cutting and tearing all who were so unhappy as to come within its reach. This kind of chariot was made very slight, and had few or no men in it besides the charioteer; being designed to drive with great force and rapidity, and to do execution chiefly with its hooks and scythes. The *Effedum* and *Rheda* were also war-chariots, probably of a larger size, and more strongly made than the *covinus*, and designed for accommodating a charioteer for driving it, and one or two warriors for fighting. The greatest number of the war-chariots of the ancient Britons were of this kind.

Two circumstances respecting these war-chariots are very remarkable; viz. their number and the admirable dexterity with which they were managed and conducted. Cæsar acquaints us (De Bell. Gall. l. v. c. 19) that after Cassibelannus had dismissed all his other forces, he still retained no fewer than 4000 of these war-chariots about his person. The same illustrious warrior and writer, who was an attentive observer of every thing of this kind, gives us (De Bell. Gall. l. iv. c. 23) the following account of the dexterity with which the Britons managed their war-chariots: "Their way of fighting with their chariots is this: first, they drive their chariots on all sides, and throw their darts; inasmuch that by the very turn of their horses, and noise of the wheels, they often break the ranks of the enemy. When they have forced their way into the midst of the cavalry, they quit their chariots and fight on foot. In the mean while the drivers retire a little from the combat, and place themselves in such a manner as to favour the retreat of their countrymen, in case they should be overpowered by the enemy. Thus in action they perform the part both of nimble horsemen and of stable infantry, and by continual exercise and use have arrived at that expertness, that in the most steep and difficult places, they can stop their horses upon full stretch, turn them which way they please, run along the pole, rest on the harness, and throw themselves back into their chariots, with incredible dexterity." War-chariots had also been used by the people of Gaul in former times; but they seem to have laid them aside before they were engaged with the Romans under Julius Cæsar; (Diod. Sic. l. v. p. 352. Liv. Hist. l. x. c. 28). for that general makes no mention of them in

any of his battles with the Gauls. It is probable, therefore, that in Cæsar's time chariot-fighting was known and practised only in this island, and continued to be so until it was subdued by the Romans, and longer in those parts of it that were not conquered. When we consider what a singular and formidable appearance so prodigious a number of these war-chariots, driven with such rapidity, and managed with such dexterity, must have made in advancing to the charge, we need not be surprised that the Roman soldiers, though the bravest and most intrepid of mankind, were so much disconcerted, as we are told they were, by this way of fighting. Cæs. de Bell. Gall. l. v. c. 15, 16.

Chariots were used in the celebration of the Olympic games; and they were introduced into these games in the 25th olympiad. Indeed it appears, from the story of Oenomaus and Pelops, that the chariot-race was known in Elis, even before the institution of the Olympic games; and therefore it seems to have been discontinued on account of the great scarcity of horses throughout all Greece, not only at the time of the revival of these games, but for many olympiads after, and also on account of the great expence that attended the breeding and managing of horses, and perhaps from the little estimation in which the Olympic games were held at their re-institution. In process of time they acquired extraordinary celebrity, and the introduction of the chariot-race, as well as the race of riding-horses, admitted in the 33d olympiad, served to encourage those who excelled in the breeding and managing of horses, and thus to excite an emulation which tended to supply Greece with a stock of these animals, which were so much wanted. Accordingly we find that the rich and noble became competitors in the chariot race; and Alcibiades in particular outshone not only all his competitors, but all who either before or since contended for the honour, in the number and magnificence of his chariots, and in the victories obtained by them: for he brought at once seven chariots into the course, and carried off at the same time, the first, second, and fourth prize, according to Thucydides (l. vi.), or third, according to Isocrates and Euripides; the last of whom composed an ode upon the conqueror, part of which is quoted by Plutarch. In this ode the poet compliments Alcibiades upon his having gained at once three prizes; a thing, says he, which no Greek had ever done before him. The Eleans, when they introduced the chariot-race into the Olympic games, were particularly desirous of inducing the wealthy to aspire after the Olympic olive, as they alone were able to support the great expence that necessarily attended the breeding, keeping, and managing of horses; and, therefore, they wisely made the conditions of obtaining the prize as easy as possible, by exempting them from the trouble and danger of driving their own chariots. No one, however, was prohibited from driving his own chariot; and the office of charioteer was anciently far from being dishonourable; besides, the skill of managing the horses, which were then used only in chariots, was reckoned among the accomplishments of a hero; but when chariots came to be laid aside in war, which seems to have happened soon after the heroic ages, the usefulness, and consequently the reputation, of that art began to decline by degrees, whence it soon came to be lodged in inferior hands. Although the master of the horses was proclaimed the conqueror, and received the crown, the horses had a share of the honour, and were crowned amid the congratulations and applauses of the whole assembly. A crown was also given to the charioteer, to whose skill and courage the victory was always in a great measure owing. Skill and courage were indispensably necessary to finish happily a course, which the many short turnings round the pillars, and the number of

chariots which sometimes ran together, rendered extremely difficult and dangerous. Alcibiades, we have already said, brought at one time for his own share seven chariots, and he must have had competitors who disputed the crown with him. Sophocles speaks of 10, and Pindar of no less than 40 chariots, which contended at the same time. The number, therefore, of carriages must have embarrassed the competitors on these occasions; more especially when attention is given to the course itself. See HIPPODROME.

When we consider the form of the chariots, the attitude of the drivers, the rapidity of the motion, and the accidents that were likely to occur, arising from the nature of the course, and the number of chariots that frequently ran together, we have less occasion for wonder at their being thrown out of their chariots and put in danger of their lives, than at their maintaining their posts amid so many difficulties, and coming off with safety and success. These chariots, by some figures of them upon ancient medals, &c. seem to have been very low, open behind, but closed up before and on the sides, with a kind of parapet, which was sometimes enriched with various ornaments. There does not appear to have been any seat for the driver, who is therefore always represented standing, and leaning forward to the horses. They had but two wheels, and consequently the fore part of them must have been supported by the horses, which inevitably rendered their motion very unequal, and made it so difficult for the charioteer to keep upon his legs, that nothing but a long course of practice could insure a man from falling in such a situation. Nero, manifesting folly equal to his vanity, exposed himself to the danger of this exercise. He entered the Hippodrome in a chariot drawn by ten horses, which he undertook to drive himself, and was thrown out of his chariot, to the great hazard of his life; and though he was put into it again, he found himself unable to finish the race, and desisted. Nevertheless, he was proclaimed conqueror, and honoured with the Olympic crown. In return for the compliment, at his departure, he presented the Hellenodics, or judges of the games, with the sum of 250,000 drachmas, or about 8000 *l.* and all Greece with her liberty.

Upon the day of the race, the chariots, at a certain signal, marched out of the lodges in which they stood, and entering the course according to the order before settled by lot, were there drawn up in a line; but whether a-breast, or one behind another, is a question among the learned.

At the sound of a trumpet they all, sometimes to the number of 40, started from the barrier, and all pressed with ardour and emulation towards the same point or pillar.

"Seest thou not how, when from the goal they start,
The youthful charioteers with beating heart
Rush to the race, and panting scarcely bear
Th' extremes of ferv'rish hope and chilling fear;
Stoop to the reins, and lash with all their force;
The flying chariot kindles in the course.
And now a-low, and now aloft they fly,
As borne thro' air, and seem to touch the sky.
No stop, no stay; but clouds of sand arise,
Spurn'd and cast backward on the follower's eyes:
The hindmost blows the foam upon the first:
Such is the love of praise, an honourable thirst!"

Virg. Georg. III. Dryden.

Sophocles, in his tragedy of *Electra* (v. 700, &c.) has given a noble description of a chariot race in all its forms, of which we have a translation by Mr. West, (*ubi infra*).

Of chariots for the race, there were different kinds, subject to the same laws and customs, excepting that the length of the race was diminished for some of them. The chariot first introduced into the Olympic Hippo-

drome, was the *τελειον ὄχημα*, or complete chariot, so named either because it was drawn by full-aged horses, or because it was drawn by four horses, which number seems to have made a complete set among the ancients. These four horses were all ranged a-breast; the two middle ones only were harnessed to the chariot by the yoke; the two side horses were fastened either to the yoke or some other part of the chariot by their traces. Eriethonius, according to Virgil, (Georg. l. iii.) was the first that drove with four horses, and, according to Manilius (l. i. l. 22.) he was for that invention honoured with a place among the heavenly bodies. Pagondas of Thebes had the honour of first obtaining the prize of this sort of chariot race in the Olympic games, as Eriethonius had in the games called Panathenæa. In the 93d olympiad was added the race of the chariot called "Synoris," which was drawn by a yoke, or one pair only of full-aged horses. The "Apené" was a chariot, drawn by two mules, and was introduced into the Olympic games by one Asandraustus; but, as mules were held in abomination by the Eleans, and not allowed to be bred in their country, this race was abolished within a very few olympiads after its first admission. Pausanias (l. v. c. 9.) informs us, that it was introduced in the 70th olympiad, and abolished by proclamation in the 84th. In the 99th olympiad was introduced the *πῶλικον ὄχημα*, which was a chariot drawn by four colts, and the *Συνωρίς πῶλον*, or chariot drawn by two colts, which was introduced, according to Pausanias (l. v. c. 8.) in the 129th olympiad, and he says that Belistiché, a Macedonian lady, was the first that carried off the crown in that race. Mr. West has, by passages from Pindar, assigned to each species of the chariots above described, the different lengths of the race appropriated to it. The whole course or round, *Δρομος*, being equal to four stadia, it is inferred, that the two pillars, viz. that from which the horses started, and that round which they turned, which divided the course into two equal lengths, were two stadia distant from each other; consequently the whole length of the race of the *τελειον ὄχημα*, or chariot drawn by full-aged horses, consisting of 12 rounds, amounted to 48 stadia, or six Grecian miles; and that of the *πῶλικον ὄχημα*, or chariot drawn by colts, consisting of eight rounds, to 32 stadia, or four Grecian miles: and a Grecian mile, according to Arbuthnot's computation, was somewhat more than 800 paces, an English mile being equal to 1056. For farther particulars, see West's "Dissertation on the Olympic Games" in his translation of the Odes of Pindar, vol. iii. sect. 13. See also an elaborate dissertation on the ancient chariot, both for war and the race, by Mr. Pownall, in Berenger's "Art of Horsemanship," vol. i. p. 271, &c.

CHARIOT *a canon*, in *Military Language*, a car or carriage solely made use of for carrying and transporting the body of a piece of ordnance. Such chariots relieve the gun-carriages, require fewer horses, and get more easily along bad roads in the field and on a campaign.

CHARIOTS *d'une armée*, the chariots or carriages of an army. These may, in a variety of circumstances, be rendered of the greatest assistance and advantage by an able general, who sees himself followed or almost surprized by superior forces. He can employ them for covering his march; supporting his columns; and for preventing his being harassed by the enemy. He may make use of them to cover his camps whilst he is hurrying on his entrenchments. By shutting up the avenues to a single village, that an enemy wishes to take possession of, he may, by means of a proper disposition of them for that purpose, prevent a great effusion of blood.

When Alexander Farnese, duke of Parma, was leading an army of Spaniards from Flanders towards Paris, he marched with

with both flanks of his columns covered by his baggage waggons and carriages. He found his security in that manœuvre, and could not be attacked by Henry IV. who followed him with the intention of giving him battle.

CHARIOTS, in *Mythology*, were sometimes consecrated to the sun: and the Scripture observes, that Josiah burnt those which had been offered to the sun by the kings his predecessors. This superstitious custom was an imitation of the heathens, and principally of the Persians, who had horses and chariots consecrated in honour of the sun. Herodotus, Xenophon, and Quintus Curtius, speak of white chariots, crowned, which were consecrated to the sun, among the Persians, and in their ceremonies were drawn with white horses, consecrated to the same luminary.

CHARIPHEON, in *Ancient Geography*, the name of the fourth mouth of the river Indus, in passing from the west towards the east, according to Ptolemy.

CHARIQUIL, in *Geography*, a town of Persia, in the province of Irak Agemi; 90 miles S.E. of Amadan.

CHARIS, in *Ancient Geography*, the name of a navigable river of the Colchide territory, according to Pliny. By Ptolemy it is called *Charisios*, and by Strabo *Charis*. Arrian denominates it *Chariis*, and places it between the Phasis and the Chobus, about 90 stadia from the one and the other. It is now named Tamasa.

CHARIS, a town of Asia, placed by Appian in Parthia.

CHARISASAR, in *Geography*, a town of Asia, in the country of Candahar; 15 miles N.E. of Candahar.

CHARISIA, in *Ancient Geography*, a town of Peloponnesus, in Arcadia. The ruins, according to Pausanias, lay between Scia and Tricoloni.

CHARISIA, in *Pagan Theology*, a wake or night-festival instituted in honour of the Graces. It continued the whole night, most of which time was spent in dancing; after which, cakes made of yellow flour, mixed with honey, and other sweet-meats, were distributed among the assistants. The word is also used to signify the sweetmeats distributed on such occasions.

CHARISIUS, SOSIPATER, in *Biography*, a Roman grammarian, who flourished, according to Baillet, in the time of the emperor Honorius. He published five books of observations on grammar, still extant.

CHARISIUS, in *Pagan Theology*, a surname given to Jupiter. The word is derived from *χαρις*, favour; he being the god by whose influence men obtain the favour and affection of one another. On which account the Greeks used at their meals to make a libation of a cup to Jupiter Charisius.

CHARISPA, in *Ancient Geography*, a town of Bactriana, according to Ptolemy. The interpreters of his text suppose that it ought to have been Zarispa, which is the same with Bactra.

CHARISTIA, a family-feast celebrated among the Romans, on the eleventh of the calends of March; i. e. on the nineteenth of February, in honour of the goddesses Concord.

The word comes from *χαρις*, grace, favour: q. d. a day of reconciliation, or of restoring into favour. It was also called *dies charæ cognationis*. Vigenere, on Livy, calls it the day of good cheer.

The charistia was instituted to re-establish peace and amity in families embroiled, or at a variance among themselves. It consisted in a great entertainment made in each family, to which no strangers were admitted, but only relations and kindred. The joy and freedom inspired by the repast was looked upon as a proper means to reunite divided minds; to which the good offices of so many friends would greatly contribute.

CHARISTICARY, *Commendatary*, or *Donatary*, a person to whom is given the enjoyment of the revenues of a monastery, hospital, or benefice.

The charisticaries, among the Greeks, were a kind of donataries, or commendataries, who enjoyed all the revenues of hospitals and monasteries, without giving an account thereof to any person.—The original of this abuse is referred to the Iconoclasts, particularly Constantine Copronymus, the avowed enemy of the monks, whose monasteries he gave away to strangers.

In after-times, the emperors and patriarchs gave many to people of quality, not by way of gift, to reap any temporal advantage from them; but to repair, beautify, and patronize them. At length avarice crept in, and those in good condition were given, especially such as were rich; and at last they were all given away, rich and poor, those of men and of women; and that to laymen, and married men.

M. Coutelier, in his *Ecclesiæ Græcæ Monumenta*, gives us the form of these donations: they were granted for life, and sometimes for two lives. See ABBOT.

CHARISTUS, in *Ancient Geography*, a river of the Colchide territory, according to Ptolemy; but his interpreter substitutes *Charus*.

CHARIT, in *Geography*, a town of Arabia; 24 miles N. of Sana.

CHARITABLE USES, in *Law*. See COMMISSION and MORTMAIN.

CHARITATIVE, in the *Canon Law*. A *charitative aid*, or *subsidy*, is a moderate allowance, which a council grants a bishop upon any urgent occasion; e. g. when his revenues will not bear his expences to a council.

CHARITE', LA, in *Geography*, a town of France, in the department of Nièvre, and chief place of a canton in the district of Corne, seated on the Loire, in which are manufactures of woollen and hardware; 13 miles N.N.W. of Nevers. The place contains 4011, and the canton 11,827, inhabitants: the territorial extent comprehends 270 kilometres and 14 communes. N. lat. 47° 11'. E. long. 2° 55'.

CHARITIES, in *Law*, are subject in this country to the general superintendence of the king, as *patrens patriæ*; which he exercises by the keeper of his conscience, the chancellor. And, therefore, whenever it is necessary, the attorney-general, at the relation of some informant (who is usually called the "relator"), files *ex officio* an information in the court of chancery to have the charity properly established. By statute, also, 43 Eliz. c. 4. authority is given to the lord-chancellor, or lord-keeper, and to the chancellor of the duchy of Lancaster, respectively, to grant commissions under their several seals, to inquire into any abuses of charitable donations, and rectify the same by decree; which may be reviewed in the respective courts of the several chancellors, upon exceptions taken thereto. But though this is done in the petty bag office in the court of chancery, because the commission is there returned, it is not a proceeding at common law, but treated as an original cause in the court of equity. The evidence below is not taken down in writing, and the respondent, in his answers to the exceptions, may allege what new matter he pleases; upon which they go to proof, and examine witnesses in writing upon all the matters in issue; and the court may decree the respondent to pay all the costs, though no such authority is given by the statute. And, as it is thus considered as an original cause throughout, an appeal lies of course from the chancellor's decree to the house of peers, notwithstanding any loose opinions to the contrary. Blackst. Comm. vol. iii. ch. 27. Lands that are given to aims and aliened, may be recovered by the donor. 13 Edw. I. c. 41. Lands, &c. may be given for the maintenance

nance of houses of correction, or of the poor. 35 Eliz. c. 7. § 27. Money given to put out apprentices, either by parishes or public charities, pays no duty. 8 Ann. c. 9. § 40.

CHARITY, one of the three grand theological virtues; consisting in the love of God and our neighbour.

Charity is the habit or disposition of loving God with all our heart, and our neighbour as ourselves. It has two material objects, therefore, as the school expresses it; viz. God and our neighbour.

CHARITY is also used for the effect of a moral virtue, which consists in supplying the necessities of others, whether with money, counsel, assistance, or the like.

CHARITY *briefs*. See BRIEF.

CHARITY, *brothers of*. See BROTHERS.

CHARITY, *feasts of*. See AGAPÆ.

CHARITY *schools*, are schools erected and maintained in various parishes, by the voluntary contributions of the inhabitants, for teaching poor children to read, write, and other necessary parts of education.

In most charity-schools the children are likewise clothed, and put out to trades, services, &c. on the same charitable foundation.

Charity-schools have spread throughout most of the considerable towns of Great Britain and Ireland; and do honour to the benevolent and patriotic spirit of the country, whilst they contribute, in a variety of ways, to the relief and advancement of individuals, and to the general prosperity and welfare of the nation.

In Scotland the establishment of parish schools has taught almost all the common people to read, and many of them to write and account. In England and Wales the establishment of charity-schools has had a similar effect, though not so universally, because the establishment has not been so universal; though liberal provision has been made, by private bequests and donations, for extending this public benefit. If in those little schools the books by which the children are taught to read were a little more instructive than they commonly are; and if, instead of a smattering of Latin, which the children of the common people are sometimes taught there, and which can scarcely ever be of any use to them; they were instructed in the elementary parts of geometry and mechanics, the literary education of this class of people would perhaps be as complete as it can be. There is hardly a common trade which does not afford some opportunities of applying to it the principles of geometry and mechanics, and which would not therefore gradually exercise and improve the common people in those principles, the necessary introduction to the most sublime as well as to the most useful sciences. The people might easily be led to encourage these most essential parts of education, by giving small premiums and little badges of distinction to the children of persons in the inferior ranks of life who excel in them. And the public might impose upon almost the whole body of the people the necessity of acquiring those most essential parts of education, by obliging every man to undergo an examination or probation in them before he could obtain the freedom in any corporation, or be allowed to set up any trade either in a village or town corporate.

It was in this manner, by facilitating the acquisition of their military and gymnastic exercises, by encouraging it, and even by imposing upon the whole body of the people the necessity of learning those exercises, the Greek and Roman republics maintained the martial spirit of their respective citizens. They facilitated the acquisition of those exercises, by appointing a certain place for learning and practising them, and by granting to certain masters the privilege of teaching in that place. Those masters do not ap-

pear to have had either salaries or exclusive privileges of any kind. Their rewards consisted in what they got from their scholars; and a citizen who had learnt his exercises in the public gymnasia, had no legal advantage over one who had learnt them privately, provided the latter had learnt them equally well. These republics encouraged the acquisition of such exercises, by bestowing little premiums and badges of distinction upon those who excelled in them. See more on this subject, on the importance and utility of the instruction of the poor, in Smith's *Wealth of Nations*, vol. iii. See also *SCHOOL* and *CHARTER Schools*.

In London we had formerly a *charitable corporation* for the relief of the industrious poor, erected under queen Anne; for enabling indigent manufacturers and traders to take up money at common and legal interest; there being a sum of 30,000*l.* raised for that end.

The money was lent to the industrious poor at 5*l.* *per cent.* interest, on pawns and pledges, to prevent their falling into the hands of pawn-brokers; and hence the society derived its appellation: but they likewise took 5*l.* *per cent.* for the charge of officers, warehouses, &c. In the 5th year of king Geo. II. the chief officers of this corporation, "by connivance of the principal directors, absconded and broke, and defrauded the public proprietors of great sums; and for relief of the sufferers, as to part of their losses, several statutes were enacted. See stats. 5 Geo. II. c. 31, c. 32. 7 Geo. II. c. 11.

CHARITY, *order of*. There are several religious orders which bear this title: one instituted by St. John de Dieu, for the assistance of the sick: this institute was approved of in 1520, by Leo X. and confirmed by Paul V. in 1617. The religious of this order apply themselves wholly to the service of the diseased. See BROTHERS of *Charity*.

CHARITY of the *Holy Virgin*, is a religious order established in the diocese of Chalons, by Guy lord Joinville, &c. towards the close of the 13th century, approved under the rule of St. Augustine, by the popes Boniface VIII. and Clement VI.

In each parish of Paris, there was a society of women, who applied themselves to find out and relieve the wants of the poor of the parish; and on this account called, *Dames de la Charité*, and *Seurs de la Charité*.

CHARKE, RICHARD, in *Biography*, was a dancing-master, an actor, a man of humour, and a performer on the violin, with a strong hand. He was leader of the band at Drury-lane theatre. As a composer, he only distinguished himself by being supposed the first who produced that species of musical buffoonery called a "Medley Overture," wholly made up of shreds and patches of well-known vulgar tunes. But we believe that this very easy species of pleasantry was first suggested by Dr. Pepusch, in the overture to the Beggar's Opera, brought on the stage in 1728, and Charke's medley overture bears date 1735. There is a slang horn-pipe under Charke's name, which used to be a favourite among the tars. We believe him to have been a facetious fellow, gifted with a turn for b. g. humour, of which, and of his tricks and stories, Dr. Arne, in moments of jocularly, used to give specimens.

He was married to Charlotte, the youngest daughter of Colley Cibber, a female not without talents as an actress; but of such an eccentric and indecorous character, that the memoirs of her life, though written and softened by being her own biographer, could never be read by persons of her own sex, not wholly abandoned. For many years of her life she never appeared on or off the stage in a female dress. Mademoiselle d'Eon's male habiliments during many years, were a real disguise and concealment; but Mrs. Charke's

sex and person being well known, her dress was no disguise, but a publication of her impudence.

As long as Charke was the leader of Drury-lane band, his concerto on the violin was the lure in the second music, two or three times a week; which many lovers of music used to go into the theatre to hear, who never staid till the curtain was drawn up, before which time their money was returned, if demanded. His debts obliged him to leave his ears spofa; and, retiring to Jamaica, he there, in a short time, and in the prime of life, ended his days. Though this couple was allowed to possess talents of various kinds, there was nothing in which they manifested more ingenuity than in plaguing each other.

CHARKINA, in *Geography*, a fortress of Russian Tartary, on the Don, in the government of Caucasus; 200 miles N.E. of Astrachan.

CHARKING, or CHARRING, the burning of wood to make charcoal.

CHARKLIQUEU, in *Geography*, a town of Asiatic Turkey, chiefly inhabited by tanners, who manufacture the beautiful morocco leather. The caravans stop here two or three days. The town is situated between Erzerum and Tocat.

CHARKOV, or KHARKOF, a government of Russia, formerly comprised in the government of Ukrania Slovdskiaia, and containing 15 districts. It is bounded on the north by Kursk, on the east by Voronetz, on the south by Catherinenflaf, or Ekatherinonflaf, and on the west by Ttchernigof and Kiof; about 180 miles in length, and from 40 to 80 in breadth.

CHARKOV, or KHARKOF, the capital of the above government, seated on the Uda, which falls into the Donetz, and forming one of the 15 districts of the government of the same name. It contains 10 churches, 2 convents, and several public seminaries; 352 miles S. of Moscow, and 640 S.S.E. of Petersburg. N. lat. $50^{\circ} 25'$. E. long. $35^{\circ} 54'$.

CHARKS, pit-coal charked, or charred. See COAL.

CHARLATAN, or CHARLETAN, an empiric or quack, who retails his medicines on a public stage, and draws the people about him with his buffooneries, feats of activity, &c.

The word, according to Calepine, comes from the Italian *celarelano*, of *Caretum*, a town near Spoleto, in Italy, where these impostors are said to have first risen. Menage derives it from *ciarlatano*, and that from *circulatorius*, of *circulator*, a quack.

CHARLEMAGNE, or CHARLES I. in *Biography*, king of France, and emperor of the West, was born in the year 742. By the death of his father Pepin the Short, in 768, and at the express desire of the dying monarch, Charles, in conjunction with his younger brother Carloman, succeeded to the throne of France. At first they appeared to rule the empire with equal and undivided authority: the partition of power, however, soon threatened mischiefs similar to those that had been experienced under the earlier sovereigns of France; but the death of Carloman, in 771, at the moment when he was meditating an open rupture with his brother, ensured the public tranquillity. Charles, thus rendered sole monarch of the Franks, was endowed by nature with all those qualities which could conciliate the affections of his subjects, by whom, it is said, he was equally beloved and revered. Unlike his father, he was tall in stature; his air was courteous and dignified; his body robust, and finely formed; his eye keen and penetrating, and his countenance open and prepossessing.

Having become, by the death of his brother, sovereign of a mighty empire, and freed from every thing that might shackle his genius, or set bounds to his ambition, his first object was to infuse a military spirit into the nation; he re-established the ancient assemblies of the field of Mars, and,

bestowing on them the title of parliaments, delegated to them a portion of his authority, by constituting them members of the legislation. In resorting to this measure of state policy, he felt no apprehension for his own security: the force of his genius and the greatness of his talents placed him beyond the dread of any rival; he endeavoured, therefore, to infuse into all ranks of his subjects a thirst for military glory. By these means Charles was enabled to double the extent of his empire. The whole of Gaul, Italy, the vast territory which extends from the Rhine to the Vistula and to the Baltic, together with a great part of Spain, fell under his powerful dominion.

Previously to the death of Carloman, Charles had divorced his wife and married Bertha, daughter to Didier, king of the Lombards; this prince, however, granting an open protection to the widow and children of Carloman, with a view, no doubt, of possessing a part of his dominions, excited the jealousy of Charles, who obtained a second divorce. Didier, enraged at the humiliation, sought an alliance with pope Adrian, but having failed in the attempt, he attacked the papal territory, and endeavoured to seize on the person of the pope. Adrian solicited the succour of Charles, who instantly crossed the mountains, entered Italy; defeated his adversary, and thus put an end to the kingdom of the Lombards in Italy, which had lasted 206 years. Charles immediately took possession of the vacant throne, and was declared by the pope king of Italy, and patrician of Rome. In his first visit to the capital, the newly acknowledged sovereign was received with all the honours which had formerly been paid to the representative of the emperor; and these honours obtained new decorations from the gratitude of pope Adrian. No sooner was he informed of the approach of the monarch, than he dispatched the principal people of Rome to meet him, with the banner, about thirty miles from the city. At the distance of one mile, the Flaminian way was lined with the schools, or national communities of Greeks, Lombards, Saxons, &c.: the Roman youth under arms, and the children of a more tender age, with palms and olive branches in their hands, chaunted the praises of their great deliverer. At the sight of the crosses and other holy emblems, he dismounted his horse, led the procession of his nobles to the Vatican, and, as he ascended the stairs, devoutly kissed each step of the threshold of the apostles. The pope was waiting for him at the head of his clergy in the portico: they embraced as friends and equals, but in their march to the altar, the king assumed the right hand of the pope; nor was he content with a vain shew of respect. In the twenty-six years that elapsed between the conquest of Lombardy and his imperial coronation, Rome, which had been delivered by his sword, was subject, as his own, to the sceptre of Charles.

Previously to these successes in Italy, Charles had been called on to exhibit his military talents in a contest with the Saxons, who were inimical to the government and religion of the Franks. They rejected with contempt the servile obligations of tribute, and in successive engagements displayed a ferociousness of courage which could only be repulsed by the superior skill and intrepidity of the troops of Charles. A decisive victory, after various less important defeats, obtained over them at Osnaburgh, by which they lost their capital, their temple and their god Irmenful, obliged their leaders to sue for peace, and to accept of such terms as were imposed on them by the conqueror.

Scarcely had Charles returned, from receiving the oaths of allegiance and other marks of homage from his new subjects in Lombardy, where he had caused himself to be crowned, when another revolt of the Saxons recalled him to their country. They had already assumed a formidable appearance,

pearance, and had recovered Erisbourg near the Wefer, which had been wrested from them in a former campaign. Before the victorious arms of the French monarch this city was again compelled to submit, and the Saxons were obliged to purchase a peace by delivering up some of their principal people as hostages. It was, however, nearly thirty years, before he could completely subdue the free spirit of the Saxons; these hardy warriors possessed a courage equal to his own, by which they were rendered impatient of a foreign yoke. Charles, apprehending that Christianity would be an infallible means to subdue their bold and impetuous character, had no sooner brought them under some degree of subjugation than he sent missionaries among them; but they considering every attempt to convert them to a new religion as snares intended to enslave them, resisted all the persuasions and entreaties of the priests sent to offer them the rites of baptism. As they were not to be influenced by the milder arts of expostulation and reasoning, and as they could not for a single day be depended on by reason of any oaths or treaties in which they occasionally engaged; Charles, though naturally generous and humane, at length resorted to acts of the most savage cruelty. Four thousand of them who refused to submit were butchered in one day, on the banks of a small river which discharges itself into the Oder. At another time, besides ravaging their country with fire and sword, he had decimated in cool blood all the inhabitants for their revolts, and had obliged them, by the most rigorous edicts, to make a seeming compliance with the Christian doctrine and ceremonies. By these and several other acts, that have indelibly stained the character of the hero, did Charles finally subdue the proud and lofty spirit of the Saxons.

In the year 778, the protection of Charles was sought by some of the Moorish princes in the north-western parts of Spain: to their entreaties he lent a ready ear, assembled an army, crossed the Pyrenées, marched to Saragossa, which he took, and received the submission of the Saracen leaders. His victories in Spain were very important, but on his return, the rear guard of his army was defeated in the Pyrenean mountains; and many of the principal people attached to his person and court were cut off in this disaster, among whom was his nephew Rowland, whose untimely death laid the foundation of Ariosto's celebrated poem, entitled "*Orlando Furioso*."

In the year 779, Charles, with his queen, and two infant sons, Carloman and Lewis, re-passed the Alps, reposed during the winter at Pavia, and on the approach of the spring entered Rome amidst the triumphant acclamations of the inhabitants, who regarded him as the protector of their city and rights. In that city, and in the presence of the Roman pontiff, on Easter-day, when he was yet but 39 years of age, he divided his dominions between his sons, conferring on Carloman, who then received the name of Pepin, the kingdom of Lombardy, and on Lewis that of Aquitain. The latter he conducted in person to his dominions, and at the same time received the homage of Tassilon, duke of Bavaria, who had on former occasions openly shewn himself the friend and ally of the rebellious Saxons. Notwithstanding the professions of this prince, he took every means secretly of attacking the power and influence of Charles, till, at length, he was convicted of having entered into a rebellious confederacy with the French monarch's own subjects: the evidence of his guilt was incontestible, and having fallen into Charles's power, he was condemned to lose his head: the punishment was, however, commuted into perpetual imprisonment, and the principality of Bavaria was annexed to the dominions of Charles.

The fate of Tassilon did not crush the designs of his confederates, the Huns and the emperor of the East; but their enterprises served only to augment the glory of Charles, and his commanding genius triumphed over the Greeks in the plains of Italy. The latter renounced for ever the fortunes of Adalgive, the son of Didier; and with the young prince, the hope also of restoring the kingdom of the Lombards; but the former still continued their desultory incursions, and provoked the victorious king of the Franks to retaliate the calamities which they had inflicted on Bavaria. At the head of a formidable army, he invaded the country of the Huns, forced their intrenchments in an obstinate engagement, and penetrated as far as Raal on the Danube.

The dissensions of the Moorish chiefs invited Charles to the conquest of the islands of Majorca and Minorca; but the satisfaction which he felt from this expedition was more than balanced by the tumults which prevailed at Rome, on account of the election of Leo III. as successor to Adrian. The cause of Leo against his rival was zealously espoused by Charles, who sympathized in all the sufferings of the pontiff, and, what was of more importance to his situation, rendered him every assistance that his case required.

Charles had been accustomed to pass annually from the Pyrenées into Germany, and thence to Italy. At the latter end of the year 799, as he was approaching Rome in one of these journeys, pope Leo dispatched a messenger to meet him, with the keys of St. Peter, and the standard of the city; thus rendering him every respect, religious and civil, of which he was capable. On the festival of Christmas, which was then the first day of the new year, Charles appeared in the church of St. Peter; and to gratify the vanity of Rome, he had exchanged the simple dress of his country for the habit of a patrician. After the celebration of mass, at which the king had devoutly assisted, the pope suddenly placed a precious crown on his head, and the dome of the church resounded with the acclamations of the people. "Long life and victory to Charles, the most pious Augustus, crowned by God the great and pacific emperor of the Romans." The pope immediately consecrated the monarch, and conducting him to a throne, paid him those marks of respect which had been claimed by the ancient Cæsars. Charles from this time indissolubly blended, in the name of Charlemagne, the appellation of *Magnus*, the Great. In a familiar conversation with his secretary and son-in-law, Eginbard, he protested his ignorance of the intentions of the pontiff: if, however, he did not seek or even expect the honours devolved upon him, he nevertheless was ambitious in maintaining them, and insisted on being recognised as emperor of the West, by all those princes with whom he had any correspondence.

Among the ambassadors who came to congratulate the good fortune of the emperor, were those of the caliph Harun-Al-Raschid, who ceded to him the sepulchre and the sacred places of the city of Jerusalem. But a still more interesting negotiation was intrusted to the ministers of Irene, the empress of the East, who, having rendered herself odious to her subjects, by the murder of her own son, endeavoured to secure the protection of Charlemagne, by a proposal of marriage. The emperor entertained the idea, and dispatched ambassadors to the Byzantine court to arrange the necessary preliminaries to so important a treaty. In the mean time she was dethroned by Nicephorus, who ascended the throne, and exiled the late empress. The new sovereign, anxious to reserve to himself the title of emperor of the East, consented to acknowledge in Charlemagne the dignity of Augustus, and to settle with him the mutual boundaries of their empires in Italy.

From this period the talents of Charlemagne were employed

ployed in repressing the incursions of the Danes and the Normans under their leader Godfrey, who menaced with their fleets and armies the tranquillity of the west. Peace was at length established from motives of mutual convenience, and it was agreed that the subjects of Charlemagne were on no account to violate the Norman territory, and Godfrey promised to respect the dominions of the emperor of the West.

The empire of Charlemagne in Europe began to rival that of ancient Rome, and a new æra is dated from his restoration of the western empire. This prince was at the same time sovereign in France, Spain, Italy, Germany, and Hungary. The Roman province of Gaul had been transformed into the name and monarchy of France, but its limits were contracted by the independence of the Bretons, and the revolt of Aquitain. Charlemagne pursued and confined the Bretons on the shores of the ocean: after a long contest, the rebellion of the dukes of Aquitain was punished by the forfeiture of their province, their liberty, and lives. The Saracens had been expelled from France by the grandfather and father of Charlemagne, but they still possessed the greatest part of Spain, from the rock of Gibraltar to the Pyrenées: these he dispossessed of their powers, and made himself master of the infant kingdoms of Navarre and Arragon. As king of the Lombards, and patrician of Rome, he reigned over the greatest part of Italy. Charlemagne was the first who united Germany under the same sceptre: and by his conquest of the Avars, he obtained possession of Hungary, Transylvania, Istria, Croatia, and Dalmatia, with the exception of the maritime towns, which his moderation left under the real or nominal sovereignty of the Greeks.

In the year 806 Charlemagne assembled the princes and nobles of his empire at Thionville, in whose presence he made the final distribution of his kingdoms. In 810 his son Pepin died, whose natural son, Bernard, then only an infant, Charlemagne caused to be proclaimed king of Italy; and in the course of only a very few months the unhappy monarch witnessed the death of his eldest son, Charles. The increasing weight of public cares suggested to him the necessity of associating his surviving son, Louis, to the imperial purple; the ceremony was performed at Aix-la-Chapelle, and the aged sovereign inculcated on the mind of his son, by every motive which long experience could suggest, the maxims by which he had advanced the grandeur and happiness of his subjects. Early in the following year his increased and rapidly increasing infirmities warned him of his approaching dissolution. He was attacked in the middle of January by a fever, which was followed by a pleurisy: the pressure of affliction he bore with firmness and resignation. On the 27th a fainting fit announced a speedy termination to his life, and on the following day this great prince expired, in the 47th year of his reign, and the 72d of his age; carrying with him the sincere regret of all his subjects. He died at Aix-la-Chapelle, and was buried in the church of Notre Dame in that city, which he had himself built.

From this sketch of the career of Charlemagne, it is not difficult to appreciate the various merits of his character. As a warrior and politician, he has been rarely excelled. He was indefatigable in his attention to public business, and in the performance of all the duties attaching to his high situation. Considering the times in which he flourished, he did much to improve the condition of his subjects: he suppressed mendicancy; he composed a series of occasional edicts for the correction of abuses, and the reformation of manners, among the people at large; and he attended to the economy of his own immediate household. He established a fixed and inviolable price of corn, in the hope of enabling the meanest of

his subjects to supply their wants. These, and various other regulations, though not characteristic of the true principles of legislation, did honour to his attempts to meliorate the state of society. It is said, that among other improvements which he contemplated for the good of his country, he formed the vast project of a canal which should unite the Danube and the Rhine, and thus establish a free communication between the ocean and the Euxine sea. He shewed himself the friend of learning and learned men, and made such efforts to promote the interests of literature, as entitle him to great praise. He invited to his court learned men from all nations, with a view, no doubt, of inspiring his people with a thirst for knowledge; among these was our countryman, Alcuin, a clergyman celebrated for his literary attainments, who received the highest tokens of respect and honour from the emperor, and who even became his companion and preceptor in the sciences. He founded schools in various parts of his dominions, and instituted within the boundaries of the court a kind of learned society, every member of which was called by some celebrated name of antiquity. He collected all the ancient songs relative to the history of his country, and so attentive was he to the improvement of his mind, that he caused passages of interesting works to be read to him during his meals. His own literary attainments were probably not of the first order; his education had been neglected, and the studies of mature life were laborious and imperfect: he did not even acquire the practice of writing till he had attained to manhood; but the encouragement which he afforded to learning, and the marked respect and reverence which he shewed to men of literary talents, reflect the highest lustre on the character of the emperor of the West. He was highly esteemed for his regard to religion, and to the clergy; but the authority with which he invested that aspiring body laid the foundation of their tyrannical claims over his less enlightened and less able successors. As a man, Charlemagne was simple in his dress, easy in his manners, and temperate in his mode of living. His morals are stained with the charge of incontinence, to which the number of his wives and concubines bear irresistible evidence. As a statesman, his conduct has been arraigned by the measures of dividing his kingdom, during his own life, among his sons. His many wars prove that he little valued the lives of his subjects, in a cause in which his ambition was concerned. His humanity stands impeached by the extinction of his nephews, the sons of Carloman, and by the cruelties frequently exercised upon the valiant Saxons, whose attachment to freedom and their country merited a very different kind of treatment. These are blemishes in the character of Charlemagne which time cannot obliterate; but, after every allowance for his frailties, it must be admitted, that the title of *Great*, which has been blended with his name for more than ten centuries, has seldom been awarded upon fairer claims: and it is to be regretted that in the lapse of a thousand years so few have been ambitious of attaining to that degree of celebrity which attaches to the virtues of Charles the Great. Gibbon, Hume, Du Fresnoy, Modern Univ. Hist.

Charlemagne has merited a place in musical history, by his good taste in preferring the *canto fermo* of the Romans to the Gallic *plain-chant*. We have from contemporary writers, the relation of a serious quarrel between Gallic and Roman musicians, so early as the time of Pope Adrian and Charlemagne, concerning superiority of taste and knowledge; a quarrel which has been since often renewed, but which, had it been left to the reference of unprejudiced and intelligent judges of other nations, would have been soon determined without ever coming to a second trial or combat.

combat. The French, however, after every defeat, revive with still greater clamour, their pretensions to a titular sovereignty, without having the least claim to it, either from inheritance, conquest, or former possession.

The story of this ancient musical quarrel is somewhat long, but the necessity of inserting it here at full length seems the greater, as it not only shews the antiquity of the ridiculous rivalry and hatred still subsisting between French and Italian musicians, but is a convincing proof that the English were not the only people obliged to the Romans for the method of chanting the Psalms, and singing their hymns in their cathedral service. See biographical article *Bede, venerable*. Musical missionaries were sent, at this time, from Rome to other parts of Europe, to instruct the converts to the gospel in the church service; which accounts for that similarity and almost identity of melody, observable in the sacred music of all the countries of Europe at the time of the reformation, till which period, little other music was known or practised than that of the church.

"The most pious king Charles having returned to celebrate Easter at Rome, with the apostolic lord, a great quarrel ensued, during the festival, between the Roman and Gallic singers. The French pretended to sing better, and more agreeably, than the Italians: and the Italians, on the contrary, regarding themselves as more learned in ecclesiastical music, which they had been taught by St. Gregory, accused their competitors of corrupting, disfiguring, and spoiling the true chant. The dispute being brought before our sovereign lord the king, the French, thinking themselves sure of his countenance and support, insulted the Roman singers; who, on their part, emboldened by superior knowledge, and comparing the musical abilities of their great master, St. Gregory, with the ignorance and rusticity of their rivals, treated them as fools and barbarians. As their altercation was not likely to come to a speedy issue, the most pious king Charles asked his chantors, which they thought to be the purest and best water, that which was drawn from the source, at the fountain-head, or that, which, after being mixed with turbid and muddy rivulets, was found at a great distance from the original spring? They cried out, unanimously, that all water must be most pure at its source; upon which, our lord the king said, Mount ye then up to the pure fountain of St. Gregory, whose chant ye have manifestly corrupted. After this, our lord the king applied to pope Adrian for singing-masters, to correct the Gallican chant; and the pope appointed for that purpose Theodore and Benedict, two chantors of great learning and abilities, who had been instructed by the disciples of St. Gregory himself: he likewise granted to him *Antiphonaria*, or choral books of that saint, which he had written himself in Roman notes. Our lord, the king, at his return to France, sent one of the two singers, granted to him by the pope, to Metz, and the other to Soissons; commanding all the singing-masters of his kingdom to correct their *Antiphonaria*, and to conform in all respects to the Roman manner of performing the church service. Thus were the French *Antiphonaria* corrected, which had before been vitiated, interpolated, and abridged, at the pleasure of every choir-man; and all the chantors of France learned from the Romans that chant which they now call the French chant. But as for the beats, trills, shakes, and accents of the Italians, the French were never able to execute or express them; nor, for want of sufficient flexibility in the organ of voice, were they capable of imitating in these graces, any thing but the tremulous and guttural noise of goats. [*Chevroter, et far una tosse di capra*, are expressions applied in France and Italy to such singers as have a bad shake. John Diaconus, in his Life of St. Gregory, gives in

queer and barbarous Latin, scarcely to be translated, a serious account of the vocal abilities of the ancient Germans and French, who, in attempting to sing the Gregorian chant, were wholly unable to express its sweetness; "injuring it by barbarous changes, suggested, says he, either by their natural ferocity or inconstancy of disposition. Their figures were gigantic, and when they sung, it was rather thunder than musical tones. Their rude throats, instead of the inflexions of pleasing melody, formed such rough sounds, as resembled the noise of a cart jolting down a pair of stairs." *Quasi plaustra per gradus confusè sonantia, rigidas voces jaciunt.* Vita S. Greg. cap. 2.] The principal school of singing was established at Metz, and in the same proportion as the Roman chant exceeded that of this city, the singers of Metz surpassed all those of other French schools. The Roman chantors likewise instructed those of France in the art of *organizing*; and our sovereign lord Charles having, besides, brought with him into France masters in grammar and arithmetic, ordered those arts to be cultivated throughout his dominions; for, before the reign of the said lord the king, the liberal arts were neglected in France." [*Et reversus est Rex piissimus Carolus, &c.* Vide Annal. & Hist. Francor. ab an. 708, ad an. 990. Scriptores Coetaneos. Impr. Francofurti 1594. Sub vitâ Caroli magni.]

The abbé Velley, who, in his Hist. de France, tom. i. p. 53: gives the same account of the establishment of the Romish chant in France, adds; that "the monarch was likewise desirous of introducing into his churches the liturgy, or mass, as used at Rome; but here he met with greater difficulties. The French clergy, jealous of their ancient usages, opposed, in a body, this measure, as an innovation; the royal authority, however, at length prevailed." After such an account of Charlemagne, it is hardly possible to read the following passage without amazement. "Charles confirmed the instrument with his hand, that is to say, by *making his mark*; for it is to be observed, that this prince, one of the most learned men of his age, at that time *could not write!*" According to Mezeray, the addition to the signature of this prince, at the bottom of each treaty, must have been *engraved*; for he there says, "I have signed it with the pomel of my sword, and promise to maintain it with the point."

In Charlemagne's time, *histriones*, mimes, and actors of farces, were very numerous in France: and, according to the abbé Vertot (Mem. de Litt.), this prince made a collection of ancient Gallic songs; and Eginhard, his historian, observes that these songs, which were chiefly military, like those of the Germans, constituted the principal part of the History of France, and comprised the most heroic actions of her kings.

In the history of France there have been eight other monarchs of the name of Charles, besides Charlemagne; they, however, are not sufficiently renowned to induce us to give separate articles of each. The reign of the second Charles, furnished the *Bald*, was disastrous to the country as well as unfortunate to the sovereign. France, under this sovereign, was perpetually subject to hostile invasions and internal commotions. He was the grandson of Charlemagne, and was poisoned by his physician after a long reign of 38 years.—The character of Charles III, who wholly surrendered himself to his minister Haganon, a man of talents, but of infamous principles, is sufficiently expressed by his surname the *Simple*. He died in 929, after a reign of more than 30 years. In the reign of Charles IV. who was son to Philip the Fair, a fierce war raged between France and England, which ended in the concession of the province of Guienne to England: he died in 1328, after a short reign, of six years.—Charles V. is celebrated

brated for his love of learning; he made a large collection of books, and died in 1380.—Charles VI. began his administration with such effectual reforms for the alleviation of the public burthens, that he became extremely popular, and obtained the appellation of *Well-beloved*. His reign was very unfortunate, owing to the bad management of his ministers, and the contentions of the dukes of Orleans and Burgundy. Henry V. of England taking advantage of the internal commotions of France, invaded and conquered a great part of it. This prince was subject to fits of insanity, but his intentions were always good; he was beloved by his people for his many excellent qualities; on account of his misfortunes he was the object of commiseration, and the regrets of many accompanied him to the grave, in 1422, after a reign of 42 years.—Charles VII. called the *Victorious*, regained his kingdom which had been lost in the former reign. By his activity the English were driven from all their possessions, except Calais. Under this prince the militia was dismissed, and a standing army was first instituted, for the maintenance of which the perpetual *taille* was granted. From this reign France dates several of those institutions which always tend to make a nation great. This sovereign died in 1461.—Charles VIII. ascended the throne in 1483, at the age of 13. In 1494, contrary to the representations of his counsellors, he set out with a determination to conquer Naples, though he was scantily supplied with troops and money. His progress was unresisted. In six weeks he traversed Italy, and entered Naples in triumph, and in a fortnight after he was master nearly of the whole kingdom. He died in 1498.—Charles IX. ascended the throne in the year 1560, when he was only ten years old. To his mother Catherine de Medicis was given the regency, a trust that she abused in a most shameful manner. To her is to be imputed that indelible disgrace to the reign of Charles IX. the infamous massacre of Paris on St. Bartholomew's day, 1572. It has been said, that at the approach of the fatal hour, the king shewed signs of compunction for the orders that he had been induced to give, but upon being reproached by the savage Catherine for his want of decision, he exclaimed, "Well, then, let not one be left to upbraid me with breach of faith." He betrayed no symptoms of pity during the execrable deed; but even fired with his own hand on the miserable wretches endeavouring to escape across the river. His dissimulation before, and his cruelty during this horrible transaction, fix his character, and rank him among the Neros and Domitians of the world. He died in May 1574, a prey to all the horrors of remorse, having probably never enjoyed an hour's peace after the massacre he had sanctioned.

CHARLEMONT, in *Geography*, a town of the Netherlands, in the county of Namur, ceded to France by the treaty of Nimeguen. It was built by Charles V. in 1555, not far from Givet, on a mountain near the Meuse. It is small but well fortified; 8 leagues S.W. of Namur, and 7 N.E. of Rocroy.

CHARLEMONT, a village of the county of Armagh, Ireland, on the banks of the Blackwater, where there is a fort, which, though now neglected, has a governor regularly appointed. It was built by Lord Montjoy, lord deputy at the latter end of queen Elizabeth's reign, to guard the passage over the Blackwater, and was called from his christian name. It was surprized by the Irish under Sir Phelim O'Neil, in 1641, and the governor and garrison put to death, after which it remained for some years in the possession of the Irish. Previous to the Union it was a borough, but has now lost its privilege. Of late it has been remarkable only for having given title to that respectable and popular nobleman, who was general of the volunteers of Ireland in 1780, and who was first president of the Royal Irish Academy, which

was in great measure established by his exertions. Charlemont is 69 miles N. by W. from Dublin. Ware's *Antiquities*.

CHARLEMONT, a township of America, in Hampshire county, Massachusetts; 16 miles W. of Dearfield, containing 665 inhabitants.

CHARLEROY, a town of France, in the department of the Jemappe, and principal place of a district, is situated on the confines of Hainaut, on the north side of the river Sambre, in a place formerly called Charnoy. It was fortified and became a city in 1668, assuming the name of Charleroi, in honour of Charles II. king of Spain. In 1792, it changed its name to *Charles-sur-Sambre*. At the peace of Aix-la-Chapelle, in 1648, it was given to France; by the treaty of Nimeguen it was ceded to Spain; and in 1693 taken by the French. In 1697 it was restored to Spain; by the peace of Utrecht it was surrendered to the States-General; in 1716 it was granted to the emperor by the barrier treaty; and in 1746 again surrendered to France. It carries on a considerable trade in iron-works and foundry. The place contains 3744, and the two cantons 24,327 inhabitants. The territorial extent comprehends 180 kilometres and 24 communes. N. lat. 50° 26'. E. long. 4° 16'.

CHARLES I. third son to James the Sixth of Scotland, and First of Great Britain, by Anne of Denmark, was born in Scotland, in the year 1600, and succeeded his brother Prince Henry as Prince of Wales, in 1612. In 1623, the king of England, anxious to consult the dignity of his son in marriage, warmly pressed an alliance with the court of Madrid. Philip, equally zealous for the establishment of his sister, listened to his overtures with pleasure. Besides the portion of six hundred thousand pounds; he offered with the infanta the restitution of the palatinate to Frederic. When all measures were agreed to between both parties, and nothing was wanting but the dispensation from Rome, this connexion, so honourable and advantageous to England, was broken by a romantic enterprize, originally conceived with a design of hastening the proposed alliance. The sole recommendation of personal accomplishments had raised George Villiers, from an obscure lot in life to the rank and title of duke of Buckingham. His influence over James was unbounded. To ingratiate himself equally with the son, he proposed to the prince of Wales to break through the forms of royalty, and, travelling to Madrid in disguise, to introduce himself to the infanta as an ardent and devoted lover. This proposal was in unison with the spirit of gallantry natural to Charles's time of life. The son was obliged to intreat, and the favourite to reproach, before a reluctant consent could be extorted from James; when the prince of Wales, accompanied by Buckingham, quitted London privately, and crossed over to Calais. They even ventured on their journey to visit the French court in disguise, where the princess Henrietta, sister to Lewis, made a serious and permanent impression on the heart of the young prince. Though Charles and the duke were received at Madrid with every mark of respect and attention, yet the volatile manners and dissolute pleasures of the latter but ill accorded with the gravity and dignity of the Spanish court. His pride was peculiarly offensive to Olivarez; and their rising hatred had already shewn itself in mutual expressions of contempt, when Buckingham, influenced by caprice or disgust, determined to return without accomplishing the object of his journey. He easily obtained the acquiescence of Charles. A plausible pretence was furnished by the delay of the dispensation from Rome; but his real motive was more openly proclaimed in his last conversation with Olivarez. He declared it was his intention to promote

promote every measure which could cement the friendship of England and Spain; but he added with his usual haughtiness, "with regard to you, Sir, in particular, you must expect from me all possible enmity and opposition." The count replied, with becoming dignity, that he accepted of what was proffered. The first part of the duke's speech, however, was not dictated by the same sincerity as the last; and immediately on his arrival in England he prevailed on the king and prince, first to suspend, and afterwards to break off the negotiation with Spain.

As it would be impossible to enter in detail on so extended a field of narration, on which whole libraries have been written, as so late a period of our history would open to our view, and as a mere table of contents of this and the succeeding reign would swell our pages without adding to the information of our readers, who must all be supposed to have heard of ship-money, long parliaments, civil wars, commonwealths, and martyrdoms, we have resolved on the course of giving a character, rather than an history of our own Charles's. We have given at some length the account of the circumstances attending the rupture of the Spanish, and consequent accomplishment of the French marriage, because it was on this occasion that the first Charles, ill-fated and misguided, appeared upon the public scene; and by observing his conduct and character on this occasion, we can be at no loss to account for the progress of his career through life, and the consequences in which he was involved at the close. Among all the varying representations, to which party and prejudice have given occasion, what is generally considered as a bad natural character has rarely, if ever, been attributed to him. But a habit of confidence in the advice of persons, whose judgment was no better, and their desires infinitely worse than his own, began in the instance which we have just produced, and continued to the end, gaining strength from time, from increasing difficulties, from obstinacy inflamed by opposition, from the necessity of the approaching crisis and the mad excess to which some principles were carried by the contrary party. Charles acceded to the throne with the impetuous Buckingham for his minister; and this very circumstance impressed on the palate of the nation a foretaste of suspicion and disgust. Felton's knife removed the minister, but the natural inclination of doing as he liked had been impressed on Charles, and he was at no loss to find seeming friends, who were willing to exchange the hazardous office of telling him the truth, for the no less dangerous task of carrying his views into execution, in spite of popular opinion and the rising force of parliamentary power. Strafford was a minister of great abilities, whose severity might have curbed the spirit of resistance, had it been less deeply rooted. Even he, austere as he was, might have been borne in civil affairs, had not Laud's superstition and intolerance been so extremely offensive in the management of the ecclesiastical jurisdiction. Yet, had Charles been faithful to his misleaders, he might have saved himself. But the fate of his victims appeared to be the watch-word for an attack upon his own person, through the medium of a civil war, in which it was difficult for an innocent individual to avoid ranging himself under the equally detestable banners of the coalizers or the round-heads. The events of the war had little connection with the personal character of the king. But his conduct whether in prison, on trial, or at the scaffold, was firm, unaffected, and decent; so that those, whose views of his political and religious case are the farthest from granting him the palm of martyrdom, may creditably feel a sentiment of commiseration, not unallied to the sympathy excited by those who have really been martyrs. His private

virtues were unquestionable, and even the repulsive feature of his character as a man rather added dignity to his deportment as a monarch. He was respectable both in literature, politeness, and the arts. He was destitute neither of abilities for the functions of government, of regularity in the conduct of life, nor of amiable temper in his personal and domestic relations. Had he relied more on himself and less on others, he might possibly have prospered better; though it is much to be questioned whether personal character could at all have interfered with the trial of the great question, agitated between the contending parties. If we regard him as an author, the "Eikon Basilike" would secure to its author a very considerable reputation among the writers of the age; but it must still be strongly doubted whether king Charles had any claim to the credit of the performance. But we cannot perhaps illustrate the character of Charles more fully and fairly, than by transcribing the summary of his virtues and vices, portrayed in the opposite delineations of Hume and Mrs. Macaulay.

The character of this prince (observes Mr. Hume), as that of most men, if not of all men, was mixed; but his virtues predominated extremely above his vices, or, more properly speaking, his imperfections: for scarce any of his faults rose to that pitch as to merit the appellation of vices. To consider him in the most favourable light, it may be affirmed that his dignity was free from pride, his humanity from weakness, his bravery from rashness, his temperance from austerity, his frugality from avarice: all these virtues in him maintained their proper bounds, and merited unreserved praise. To speak the most harshly of him, we may affirm that many of his good qualities were attended with some latent frailty, which, though seemingly inconsiderable, was able, when seconded by the extreme malevolence of his fortune, to disappoint them of all their influence: his beneficent disposition was clouded by a manner not very gracious; his virtue was tinged with superstition; his good sense was disfigured by a deference to persons of a capacity inferior to his own; and his moderate temper exempted him not from hasty and precipitate resolutions. He deserves the epithet of a good, rather than of a great man; and was more fitted to rule in a regular established government, than either to give way to the encroachments of a popular assembly, or finally to subdue their pretensions. He wanted suppleness and dexterity sufficient for the first measure: he was not endowed with the vigour requisite for the second. Had he been born an absolute prince, his humanity and good sense had rendered his reign happy and his memory precious: had the limitations on prerogative been in his time quite fixed and certain, his integrity had made him regard, as sacred, the boundaries of the constitution. Unhappily, his fate threw him into a period when the precedents of many former reigns favoured strongly of arbitrary power, and the genius of the people ran violently towards liberty. And if his political prudence was not sufficient to extricate him from so perilous a situation, he may be excused; since, even after the event, when it is commonly easy to correct all errors, one is at a loss to determine what conduct, in his circumstances, could have maintained the authority of the crown, and preserved the peace of the nation. Exposed without revenue, without arms, to the assault of furious, implacable, and bigotted factions, it was never permitted him, but with the most fatal consequences, to commit the smallest mistake; a condition too rigorous to be imposed on the greatest human capacity.

Some historians have rashly questioned the good faith of this prince: but for this reproach, the most malignant scrutiny of his conduct, which, in every circumstance, is now thoroughly

thoroughly known, affords not any reasonable foundation. On the contrary, if we consider the extreme difficulties to which he was so frequently reduced, and compare the sincerity of his professions and declarations; we shall allow, that probity and honour ought justly to be numbered among his most shining qualities. In every treaty, those concessions which he thought he could not in conscience maintain, he never could, by any motive or persuasion, be induced to make. And though some violations of the petition of right may perhaps be imputed to him; these are more to be ascribed to the necessity of his situation, and to the lofty ideas of royal prerogative, which, from established precedents, he had imbibed, than to any failure in the integrity of his principles.

This prince was of a comely presence; of a sweet, but melancholy aspect. His face was regular, handsome, and well complexioned; his body strong, healthy, and justly proportioned; and being of a middle stature, he was capable of enduring the greatest fatigues. He excelled in horsemanship and other exercises; and he possessed all the exterior, as well as many of the essential qualities, which form an accomplished prince.

History (says Mrs. Macaulay) is called upon to scrutinize with exactness his principles, conduct, and character; since, from the false colourings which by designing men have been thrown on these, and the rancour with which his opponents have been falsely aspersed, have been deduced consequences destructive to the security and welfare of man, and highly injurious to the reputation of patriot citizens.

In the character of Charles, as represented by his panegyrists, we find the qualities of temperance, chastity, regularity, piety, equity, humanity, dignity, condescension, and equanimity; some have gone so far as to allow him integrity; and many writers, who condemn his political principles, give him the title of a moral man. In the comparison of this representation with Charles's conduct, accurately and justly described, it is discernible that vices of the worst tendency, when shaded by a formal and plausible carriage, when concordant to the interests of a faction and the prejudices of the vulgar, assume the appearances of, and are imposed on the credulous world as virtues of the first rank. Passion for power was Charles's predominant vice; idolatry to his regal prerogatives his governing principle. The interests of his crown legitimated every measure, and sanctified in his eye the widest deviation from moral rule. His religion was to this a secondary and subordinate affection: the prelates of the church of England paid him an impious flattery; they inculcated a slavish dependence on the regal authority; the corruptions in their ecclesiastical discipline fostered superstition; superstition secured their influence over the people; and on these grounds, and to these ends, they kept an interest in the king's heart, which continued to the last period of his life. If Charles had an higher estimation of the faith in which he had been educated than of popery, it was because the principles of popery acknowledged a superior allegiance to their spiritual than their temporal prince; but regarding that superstition to be more favourable to the interests of monarchy, he preferred it to the religion of any differing sect, and publicly avowed his wish, that there never had been a schism in the church. Neither gratitude, clemency, humanity, equity, nor generosity, have place in the fair part of Charles's character. Of the virtues of temperance, fortitude, and personal bravery, he was undeniably possessed. His manners partook of the dissipation, and his conversation of the indecency, of a court. His chastity has been called in question by an author of the highest repute; and were it allowed, it

was tainted by an excess of uxoriousness, which gave it the properties and the consequences of vice. The want of integrity is manifest in every part of his conduct; which, whether the corruption of his judgment or heart, lost him fair opportunities of reinstatement in the throne, and was the vice for which, above all others, he paid the tribute of his life. His intellectual powers were naturally good, and so improved by a continued exercise, that, though in the beginning of his reign he spoke with difficulty and hesitation, towards the close of his life he discovered in his writings purity of language and dignity of style; in his debates, elocution, and quickness of conception. The high opinion he entertained of regal dignity occasioned him to observe a stateliness and imperiousness of manner, which, to the rational and intelligent, was unamiable and offensive; by the weak and the formal, it was mistaken for dignity. In the exercise of horsemanship he excelled; had a good taste, and even skill in several of the polite arts; but, though a proficient in some branches of literature, was no encourager of useful learning, and only patronized adepts in the jargon of the divine right and utility of kings and bishops. His understanding in this point was so depraved by the prejudices of his education, the flattery of priests, and the affections of his heart, that he would never endure conversation which tended to inculcate the principles of equal rights in men; and, notwithstanding the particularity of his situation enforced his attention to doctrines of this kind, he went out of the world with the same fond prejudices with which he had been fostered in his nursery, and cajoled in the zenith of his power.

Charles was of a middle stature; his body strong, healthy, and justly proportioned; his face was regular, handsome, and well complexioned; and his aspect melancholy, yet not unpleasant. His surviving issue were three sons and three daughters. He was executed in the 49th year of his age, and buried, by the appointment of the Parliament, at Windsor, decently, yet without pomp. The duke of Richmond, the marquis of Hertford, the earls of Southampton and Lindsey, at their express desire, were permitted to pay the last duty to their master, but were denied (by colonel Whitchcot, the governor of Windsor-castle) the use of the burial service, according to the book of Common-Prayer.

Lord Lyttelton, speaking of Charles I. makes the following observations. He had many better qualifications than his father, but as wrong a judgment, and greater obstinacy. He carried his affection for the clergy, and abhorrence of the puritans to an excess of bigotry and rage. He agreed so ill with his parliaments, that he soon grew weary of them, and resolved to be troubled with no more; none were called for twelve years together, and all that time he governed as despotically as the sophi of Persia. The laws were either openly infringed or explained in the manner he directed: he levied money upon his subjects against privileges expressly confirmed by himself. In short, his passion for power might have been fully gratified, if his more prevailing one to bigotry had not engaged him in a senseless undertaking, of forcing the same form of worship upon his subjects in Scotland, as he had declared himself so warmly for in England. It is safer to attack men in their civil rights, than their religious opinions: the Scots, who had acquiesced under tyranny, took up arms against persecution. Their insurrection made it necessary to call a parliament; it met, but was instantly dissolved by the intemperate folly of the court. All hopes of better measures were put an end to by this last provocation. The Scots marched into England, and were received by the English, not as enemies, but as brothers and allies: the king, unable to oppose them,

them, was compelled to ask the aid of another parliament. A parliament met, exasperated with the oppressions of fifteen years: the principal members were men of the greatest capacity, courage, and virtue, firmly united among themselves, and whom the court could neither corrupt nor intimidate. They resolved to make use of the opportunity, to redress their grievances, and secure their liberty; the king granted every thing that was necessary to either of those ends, except such *securities* as might have been turned against himself; but what, perhaps, was really concession, had the appearance of constraint, and therefore gained neither gratitude nor confidence: the nation could no longer trust the king; or, if it might, particular men could not; and the support of those particular men was become a national concern: they had exposed themselves by serving the public; the public therefore judged that it was bound in justice to defend them. Nor indeed was it possible, when the work of reformation was begun, after so long a denial of justice, to keep a people sore with the remembrance of injuries received and satisfaction refused, within the bounds of a proper moderation. Such a sobriety is much easier in speculation than it ever was in practice. Thus, partly for the safety of their leaders, and partly from a jealousy of his intentions too justly conceived, the parliament drew the sword against the king: but the sword, when drawn, was no longer theirs; it was quickly turned against them by those to whose hands they trusted it: the honestest and wisest of both parties were outwitted and overpowered by villains; the king perished, and the constitution perished with him.

This prince, during the life of his father, had received instructions in music from Coperario, an Englishman whose name was Cooper; but who having been in Italy, wished to pass for a native of that country. According to Playford, Charles, while prince of Wales, had made a considerable progress under this master on the viol da Gamba; and when he ascended the throne, he not only discovered a great affection for music in general, but manifested a particular attention and partiality to compositions for the church. [Playford (Pref. to his Introd.) speaking of the musical skill of our princes of the house of Tudor, says, "Nor was his late majesty Charles I. behind any of his predecessors in the love and promotion of this science, especially in the service of Almighty God, and with much zeal he would hear reverently performed, and often appointed, the service and anthems himself, especially that sharp service composed by Dr. William Child being of (from) his knowledge in music, a competent judge therein; and would play his part exactly well on the base-viol, especially of those incomparable fancies of Mr. Coperario to the organ."] At his private concerts he is said to have condescended to honour with his notice several of his musical servants, who had the good fortune to be frequently in his presence; and to gratify them in a way the most flattering and agreeable to every artifice of great talents, with smiles and approbation, when either their productions or performance afforded him pleasure. And, indeed, whatever political crimes may be laid to the charge of this prince, he was certainly a most liberal and gracious master to his domestics, and possessed a singular power of attaching them to his person by kindness and condescension, still more than by royal bounty and munificence.

In the beginning of his reign, Nicolo Lanieri, (a real Italian) was appointed master of the king's band; (see Lanieri) and in Rymer's *Fœdera*, (tom. xviii. p. 228,) is recorded a grant to him and the rest of the royal band for their several annuities and yearly pensions. The names,

however, of such musicians as were in a more peculiar manner honoured with this prince's notice, afterwards, do not appear in the grant; as it was observed, that his majesty was particularly delighted with the choral compositions of Dr. Child; the performance on the lute of Dr. Wilton; and the music of William and Henry Lawes, which was introduced in the masques that were exhibited at court.

The productions for the church during this reign, though superior in excellence to those of any other species, yet if we except those of Dr. Giles and Elway Bevin, who more properly belong to the reign of king James, are so few in number, that the augmentation they make to our former stock lies in a very small compass.

This prince, however his judgment or that of his counsellors may have erred, appears to have been possessed of an invariable good taste in all the fine arts; a quality which in less morose and turbulent times would have endeared him to the most enlightened part of the nation: but now his patronage of poetry, painting, architecture, and music, was ranked among the deadly sins, and his passion for the works of the best artists in the kingdom, profane, pagan, popish, idolatrous, dark, and damnable. But however gloomy state-reformers may execrate this prince, it would be ungrateful in the lovers and professors of any of the fine arts, to lose all reverence for the patron of Ben Jonson, Rubens, Vandyke, Inigo Jones, and Dr. Child.

William and Henry Lawes were early established in the favour of this monarch, and indeed in that of the whole nation, to a degree for which their musical productions do not clearly enable us to account. William, taking up arms early in the grand rebellion in defence of his royal patron, was killed by an accidental shot at the siege of Chester in 1645. Henry was always a loyalist, though he long enjoyed the favour and friendship of Milton; but this was previous to the political life of our great poet. Henry Lawes set Comus to music in 1634, and survived not only the rebellion, but the interregnum and restoration, extending his life to the year 1662.

Though the early part of Charles the First's reign was favourable to the fine arts, particularly to music of the dramatic kind in the frequent and splendid masques that were performed at court and in the mansions of the principal nobility; yet from the breaking out of the civil war in 1642, nothing but havoc and confusion reigned. In 1643 the cathedral service was totally suppressed, which gave a grievous wound to sacred music; not only checking its cultivation, but annihilating as much as possible the means of restoring it, by destroying all the church books, as entirely as those of the Romish communion had been at the time of the reformation.

During such a period, what leisure or disposition could there be for the culture of arts which had no connexion with the reigning interests and passions of men? The fine arts have been truly and emphatically called the arts of peace, and the celebrated periods in which they made the most considerable strides towards perfection, were calm and tranquil.

Musicians, who previous to those unhappy times had employment either in the chapels royal, cathedrals, or public exhibitions in the capital, were forced to seek about the country, and solicit an asylum in the houses of private patrons, whose mansions, and abilities to protect them, must have been very precarious. And, indeed, if they could have been rendered permanent, they would not so much have contributed to the advancement of the art, as the pride, effort, and emulation of working for a severe and fastidious public would have done. Many a man of creative genius and gigantic abilities, has been manacled by idleness,

vanity, and self-applause in a private station, where safe from rivals, and certain of the approbation of a small, and perhaps ignorant and partial circle of friends, he has degenerated into littleness, conceit, and affectation.

CHARLES II. king of Great Britain, was the son of Charles I. and Henrietta-Maria of France, born in 1630. At the time of his father's execution, he was a refugee at the Hague. During the time of the common wealth, he was a wanderer and a dependant, and was one of the various characters which presented themselves at the memorable treaty of the Pyrenées. His importunate necessities reduced him to implore the assistance of Mazarine and Don Lewis de Haro. The former refused so much as to see him. The latter received him with a generosity and ancient hospitality, which was ever the characteristic of his nation, and relieved his personal wants by the present of a considerable sum of money. But the powers of the continent were wisely cautious of interfering in the internal constitution of England, and paused before they enlisted themselves for the support of royalty and its hazardous claims. Even after the death of Cromwell, the commonwealth, though sickly, yet survived, and there was at least a possibility that it might recover under an able regimen and superintendence. Indeed, the constitution of parliament appeared to be so much better a speculation than that of royalty; and Charles, whose condition, like that of a patient in the crisis of a fever, never seemed so desperate as at the precise period of a change to convalescence, that the court of Madrid ordered the royal exile to quit the territories of Spain. This was undoubtedly a servile attempt to conciliate the friendship of a party, which must have been hated in a country the principles of whose government were so diametrically opposite to those of republicanism. But practical statesmen, who are not infected with a spirit of political quixotism, will applaud and justify the prudence which dictated an unpalatable acquiescence, however unfortunate it might have been in point of time and presence. It happened, in point of fact, that a very short time intervened between the order in question and the restoration of the exiled monarch. England, wearied out with contending factions, impatiently waited for the re-establishment of her ancient constitution, and looked to that event as to the consummation of her happiness. The wishes of the people were seconded by the loyal declarations of general Monk, who marched from Scotland at the head of an attached, brave, and well-disciplined army. Charles was invited once more to grace the palace of his ancestors with his presence. So strong was the torrent of returning allegiance, that he took possession of his kingdom without the smallest effusion of blood. It were to be wished that he had been duly impressed with the circumstances, far more favourable than he could reasonably expect, under which he retrieved the situation to which he was destined by birth, but from which fortune had displaced him. Conciliation and prudence might have carried both the king and the people to a height of external prosperity and domestic happiness, beyond what Great Britain had ever experienced. But he erred most grievously in remembering on the throne the disgusts he had experienced in adversity, whether at home or abroad. He forgot the generosity of Don Lewis de Haro, but he remembered his banishment from the dominions of Spain; and the subsequent alliance he concluded with Portugal, may, in a great measure, be ascribed to his resentment at the neglect of the court of Madrid. It was not indeed till a later period of his reign, that he avowed and exhibited the disgust he had cherished against the Presbyterians and the friends of liberty; but when it did appear, it hurried him into excesses of tyranny, uncongenial with the gay and social tendencies of his natural

temperament. But even these virtues, little as they weigh in the estimate of a public character, were converted into bane and poison by the licentiousness into which they suffered a monarch of dissolute temper to fall, who nearly drew into his own vortex whatever remained of purity and propriety, from times which, though too precise and formal, erred on the side of safety in sacrificing the waywardness of will and pleasure to rigid, though sometimes mistaken duty. Diffipation was attended by expence, as its necessary and natural consequence; and exorbitant expence involved the king and government in pecuniary embarrassments, disgraceful negotiations, and the venal barter of national honour and vital interests. The sale of Dunkirk was unpopular; and the exploit of the Dutch at Chatham disgraceful. A mistress was able so far to ensnare the heart of Charles, as to make him lose sight of his own honour and his people's welfare in a blind attachment to the politics and alliance of France. Arbitrary measures, and demonstrations of an inclination towards Popery, began to be more unequivocally manifested; and though the firm remonstrances of the English parliament occasionally compelled a suspension of the intercourse with Lewis, and a more moderate and temporising policy at home, it seemed from the complexion of the times, that there was no alternative between an arbitrary government and a renewal of civil hostilities. There was, however, notwithstanding all his obliquities, a better feeling about Charles II. which prevented him from driving things to extremity. It is even supposed, that, tired with combating the free spirit of his parliament, he became uneasy under the plan of government he had adopted, and meant to pursue a different system; and if so, the house of Stuart had the most serious reasons to lament that his life was not further prolonged. But Charles the second of England, so celebrated in the annals of politics, wit, gallantry, and profligacy, was cut off from the opportunity of reformation and repentance, if ever such a scheme had seriously taken possession of his thoughts. He died at variance with his parliament, and despised by his people. Had the misfortunes of his father served to restrain the arbitrary principles and dissolute conduct of Charles, or the rash zeal and blind obedience of James for the church of Rome, the revolution would never have taken place: but the laws of the country were violated, and the established religion was sought to be subverted, in a greater or less degree, more openly or more covertly, according to the circumstances of the times, but uniformly, from the period of the restoration to that of the revolution; and the issue was, that the subjects of Great Britain were ultimately compelled to seek their safety in revolt, and in the protection of the prince of Orange.

With respect to the general character of Charles, it seems most candid, as in the instance of his father, to place in opposition the different, and often opposite, determinations of Hume and Mrs. Macaulay.

During the few days of the king's illness, says Hume, clergymen of the Church of England attended him; but he discovered a total indifference towards their devotions and exhortations. Catholic priests were brought, and he received the sacrament from them, accompanied with the other rites of the Romish church. Two papers were found in his cabinet, written with his own hand, and containing arguments in favour of that communion. The duke had the imprudence immediately to publish these papers, and thereby both confirmed all the reproaches of those who had been the greatest enemies to his brother's measures, and afforded to the world a specimen of his own bigotry.

If we survey the character of Charles II. in the different lights, which it will admit of, it will appear various, and give

give rise to different and even opposite sentiments. When considered as a companion, he appears the most amiable and engaging of men; and indeed, in this view, his deportment must be allowed altogether unexceptionable. His love of raillery was so tempered with good breeding that it was never offensive. His propensity to satire was so checked with discretion, that his friends never dreaded their becoming the objects of it: his wit, to use the expression of one who knew him well, and who was himself a good judge, could not be said so much to be very refined or elevated, qualities apt to beget jealousy and apprehension in company, as to be a plain, gaining, well-bred, recommending kind of wit. And though perhaps he talked more than strict rules of behaviour might permit, men were so pleased with the affable, communicative deportment of the monarch, that they always went away contented both with him and themselves. This, indeed, is the most shining part of the king's character; and he seems to have been sensible of it: for he was fond of dropping the formality of state, and of relapsing every moment into the companion.

In the duties of private life, his conduct, though not free from exception, was, in the main, laudable. He was an easy, generous lover, a civil, obliging husband, a friendly brother, an indulgent father, and a good-natured master. The voluntary friendships, however, which this prince contracted, nay, even his sense of gratitude were feeble; and he never attached himself to any of his ministers or courtiers with sincere affection. He believed them to have no motive in serving him but self-interest; and he was still ready, in his turn, to sacrifice them to present ease or convenience.

With a detail of his private character we must set bounds to our panegyric on Charles. The other parts of his conduct may admit of some apology, but can deserve small applause. He was indeed so much fitted for private life, preferably to public, that he even possessed order, frugality, and economy, in the former: was profuse, thoughtless, and negligent, in the latter. When we consider him as a sovereign, his character, though not altogether destitute of virtue, was in the main dangerous to his people, and dishonourable to himself. Negligent of the interests of the nation, careless of its glory, averse to its religion, jealous of its liberty, lavish of its treasure, sparing only of its blood; he exposed it by his measures, though he ever appeared but in sport, to the danger of a furious civil war, and even to the ruin and ignominy of a foreign conquest. Yet may all these enormities, if fairly and candidly examined, be imputed, in a great measure, to the indolence of his temper: a fault which, however unfortunate in a monarch, it is impossible for us to regard with great severity.

It has been remarked of Charles, that he never said a foolish thing nor ever did a wise one: a censure which, though too far carried, seems to have some foundation in his character and deportment. When the king was informed of this saying, he observed, that the matter was easily accounted for: for that his discourse was his own, his actions were the ministry's.

If we reflect on the appetite for power inherent in human nature, and add to it the king's education in foreign countries, and among the Cavaliers, a party which would naturally exaggerate the late usurpations of popular assemblies upon the rights of monarchy; it is not surprising, that civil liberty should not find in him a very zealous patron. Harassed with domestic faction, weary of calumnies and complaints, oppressed with debts, straitened in his revenue, he fought, though with feeble efforts, for a form of government, more simple in its structure, and more easy in its management. But his attachment to France, after all the

pains which we have taken, by inquiry and conjecture, to fathom it, contains still something, it must be confessed, mysterious and inexplicable. The hopes of rendering himself absolute by Lewis's assistance seem so chimerical, that they could scarcely be retained with such obstinacy by a prince of Charles's penetration: and as to pecuniary subsidies, he surely spent much greater sums in one season, during the second Dutch war, than were remitted him from France during the whole course of his reign. I am apt therefore (says Hume) to imagine, that Charles was, in this particular, guided chiefly by inclination, and by a prepossession in favour of the French nation. He considered that people as gay, sprightly, polite, elegant, courteous, devoted to their prince, and attached to the Catholic faith; and for these reasons he cordially loved them. The opposite character of the Dutch had rendered them the objects of his aversion; and even the uncourtly humours of the English made him very indifferent towards them. Our notions of interest are much warped by our affections; and it is not altogether without example, that a man may be guided by national prejudices, who has ever been little biassed by private and personal friendship.

The character of this prince has been elaborately drawn by two great masters perfectly well acquainted with him, the duke of Buckingham and the marquis of Halifax; not to mention several elegant strokes given by sir William Temple. Dr. Welwood likewise, and bishop Burnet have employed their pencil on the same subject: but the former is somewhat partial in his favour; as the latter is by far too harsh and malignant. Instead of finding an exact parallel between Charles II. and the emperor Tiberius, as asserted by that prelate, it would be more just to remark a full contrast and opposition. The emperor seems as much to have surpassed the king in abilities, as he falls short of him in virtue. Provident, wise, active, jealous, malignant, dark, sullen, unsocial, reserved, cruel, unrelenting, unforgiving; these are the lights under which the Roman tyrant has been transmitted to us. And the only circumstance in which it can justly be pretended he was similar to Charles, is his love of women, a passion which is too general to form any striking resemblance, and which that detestable and detested monster shared also with unnatural appetites.

Mrs. Macaulay observes, that nature had bestowed on Charles II. powers, which if properly exerted, might have constituted an heroic character; but which, by an adverse fate, enabled him to exceed in wickedness and folly all the princes who had ever sat on an English throne.

The unhappy fate of Charles I. and the adversity into which it necessarily threw his son, by depriving him of the advantages of parental care, and exposing him, at a time of life when the passions are the strongest and the judgment the weakest, to the perfidious licentiousness which prevailed in the court of France, gave such strength and power to the natural bias of his disposition, as totally to efface every vestige of that moral sense which helps to form the mixt character of the generality of mankind, and which is seldom entirely lost, even by the most flagitious. If with the jaundiced eye of prejudice we can excuse, and even applaud the mean hypocrisy used by Charles, during his abode with the Scotch covenanters, the breach of his oaths, and the barbarity with which he afterwards treated this people, when exalted to a kind of despotic power over them, with the persecutions with which he repaid the services of the English presbyterians; what can even the voice of faction say to the ingratitude with which he treated the ancient and faithful friends of the fortunes of his family; and the dismissing all those with ignominy who endeavoured to reconcile the prerogative of the king with the safety of the nation, and the

existence of the constitution? What can the voice of faction say to the palpable neglect which this prince, in several instances, paid to his father's memory; and in particular, in the accepting a sum of money for the expence of his funeral, and the pocketing of it for his private use? What can the voice of faction say to the treatment of their avowed and steady patron, the earl of Clarendon; what to the king's behaviour to the duke of Ormond, in the case of Blood, &c. and what to the indifference with which he treated the memory of a sister, whom he pretended to love with the highest degree of affection? If with the men of pleasure, and the thoughtless companions of the bottle, we view with complacency, and even with applause, the licentious manners of a prince infected with the vices of every country which had yielded an asylum to his wandering steps, is it possible not to reflect, that Charles was totally deficient in that kind of sympathy and indolent good nature which often accompany the effeminacy of a luxurious life; and that the unjust severity and even cruelty with which he treated all those whom he regarded as his enemies, are blemishes not to be excused when united to the severest manners and the highest rectitude of principle.

If with the Papists, we applaud the king for the pious design he had entertained of restoring the British empire to the church of Rome; what can we say to the easy manner in which he abandoned this design, and the whole party, to their inveterate enemies? What can we say to the breach of the promise he had made to this body, that he would declare his conversion, and avow his patronage after the receiving a sum of money for this purpose from the court of France? And what can we say to the mean manner in which he concealed his predilection to Popery till the hour of his decease, in which he vainly hoped to secure a safe passage to the regions of eternal bliss, from the merits of a submission extorted by the terrors of an affrightened conscience? And if, with the zealous churchmen, we regard him as the patron of the restored privileges of that holy body, what excuse can we make for the deep designs he had entered into, of sacrificing all those sacred rights to the ambition of Papists, and the interests of the papal chair?

In the duties of private life, we are told by the panegyrists of Charles, that his conduct, though not free from exception, was in the main laudable: but though a large measure of indulgence is to be given to the foibles, the infirmities, and even the vices of every man or woman, who has not received the benefits which arise from a perfect form of education, yet we cannot possibly trespass so highly on our sense of propriety, decency, and the inestimable virtues of sobriety, as to rank that facility with which the king became the constant dupe of his amorous inclinations and passion for variety, among the good qualities of a rational agent; nor can we agree to the observation, that Charles was a civil and obliging husband, merely on the merit of his not having sacrificed an innocent woman to the venom of party spirit. On the contrary, setting aside the advantages of affluence, and the splendor of rank, the queen's situation must be considered as equally mortifying to that in which every other female is involved, whom a severe fate unites in the indissoluble bonds of matrimony with a profligate rake. On the subject of the king's constancy to the duke of York's interest, it is observable, that a coldness and mutual jealousy prevailed between the two brothers till the period of the first French treaty; a circumstance which rendered all future dissension dangerous to the peace and happiness of both. Burnet asserts, that Charles both hated and feared his brother; and sir John Reresby, who has manifested the highest

degree of partiality to the conduct of the king, allows that it was motives of policy alone which were the grounds of his inflexible patronage: as on this single instance, therefore, thus circumstanced and opposed by the whole tenor of Charles's public and private conduct, it is impossible to agree with the duke of Buckingham, that this prince was even inclined to justice; or with the rest of his panegyrists, to found on the merits of the act of indemnity, extorted from the necessity of the times, a propensity in his disposition to clemency and forgiveness; we must conclude, that the harsh picture drawn of Charles II. by bishop Burnet, is a just likeness, viz. that he had enormous vices without the tincture of any virtue to correct them; that, under the appearance of gentleness, he concealed a cruel and unrelenting heart; and under the mask of sincerity, the highest degree of hypocrisy and dissimulation; that he was void, not only of every princely, but every manly sentiment; that he was as incapable of friendship as of integrity; that he considered power and the trusts which accompany it, in no other light, than as the means to gratify his criminal and selfish passions; that he acted as the foe rather than the protector of his people; and that it was lewdness, indolence, and the love of ease, which were the single correctors to that rage for absolute power which infects almost all princes; and which, but for the predominancy of less exalted passions, Charles would have pursued with a vigilance equal to the importance of the undertaking; and which, notwithstanding the unconquerable indolence of his temper, the depravity of the times had, in a great measure, enabled him to effect.

Lord Lyttelton speaks of this monarch in the following terms. The methods pursued by Charles the Second, in the conduct of his government, were in many respects different from his father's, though the purpose of both was much the same. The father always *bullied* his parliaments; the son endeavoured to *corrupt* them: the father obstinately refused to change his ministers, because he really esteemed them as honest men; the son very easily changed *his*, because he thought they were all *alike* dishonest, and that his designs might as well be carried on by one *knave* as by another: the father was a tool of the clergy, and a persecutor, out of zeal for his religion; the son was almost indifferent to religion, but served the passions of his clergy against the dissenters from motives of policy: the father desired to be absolute at home, but to make the nation respectable abroad; the son assisted the king of France in his invasions on the liberties of Europe, that, by his help, he might master those of England; nay, he was even a pensioner to France, and, by so vile a prostitution of his dignity, set an example to the nobility of his realm, to sell *their honour likewise for a pension*; an example, the ill effects of which have been felt too sensibly ever since.

Yet, with all these vices and imperfections in the character of Charles the Second, there was something so bewitching in his behaviour, that the charms of it prevailed on many to connive at the faults of his government: and, indeed, nothing can be so hurtful to a country, which has liberties to defend, as a prince who knows how at the same time to make himself *despotic and agreeable*: this was eminently the talent of Charles the Second; and, what is most surprizing, he possessed it without any great depth of understanding.

But the principal instrument of his bad intentions, was a general depravity of manners, with which he took pains to infect his court, and they the nation. All virtues, both public and private, were openly ridiculed; and none were allowed to have any talents for wit or business, who pretended to any sense of honour, or regard to decency.

The

CHARLES II.

The king made great use of these new notions; and they proved very pernicious to the freedom, as well as morals, of his subjects; but an indolence, natural to his temper, was some check to his designs; and, fond as he was of arbitrary power, he did not pursue it any further than was consistent with his *pleasure and repose*.

All music, except syllabic psalmody, seems to have been silenced from the year 1642 to 1660; but at the restoration of monarchy and ancient religious establishments, all the surviving musicians, who had been degraded and involved in the calamities of the civil war, quitted their retreats. Many however had died in, and during the conflict, in every order of the state. No more than nine of the six and twenty bishops were living; and death had probably made the like havoc among the rest of the inhabitants, in proportion to age and numbers. Of those that fell by the sword, we know not the exact calculation; but, except archbishop Laud, the prelates may be supposed to have died in their beds. Of the gentlemen of Charles the First's chapel, none seem to have claimed their former station, but Dr. Wilson, Christopher Gibbons, and Henry Lawes; the last, indeed, did not long survive the restoration.

Child, Christopher Gibbons, Rogers, and Wilson, were created doctors, and these, with Law of Oxford, though advanced in years, were promoted; Child, Gibbons, and Law, were appointed organists of the Chapel Royal, and Captain Henry Cook master of the children. Cook had been bred up in the King's Chapel, but quitted it at the beginning of the rebellion; and in 1642, obtaining a captain's commission, he retained the title of captain ever after. Gibbons was likewise organist of Westminster Abbey; Rogers, who had formerly been organist of Magdalen College, Oxford, was preferred to Eton; Wilson had a place both in the chapel and Westminster Abbey; and Albertus Bryne, a scholar of John Tomkins, was appointed organist of St. Paul's, where he had been brought up.

The establishment of Charles the Second's chapel, at the time of the coronation, appears by the following entry in the cheque-book.

April the 23d, being St. George's day, 1661.

Dr. Walter Jones, subdean.	}	ministers	William Howes	}	gentlemen.
Roger Nightingale			Thomas Blagrove		
Ralph Amner			Gregory Thorndall		
Philip Tinker			Edward Bradock		
John Sayer			Henry Purcell		
Durant Hunt			James Cob		
George Low			Nathaniel Watkins		
Henry Smith			John Cave		
William Tucker			Alphonso Marsh		
Edward Lowe			Raphael Courteville		
William Child	}	organists	Edward Colman	}	
Christopher Gibbons			Thomas Purcell		
Henry Cook, mast. of the children			Henry Frost		
Henry Lawes, clerk of the cheque			John Goodgroom		
Thomas Piers			George Betenham		
Thomas Hazzard			Matthew Pennel		
John Harding					

Thomas Haynes, serjeant of the vestry.
William Williams, yeoman.
George Whitaker, yeoman.
Augustine Cleveland, groom.

At which time every gentleman of the chapel in orders, had allowed to him for a gown five yards of fine scarlet; and the rest of the gentlemen being laymen, had allowed unto each of them four yards of the like scarlet.

The salaries of the gentlemen of the chapel had been augmented both by James I. and Charles I. and in the year 1663 Charles II. by the privy-seal, farther augmented them to seventy pounds a-year; and granted to Capt. Cook and his successors in office, thirty pounds a-year, for the diet, lodging, washing, and teaching each of the children of the Chapel Royal. A copy of this grant is entered in the cheque-book, and said to have been obtained by the solicitation of Mr. Cook.

The small stock of choral music with which the chapel began, becoming in a few years somewhat less delightful by frequent repetition, the king perceiving a genius for composition in some of the young people of the chapel, encouraged them to cultivate and exercise it; and many of the first set of choristers, even while they were children of the chapel, composed anthems and services that are still used in our cathedrals. These, by the king's special command, were accompanied by violins, cornets, and sacbuts, to which instruments introductory symphonies and ritornells were given, and the performers of them placed in the organ-loft.

Dr. Tudway, in the dedication to the second volume of his manuscript Collection of English Church-music to Lord Harley, assigns the following reasons for the change of style in the music of the Chapel Royal, by a mixture of what he terms theatrical and secular.

"The standard of church-music begun by Mr. Tallis, Mr. Bird, and others, was continued for some years after the Restoration, and all composers conformed themselves to the pattern which was set them.

"His majesty, who was a brisk and airy prince, coming to the crown in the flower and vigour of his age, was soon, if I may so say, tired with the grave and solemn way which had been established by Tallis, Bird, and others, ordered the composers of his chapel to add symphonies, &c. with instruments to their anthems; and thereupon established a select number of his private music to play the symphony and ritornellos which he had appointed.—The old masters of music, Dr. Child, Dr. Gibbons, Mr. Low, &c. organists to his majesty, hardly knew how to comport themselves with these new-fangled ways, but proceeded in their compositions, according to the old style, and therefore there are only some services and full anthems of theirs to be found.

"In about four or five years time, some of the forwardest and brightest children of the chapel, as Pelham Humphrey, John Blow, &c. began to be masters of a faculty in composing; this his majesty greatly encouraged, by indulging their youthful fancies, so that every month, at least, they produced something new of this kind. In a few years more, several others, educated in the chapel, produced their compositions in this style; for otherwise it was in vain to hope to please his majesty."

King Charles the Second, (says the Hon. Roger North, Mem. of Mus.) though a professed lover of music, had an utter aversion to Fancies, which was increased and confirmed by a successful entertainment given him by secretary Williams. After which the secretary had no peace; for the king, as was his custom, could not forbear whetting his wit upon *fancy music*, and its patron the secretary; nor would he allow the matter to be disputed upon the point of superiority, but ran it all down, by saying, *have not I ears?* He could bear no music to which he could not beat time, which he constantly tried to do to all that was performed in his presence, which he generally heard standing. Of songs he only approved the soft *vein*, in triple time; which rendered that kind of movement fashionable among the masters and composers for the stage, as may be seen in the printed songs of the time.

His majesty had once a wish, in order to compare styles, to hear the fingers of several nations, German, Spanish, Italian, French, and English, perform together on the court stage, at Whitehall. The Italians performed the celebrated trio of Carissimi, *Che dite, che fate*; and the English brought up the rear under great disadvantage, with *I pass all my hours in a shady old grove*; for though the king chose that song as the best, others were not of his majesty's opinion.

The old way of concerts was laid aside by this prince immediately after his restoration, when he established his band of 24 violins, after the French model, and the style of music was changed accordingly. So that French music became in general use at court, and in the theatres; indeed, performers on the violin had a lift into credit before this period, when Baltzar, a Swede, came over, and did wonders upon it by swiftness and double stops. But his hand was accounted hard and rough, though he made amends for that by often tuning in the lyra way, and playing lessons conformable to it, which were very harmonious, as is manifest by many of his pieces still extant.

During the first years of king Charles's reign, all the music in favour with the beau-monde, was in the French style; which, at this time, was rendered famous throughout Europe, by the works of Baptiste Lulli, a frenchified Italian, and master of the court musick at Paris, who enriched the French musick by Italian harmony, which greatly improved their melody. His style was theatrical, and the pieces called *branles*, or *ouvertures*, consisting of an *entr e* and a *courante*, will ever be admired as the most stately and complete movements in music. All the composers in London strained hard to imitate Lulli's vein. However, the whole tendency of the age, affected the foot more than the ear; and no one could listen to an *entr e*, with its starts and leaps, without expecting a dance to follow.

The French instrumental musick, however, did not make its way so fast as to bring about a revolution all at once; for, during a great part of this king's reign, the old musick was still used in the country, and in many private meetings in London; but the treble viol was discarded, and the violin took its place."

The taste of Charles II. seems to have been French in all things, but particularly in music; for he had French operas; a band of twenty-four violins, in imitation of the French band at Paris; French masters of his band, Cambert, and, afterwards, Grabu; he sent Pelham Humphrey to study under Lulli, and young Banister to learn the violin at Paris. Indeed, though we have since had better models for our musical studies of all kinds, from Italy and Germany, music, as well as every other liberal art, was at this time in a higher state of cultivation in France than in England. But though Lulli carried Italian dramatic music into France, it was such as had been produced during the infant state of the art in Italy; yet, notwithstanding the subsequent improvements it received in its native country, from innumerable masters, particularly since they were furnished with lyric poetry by Metastasio, near a century elapsed before our neighbours the French perceived it possible to compose better music than that of Lulli.

Our merry monarch, (as he is called in the Spectator, No. 462) certainly loved music, and had an accurate ear, particularly for time; nor would he allow any composition to be music to which he could not beat the measure; which is, in general, a very good criterion of clearness, accents, and rhythm; but these being all wanting in the music of Lulli, excites a wonder at his majesty's partiality for French music. But,

"What can we reason but from what we know?"

He had heard little or no Italian music, and the German music of his time was rude and unpolished in melody; though in harmony and fugue very learned. But these our gay and voluptuous sovereign would not give himself the trouble to analyse, or even to hear. Purcell, the nation's darling, born in 1658, was but two years old at the restoration; and at the death of Charles but 24; at which time his fame had scarcely taken wing.

CHARLES V. This celebrated prince was born at Ghent, on the 24th February, 1500. He had not completed his sixteenth year, when the rich inheritance of Castile, of Arragon, and Navarre, of Naples, Sicily, and Sardinia, devolved on him, by the death of his maternal grandfather, Ferdinand. His early youth had been formed by Margaret of Austria, his aunt, and Margaret of York, the widow of Charles the Bold. These two princesses were distinguished equally by their virtue and abilities. On the death of his father, Philip, William de Croy, Lord of Chievres, and Adrian of Utrecht, were the persons appointed by his grandfather Maximilian, for the purpose of carrying forward his education, and forming his sentiments and principles. It was the whim of Adrian, however improbable its success, to involve his young mind in all the vexatious mazes of metaphysical theology; but the more authoritative and more acceptable instructions of Chievres led him from monastic speculations to the robust exercises of military life. The arts of government were a no less acceptable study, connected with the history of his own kingdom, and of those neighbours with whom he had most frequent intercourse. From his fifteenth year, when he assumed the government of Flanders, Charles was accustomed to business. It was a part of his discipline to peruse state papers, to preside at the deliberations of his council, and to propose in person those questions on which he wished for advice. From such an education, his habits and manners assumed a character disproportioned to his years. Yet his outset was marked by no feats of superior genius. His figure and address, his graceful and manly accomplishments, were flattering to the vanity of his subjects; but there was a certain temporizing deference, which seemed to lay him open to the artifices of courtiers, and a tone of passion which prepared him for a dupe, and his people for a prey.

Ferdinand, his grandfather, died in 1516; on which event Charles claimed the title of king, while his mother Joanna was yet alive. The times were difficult; but Ximenes was equal to the crisis. The Pope, as head of the church, and the Emperor, as head of the empire, concurred in confirming the dignity, as of their own right; and on these grounds was Ximenes instructed to press the claim on the Spanish nation. Yet, by the laws of Spain, the sole right to the crowns of Castile and Arragon belonged to Joanna; nor had any public act, declaring her incapacity, reconciled the pretensions of Charles, either to the delicacy of filial forbearance, or to the privileges of the two nations. Ximenes protested against the principle, but was prompt and vigorous in carrying his orders into execution. The title was recognised at Madrid, in spite of discontent; though the states of Arragon were obstinate, under the irresolute administration of the archbishop of Saragossa. The Arragonians waited for the king's arrival in Spain, before they would acknowledge any other title than that of prince.

The war which had arisen from the holy league had been transmitted by Ferdinand to his grandson, who, as king of Spain, was in actual hostility against France. But Chievres, conscious of the advantage which his countrymen, the Flemings, derived from their commerce with the French, warmly recommended an accommodation, and obtained the manage-

ment

ment of the treaty. The king of France listened with joy to the first overtures. The principal articles of the treaty were, that Francis should give in marriage to Charles his eldest daughter, an infant of a year old, with all his claims and pretensions to the kingdom of Naples, for her dowry. In consideration of Charles's being already in possession of Naples, he was to pay 100,000 crowns a-year to the king of France until the accomplishment of the marriage, and the half of that sum annually as long as the princess had no children. When Charles should arrive in Spain, the heirs of the king of Navarre might represent to him their right to that kingdom; and in default of due satisfaction, Francis was at liberty to assist with his forces. Charles probably would never have signed such conditions, but for the purpose of securing a safe passage into his Spanish dominions. Yet such was the ascendancy of his Flemish favourites, and their jealousy of Ximenes, that after a year's delay, nothing but the repeated remonstrances of the cardinal, and the murmurs of the Spaniards, prevailed on him to embark. No sooner was Ximenes informed of his arrival, than he advanced to meet him. But his journey was stopped by illness, which some attributed to poison, though it seems naturally accounted for, by extreme old age and unseasonable fatigue. The neglect of his counsels, and the cold formality with which the king, as a matter of form, allowed him to retire, produced an effect equal to any poison, in his almost immediate death. Charles received the news of it with indifference; but he had scarce entered Valladolid, before he was sensible of his loss. The cortes of Castile insisted on his mother's name appearing first in all public acts, and on the reservation of her authority, in case of her recovery. They were liberal in their grants; yet was the discontent loud; to which the king's hesitation in speaking Spanish, and attachment to Flemish favourites, not a little contributed. These events took place in the years 1518 and 1519.

Before his departure from Arragon, Charles sent his brother Ferdinand into Germany, and thus obviated his intrigues. He found the cortes of Arragon highly refractory; the assembly of Catalonia still worse; and the Castilians were taking those measures, in defence of their privileges against strangers, which laid the foundation of that memorable union among the commons of Castile. With respect to the restitution of Navarre, neither the monarch nor his Castilian nobility were inclined to part with it; and the conference at Montpelier was abortive. The death of Maximilian vacated the imperial throne; and the European princes had learned, from the Italian wars, the advantages which might be derived from that dignity. The previous negotiations of Maximilian, and the situation of his hereditary dominions with respect to the Turks, had predisposed the former towards the elevation of Charles. But he was opposed by a formidable rival in Francis, who pressed it on the consideration of Europe, that the crown was elective, and ought not to be made, by prescriptive custom, hereditary in the house of Austria. His emissaries contended besides, that the person who held the crown of Naples was excluded by a fundamental constitution. To their arguments were added horse-lords of treasure, and unlimited promises.

The electors directed their views to Frederick Duke of Saxony; but he rejected their proposal, and at the same time effectually turned the scale in favour of Charles, who received the news of his election at Barcelona. But his Spanish subjects were sullen and refractory, refusing to grant any subsidy to an absent sovereign. Charles, in his turn, countenanced the association of the "brotherhood," which proved the source of much calamity to the kingdom. The cortes of Castile were not less violent than the Valencian ba-

rons. Opposition and artifice united could with difficulty extort a donative, to enable him to appear with becoming splendor in Germany.

Conscious of the rivalry which still subsisted between himself and the king of France, Charles was desirous of courting the alliance of Henry VIII. of England, whose possession of Calais gave him a great degree of influence with both monarchs. Henry had agreed to an interview with the French king between Guisnes and Ardres; but Charles adroitly pre-occupied his favour, by steering directly from Corunna to Dover, and, by a visit of only four days, at once made a favourable impression on the king of England, and attached Wolfey to his interest, by a pension of 7,000 ducats, and the lure of his future succession to the apostolic chair. After the interview with Francis at Guisnes, Henry returned the visit of Charles at Gravelines, who effaced, by his seeming deference, the impressions which the conduct of his rival had made.

From the Low Countries, Charles pursued his route to Aix-la-Chapelle, where he was invested with the crown of Charlemagne. Germany was now his by election; Castile, Arragon, Austria, and the Netherlands, by succession; Naples and Granada inherited by the right of conquest; Mexico added to his resources by Fernando Cortes. Yet his territories were distant and disjointed; his authority was limited; his subjects were strangers to each other, and reluctant in their obedience to him.

Luther had now declared the pope to be Antichrist. The first act therefore of the emperor's administration was to appoint a diet at Worms, to check these new and dangerous doctrines. These events occupied the years 1520 and 1521.

In the mean time, the discontents in Spain had gathered to a head. The citizens of Toledo, Segovia, Burgos, Zamora, were all influenced by the same spirit. Adrian trembled in Valladolid at the rapid progress of insurrection; but he forced his naturally lenient disposition, and ordered a body of troops to proceed against the delinquents. Charles, though he had received accounts of these transactions, could not return immediately to Spain, without endangering the imperial crown. He therefore promised, to those who continued faithful, not to exact the subsidy granted by the late cortes; and engaged, that no office should be conferred in future, but upon native Castilians. At the same time he wrote to the nobles, to excite them to the defence of their own rights, and those of the crown, against the commons. He appointed the high admiral and the high constable of Castile, whose abilities and influence would be highly useful in an appeal to arms, to act as regents in conjunction with Adrian. But the junta, relying on an unanimous support, now aimed at a more extensive reform of political abuses. They demanded that the king should return, and reside in his Spanish dominions: that he should not marry without the consent of the cortes; nor appoint a foreign regent in case of unavoidable absence. That no stranger should be naturalized; and that those who already held public offices should resign them. A reduction of the taxes, an extended and reformed representation in all future cortes, which were to assemble as matter of right once in three years, were the other objects to which their remonstrances were directed.

These internal factions encouraged Francis to take up arms. A body of troops, under Andrew de Foix, invaded Navarre, in behalf of Henry d'Albret. The Castilian nobles heard of the irruption with indifference; but when the enemy presumed to invest Lagrogn, a small town of Castile, all parties were roused at once: they took the French general prisoner, and brought Navarre back to its obedience.

Charles,

Charles, having entered into an alliance with pope Leo, determined on open war. The progress of this treaty, so contrary to his inclinations, had been concealed from Chievres. The chagrin of the latter, on the discovery, shortened his days, and left the royal pupil to the untroubled exercise of his own powers. Robert de la Mark had ravaged the open country of Luxembourg, and laid siege to Vinton. Charles, at the head of 20,000 men, overwhelmed the territories of Robert, and reduced him to sue for mercy. The count of Nassau was commanded to invest Mezieres; but the chevalier Bayard, the knight, without fear, and without reproach, managed his slender resources with such skill and gallantry, that the imperialists abandoned the siege with considerable loss. At this time, Francis, at the head of a superior army, from excess of caution, missed the opportunity of a personal engagement with his rival, suggested by the constable Bourbon, which might have been fatal to the future grandeur of Charles, who soon effaced the disgrace of his retreat by the reduction of Tournay, and secured an important advantage in the alliance of Henry, king of England.

In the mean time, Francis, deserted in Italy, had renewed the war on the side of Spain. Navarre was again invested, and Fontarabia, a strong town of Biscay, was taken by Bonivet, admiral of France. This loss determined Charles to re-visit his Spanish dominions. On his way, he staid at London six weeks, received the garter, confirmed his alliance with Henry, and again cajoled Wolsey with distant hopes of succeeding Adrian. The emperor's first attention was directed, on his arrival in his Spanish dominions, to heal the wounds of faction. He rejected the bloody suggestions of his council, and excepted only fourscore persons from the general pardon. When an officious courtier offered to inform him where one of the most considerable rebels was to be found, he replied, with a smile, "you had better let him know I am here, than tell me where he is." Thus, by his magnanimity and address, he established an ascendancy over the Spaniards, of which he availed himself to obtain pecuniary grants and military support, equal to the prosecution of all his enterprizes. Among these, his mysterious correspondence with Charles, duke of Bourbon, was not the least important. That nobleman was equally entitled to favour by his birth and services. But Louisa, the king's mother, had contracted a violent aversion to the house of Bourbon, and had communicated her prejudices to her son. The death of the duke's wife reversed Louisa's passion; but her advances were rejected, and her affection again converted into hatred. She commenced a suit against him for the estates of his deceased consort, and he was stripped of his fortune by an openly nefarious sentence. This political intrigue was brought to bear in the year 1523. But the conspiracy was discovered and disconcerted. The confederates were repulsed in three separate attempts to invade France, and lost half the Milanese. But the wealth of Mexico prompted Charles to new enterprizes, and purchased him new allies. He opened the campaign of 1524, with the siege of Fontarabia, which he took while the magazines were yet full, and the walls entire. Charles received the intelligence of the victory of Pavia at Madrid, with an air of the most perfect composure and moderation: but the projects which he entertained on this unexpected success, were most extensive and ambitious. Yet his own embarrassments were scarcely inferior to those of the prince his prisoner, from the limited condition of his revenues, and the universal jealousy of his neighbours. In the mean time France was filled with consternation by the defeat at Pavia: the king sent the first news of it to his mother, in these words: "Madam,

all is lost, except our honour." Henry now began to tremble for the balance of power, and his minister Wolsey resented the fallacious promises of the papacy. The former therefore secretly assured Louisa of his support, but in his language to the emperor, offered to invade Guienne with a powerful army, on condition that Francis should be delivered to him, and the monarchy of France extinguished. These extravagant proposals were designed to disgust the emperor, on whose rejection of them the king of England found a decent pretext for withdrawing from his alliance.

The low state of the emperor's finances preventing him from penetrating into France with the forces of Spain and the Low Countries, he proposed terms to Francis of so rigorous a nature, that the latter, drawing a dagger, exclaimed, "It is better that a king should die thus."

The removal of Francis from Italy had equally enraged Bourbon and Pescara. The discontent of the latter had reached Jerome Morone, vice-chancellor of Milan, whose genius for intrigue was inflamed by the hope of delivering Italy from the yoke of foreigners. He tempted Pescara with the throne of Naples; and the latter acceded to the proposal: but, on reflection, he deemed it either most honourable, or most safe, to reveal the whole conspiracy to the emperor, who had been already apprised of it by his spies. He commanded Pescara to continue the negotiation. The latter invited Morone to a last interview; but Antonio de Leyva had been concealed in the apartment, and, appearing suddenly, arrested Morone, and committed him to the castle of Pavia. Sforza was declared to have forfeited all title to the duchy of Milan, which was seized in the emperor's name. But the emperor's recent acquisitions in Italy were more than counterbalanced by his increasing dangers. The health and even the life of Francis, whose captivity was expected to prove so advantageous, had been endangered by six months of harsh treatment. Charles, therefore, hastened from Toledo to Madrid, and inspired his prisoner with the hopes of speedy deliverance; but he relapsed into his former distance and indifference, as soon as he had produced the effect intended, which was soon counteracted by the arrival of Bourbon in Spain. Charles met the rebellious subject without the gates of Toledo, though he had with difficulty been prevailed on to visit the king. But the Spaniards detested Bourbon's crime, and shunned all intercourse with him.

In the year 1526, the two monarchs came to an agreement, by which the French king was to restore Burgundy to the emperor in full sovereignty, as soon as he was left at liberty, delivering at the same time the Dauphin and the duke of Orleans, or twelve of the principal nobility in lieu of the last, as hostages. In confirmation of this agreement, Francis was to marry the emperor's sister, the queen dowager of Portugal. The treaty was signed about the middle of January, and on the return of the ratification from Paris some weeks after, the marriage was consummated, and Francis took leave of his new brother-in-law with dissembled demonstrations of regard. In the course of the same year, Charles married Isabella, the sister of John III. king of Portugal, a choice equally acceptable to the Cortes of Castile and Arragon, and pleasing to the court of Lisbon.

On the death of Lewis II. king of Hungary and of Bohemia, on the field of Mohacz, those kingdoms were claimed by the archduke Ferdinand, as inheriting the ancient pretensions of the house of Austria, and in right of his wife, the sister of the deceased monarch. The Vayvode of Transylvania was a competitor; but the personal merit of Ferdinand, and the influence of the emperor now laid the

foundation of that pre-eminence, which has rendered the house of Austria so formidable to the rest of Germany, since these acquisitions became hereditary in their family. Having experienced the danger of awakening the fears of mankind, Charles affected to disclaim the enterprize of Bourbon against the pope's liberty. But Europe was not to be cajoled by prayers and processions, and Francis rushed to action. The Milanese had been drained of the imperial forces, by the expedition against Rome, and the Italians received Lautrec with open arms. The whole duchy, as well as Alexandria and Pavia, must have been restored to France, had not Lautrec feared the jealousy of the confederates. He, therefore, marched towards Rome, where the pope was still a prisoner in the castle of St. Angelo. The Imperial army demanded their arrears; and Charles, who could depend neither on their fidelity, nor the liberality of the cortes, sold Clement his freedom for three hundred and fifty thousand crowns. Part of this sum was distributed among the Imperial troops, who then quitted Rome, and pointed their retreat towards Naples.

In the year 1529, while the contending parties were fluctuating in their counsels, a negotiation, undertaken between Margaret of Austria, the emperor's aunt, and Louisa, the mother of Francis, terminated in the peace of Cambray, by which Francis was to pay two millions of crowns for the ransom of the dauphin and the duke of Orleans; to restore the towns he still held in the Milanese; to renounce his claims to Naples, Milan, Genoa, and all beyond the Alps; to abandon the Venetians, the Florentines, and the duke of Ferrara; in a word, to sacrifice every object of the war, and to purchase the indulgence of his parental feelings at the expence of his character as a public man and a sovereign. Henry VIII. acceded to the peace of Cambray; so that this interval of tranquillity gave Charles an opportunity of visiting his Italian and German dominions. Before his embarkation, a question having arisen whether the inhabitants of Barcelona should receive him on his entry as emperor or as count of Barcelona, he instantly decided for the latter title, and was rewarded for his flattering dispositions by an oath of allegiance from the states of the provinces to his infant son Philip. In Italy, he appeared in all the pomp of military and civil state; and took infinite pains to efface every unfavourable prepossession from the minds of the natives, by the equity and moderation with which he adjusted the concerns of the country. But in the year 1530, the affairs of Germany called for his immediate attention. Though Solyman had been obliged to abandon the siege of Vienna with disgrace, the religious disorders of the empire demanded the presence of its head. Several of the German princes, who had embraced the opinions of Luther, had not only established in their territories that form of worship, but had entirely suppressed the rites of the Romish church. Many of the free cities had imitated their conduct. Nearly one-half of the Germanic body had revolted from the papal see, and its authority was considerably weakened in the other half. The Imperial influence began to be weakened by these divisions, to suppress which, the diet of Augsburg was called, and attended by all the princes of the empire, especially those who had protested against the decree of a late diet at Spire, for the celebration of mass. The principal of these Protestants were the electors of Saxony, the marquis of Brandenburg, the Landgrave of Hesse, the dukes of Lunenburg, and the prince of Anhalt. They conducted themselves with decency, but defended their opinions with fortitude. Their tenets were, however, condemned by the majority of the diet, whose decree induced them to confederate more closely, and produced the league of Smalkalde. In the year 1532, the emperor marched against Solyman:

but the campaign wore out without any remarkable event. He afterwards sailed against Tunis, and took the Goletta, garrisoned by six thousand Turkish soldiers, under the command of Sinan, a renegade Jew, which led to the defeat of Barbarossa. But before Charles could give the necessary orders for protection against military violence, the soldiers had precipitated themselves on the city of Tunis, where thirty thousand inhabitants perished in one day, and Charles's victory was stained by the excesses of lust and avarice. Muley Hasen took possession of the throne, and consented to do homage for the crown of Tunis; to set all Christian slaves at liberty without ransom; to allow the emperor's subjects the free exercise of their religion; to exclude the Turkish corsairs from his harbours; to deliver up the Goletta and all his fortified posts, and to pay twelve thousand crowns annually for the subsistence of the garrison. The lustre of this expedition dazzled Europe, and 20,000 slaves, freed from bondage, and clothed at his expence, traced his return to Spain; after which, in the year 1536, he improved his leisure in providing funds and forces for a new war. He drew money from Naples and Sicily, troops from Germany, and then threw down the gauntlet to the king of France, in presence of the pope and cardinals. His confidence of success was so great, that, notwithstanding the remonstrances of his ministers and generals against the plan of his campaign, he desired the historian, Jovius, to make a large provision of paper to record his impending victories. But Francis had discovered his design of penetrating into the southern provinces of France, and left it to the Marechal Montmorency to defeat the plan; who executed the trust by making a descent from the Alps to Marseilles, and from the sea to the confines of Dauphiné. Charles waited two months in Provence, and then, having lost half his troops by disease or famine, gave the signal for a reluctant retreat; and nothing could have saved the Imperialists from destruction, but the adherence of Montmorency to his favourite maxim, that a bridge of gold should be made for a flying enemy.

In the year 1538, the two monarchs, listening to the exhortations of the Roman pontiff, extended their truce of ten months to ten years. A few days after signing the treaty, the emperor, on his passage to Barcelona, was driven by contrary winds on the coast of Provence, and invited by Francis to a personal interview, at which the two rivals seemed to have buried all animosity, and to contend only for superior candour and liberality. Charles had no sooner landed in Spain, in 1539, than he was acquainted with the sedition of his troops, who had plundered the Milanese, and were only to be quieted by the address of the imperial generals, who borrowed and extorted money to discharge their arrears, and then disbanded the greater part of them. Before the success of his plan was ascertained, the emperor had endeavoured to rouse the liberality of his Castilian subjects; but the nobles pleaded exemption from any tax, and presumed to urge on Charles a constant residence in Spain. They were dismissed with indignation, and were not afterwards called to the assembly of the Cortes. But they still asserted their personal privilege. On the return of the emperor from a tournament, one of the serjeants struck the duke of Infantado's horse, who drew his sword and wounded the officer. Charles ordered the judge of the court to arrest the duke; but the constable of Castile claimed the right of a jurisdiction over a grandee, and conducted Infantado to his apartment, attended by all the nobles present. The emperor perceived the hazard of irritation, and prudently sent to the duke of Infantado, offering to punish the person who had insulted him: but the duke forgave the officer, and gave him a compensation for his wound.

In the year 1540, Charles, having negotiated a safe conduct by deceitful assurances, passed through France with a small but splendid train of about an hundred persons, and meeting the king at Châtelherault, proceeded with him to Paris, where he staid only six days, and pleading the necessity of his presence in the Low Countries, was accompanied as far as St. Quintin by his generous and unsuspecting rival. The citizens of Ghent were incapable of resistance; and he received their ambassadors with a declaration, that he would appear among them as their sovereign, with the sceptre in one hand, and the sword in the other. He entered the city on his birth-day, and put twenty-six of the principal citizens to death, and thus set an example of severity, which might bridle the seditious spirits of his other subjects in the Netherlands. In the year 1541, he summoned a diet at Ratibon, in which while he confirmed the papal authority, he privately assured the reformed of his protection, and thus induced them to grant him a liberal supply of men and money for the war against the Turks. The remembrance of the glory he had acquired in his late expedition to Africa inflamed him with the desire of conquering Algiers. After a tedious and tempestuous navigation, at an advanced season of the year, against the advice of Andrew Doria, he anchored off the coast of Africa, to experience a series of calamities, which neither prudence could counteract nor exertion overcome. On the second day after his landing, there arose a tempest which overflowed the camp during the night, and the next morning at day-break they were attacked by the enemy, who were with difficulty repulsed. His ships were most of them wrecked, and eight thousand men perished in an hour, either in the sea or by the hands of the Arabs. The next day Doria sent him word that he had borne away with the remnant of the fleet to Cape Metafuz, which was three days march from the present camp. Pressed by sickness and by wounds, by famine and the Arabs, they at length reached Metafuz, and Charles by these disasters, gained a credit for fortitude and humanity, which prosperity had hitherto allowed him no opportunity of claiming. He shared in the hardships of the meanest soldier; he exposed his person, and animated his fellow-sufferers; and though a body of Arabs hovered about his rear, he was the last to quit the shore. On his return to Spain he was attacked on various sides. In the year 1542, five formidable armies invaded his dominions, but they only consumed their strength in fruitless enterprizes. In 1543, he obtained a liberal supply from the Cortes, borrowed a considerable sum from John, king of Portugal, on the security of the Molucca isles, negotiated a marriage between his son Philip, and Mary the daughter of that monarch, obtained donations from the states of Arragon and Valencia, and a valuable consideration from Cosmo de Medici for withdrawing his garrisons from the citadels of Florence and Leghorn, and prevailed with Henry of England to declare on his side. Under these circumstances, it might have been expected that Charles would have opened the campaign of 1544 with vigour; but after providing for the security of Spain, and detaching a body of Spanish troops into the Netherlands, he passed into Germany, and preferred the intrigues of the diet to engaging in the operations of the field. He at length signed his last treaty with Francis, in which, besides the public articles, there was a private agreement for the extermination of the protestant heresy. He now summoned the diet to Ratibon, whither the Protestants sent deputies, though the Roman catholic members appeared in person. The emperor, while the elector of Saxony and the landgrave of Hesse were hesitating whether to renounce their homage and prefer war, had been reinforced by Paul's quota of troops, and some of his own

Spanish forces. He determined, however, to wait within his lines till the protestant force should be dissolved by disunion and necessity. As soon as Maurice of Saxony, with whom he was in secret league, had by an irruption withdrawn the elector to the relief of his subjects in Saxony, the emperor put his troops in motion in the winter of 1547, and reduced the duke of Wurtemberg, the cities of Ulm, Augsburg, and Strasburgh, to submission. At this period, by that good fortune which has been called the star of the house of Austria, Francis died at Rambouillet, in the thirty-third year of his reign. Freed from this source of disquietude, the emperor crossed the Elbe, leading his cavalry in person, together with the flower of his army, routed the Saxons, and took the elector prisoner. Having now dispersed his enemies in the field, Charles summoned a diet at Augsburg, and in the year 1548 proposed that system of doctrine, known by the name of the Interim, which was considered by both parties as an unsatisfactory and insidious compromise. But the power of the author ensured its reception every where, but in Magdeburg, Bremen, Hamburg, and Lubeck. On the death of Paul, and the succession of Julius the Third to the apostolic chair in 1550, the emperor began to cherish the ambitious design of transmitting the German empire to his son, as well as the kingdom of Spain, and his dominions in Italy and the Low Countries. But he met with a powerful obstacle in the jealousy of his brother Ferdinand. The Germans were besides disgusted with the reserve and haughty manners of Philip, and alarmed at the concentration of so much power in the head of the empire; so that Charles was reluctantly compelled to drop the scheme. He therefore resumed the enforcement of the interim, and would probably have succeeded completely, had he not been deceived by Maurice, whose intricate plan of policy blinded the most quick-sighted prince in Europe. In 1551, the diet pointed Maurice out as the most proper general to enforce the reception of the interim, and Charles approved of the recommendation. His credulity could not fail of placing him at length in a most embarrassed situation, and he tried the effect of negotiation. The danger of the emperor at Inspruck and his sudden retreat by torch-light are well known; and these two masters of finesse soon came to a better understanding, which terminated in a peace, and the establishment of the protestant church in Germany, by the treaty of Passau in 1552.

But the German princes, engrossed by their own concerns, took little care of the French, who were exposed singly to the resentment of Charles. Emerging from his retreat, he affected to march towards Hungary, but turning suddenly to the right, and being joined by Albert of Brandenburg, invested Metz at the head of eighty thousand men. His intentions having been anticipated, the city was ably defended by Francis duke of Guise; and notwithstanding the emperor's perseverance even to obstinacy, finding himself deserted by his soldiers, whose spirits had been exhausted by hardships, and whose numbers had been thinned by a pestilential disease, he yielded to the solicitations of his generals, and retreated. His disappointment extorted from him a severe sarcasm against fortune, whom he likened to other females, in her preference to young men, and inconstancy to her earlier favourites.

In 1553, however, he effaced in some measure the disgrace of his repulse at Metz, by the capture of Terouanne and Hesdin.

In 1554, the French king determined to act vigorously both in the Low Countries and Italy, that he might compel Charles to an equitable peace. He ravaged Hainault, Liege, and Artois; reduced Marienburg, took Bouvines, and Dinant by assault, and invested Renti, to the relief of which

which the emperor marched notwithstanding his infirmities. He wished to avoid a decisive action, but a dispute about a post brought on a general engagement, in which the Imperialists were repulsed, and might have been completely routed, but for the tardiness or jealousy of the enemy. The emperor, on his retreat, entered Picardy, and took his revenge for the ravage of Hainault and Artois. In Italy, his general, the marquis of Merignano, defeated the Florentine exile, Strozzi; Sienna was besieged, and capitulated on honourable terms; and Charles was in hopes of recovering Metz by an intrigue with the father guardian of a convent of Franciscans in the city. But in this design he was disappointed by a discovery on the very day of execution. The death of pope Julius the Third, and the exaltation of cardinal Caraffa, the inveterate enemy of his house, augmented his chagrin, and he now, at the early age of fifty-six, determined to retire from public life. Both his constitution and mental powers began to be seriously impaired by the increasing severity and duration of the gout; the complication of his political concerns, extending to every nation of Europe, was beyond his strength to manage, and he had a natural distrust of ministers. He therefore thought that he should better consult his fame by a voluntary retreat than by continuing to struggle against the tide of more active and vigorous competition. On the twenty-fifth of October, 1555, when the States of the Low Countries were assembled at Brussels, Charles seated himself for the last time in the chair of state, and explained, by the president of the council, his intention in calling the meeting. He then rose from his seat, and leaning on the prince of Orange's shoulder, took a solemn review of his own administration, and pathetically detailed his reasons for retiring. He addressed his son in a strain of serious and dignified exhortation, in which he enjoined him to prove his gratitude by consulting the welfare of his people. Exhausted by this long address, he sunk into his chair, more honoured and beloved by his subjects in his new character of a philosopher, than when dazzling their eyes by the pomp of state, and swelling their pride and his own by conquest and aggrandisement.

In the beginning of the next year, he resigned the crown of Spain, and all its dependencies, reserving nothing to himself but an annual pension of an hundred thousand crowns, for domestic expences and charity. His last public act was the negotiation of a long truce with France, by which he secured his son an interval of peace, and finding it hopeless to tamper with his brother for the transfer of the imperial dignity to Philip, he closed all by formally transferring his claims of allegiance from the Germanic body to the king of the Romans. On his way to the place of his retreat, he visited Ghent, the place of his nativity, and after a prosperous voyage, arrived at Laredo in Biscay. As soon as he landed, he prostrated himself on the earth, and said, "Naked I came out of my mother's womb, and naked I now return to thee, thou common mother of mankind." He felt mortified at the thin attendance of Spanish nobility at Burgos, and was still more afflicted at his son's ingratitude and dilatory payment of his pension. His retirement was fixed at the monastery of St. Justin's, a few miles from Plazencia in Estremadura, with which spot he had been struck in passing by it some years before. It was esteemed the most healthful and delicious situation in Spain; and an architect, whom he sent before him, had accommodated the arrangements to the simplicity of his future habits. His plan of life was that of a private gentleman, from which all ceremonious forms were discarded. He never inquired after the politics of Europe, but occupied himself with the cul-

tivation of his garden, and the exercise of riding on a little horse, the only one he kept. He occasionally entertained a few neighbouring gentlemen at his table, and studied mechanical principles with Turriano, an ingenious artist, who accompanied him in his retreat. A considerable portion of his time was reserved for religious exercises, and in this dignified leisure did he pass the first year of his seclusion. But the debility arising from a broken constitution, and the natural tendency of a superstitious faith and practice, at length degraded his sinking mind to the servility and insanity of monastic penances. Prompted by the monks, to whose direction he had resigned himself, he resolved to celebrate his own obsequies, which he did with all the solemnity of a real funeral. The awful impressions which the ceremony, however absurdly and improperly devised, had left upon his mind, hastened the event which he had so singularly anticipated. On the following day he was seized with a fever, and expired on the twenty-first of September, 1558, in his fifty-ninth year.

The character of his mind was rather that of careful and deliberate attention than of brilliant talents or rapid conception. He preferred business to pleasure, and made public concerns at once his study and amusement. But his promptitude in execution was equal to his patience in deliberating; he was at once sagacious in devising measures, and fruitful in resources for carrying them forward. Though he devoted himself more to the cabinet than to the field, he never appeared at the head of his armies without entitling himself to rank with the greatest generals of the age. But his principal excellence consisted in the felicity with which he applied the important science of human nature to the choice of fit agents and the adaptation of abilities to situation and office. If his manners were less pleasing than those of his rival, his virtues were at least as solid, and his adherents as faithful and attached. His confidence in his generals was unbounded; he rewarded their services munificently; he neither envied their glory, nor mistrusted their intentions. But his ambition was insatiable, and his policy too often ungenerous; while his contemporaries, Francis the First and Henry the Eighth, with numberless vices from which he was exempt, were characterized by an openness and credulity, which made them more popular, principally because it rendered them less dangerous.

Charles seems to have lived more in the Netherlands, than either in Spain or Germany. And it was during his reign that so many great composers flourished in that country, as to incline musical historians to assign to them the invention of counterpoint. Rabelais, in the prologue to the 3d book of his *Pantagruel*, written in 1552, names *Go et autres joyeux musiciens*, whom he had heard perform, the chief of whom were Netherlanders. Sandoval in his life of the emperor Charles V. tells us that he was a great friend to the science of music, and after his abdication, would have the church-offices only accompanied by the organ, and sung by fourteen or fifteen fryers, who were good musicians, and had been selected from the most expert performers of the order. He was himself so skilful, that he knew if any other singer intruded, and if any one made a mistake, he would cry out, such an one is wrong, and immediately mark the man. He was earnest too, that no seculars should come in; and one evening, when a contralto from Placentia stood near the desk with the singers, and sung one verse with them eminently well, before he could sing another some of the barbarians ran and told the prior to turn him out of the choir, or at least bid him hold his tongue.

The emperor understood music, felt and tasted its charms: the fryers often discovered him behind the door, as he sat

in his own apartment, near the high altar, beating time and singing in parts with the performers; and if any one was out, they could overhear him call the offender names, as redheaded blockhead, &c. A composer from Seville, of my own acquaintance, continues his biographer, whose name was Guerrero, presented him with a book of motets and masses: and when one of these compositions had been sung as a specimen, the emperor called his confessor, and said, see what a thief, what a plagiarist, is this son of a —! why here, says he, this passage is taken from one composer, and this from another, naming them as he went on. All this while the singers stood astonished, as none of them had discovered these thefts, till they were pointed out by the emperor.

CHARLES VI. fifth son of the emperor Leopold, was born 1685, declared king of Spain by his father in 1703, and crowned emperor in 1711. Though we never heard, from good authority, that this prince was a poet, a musical composer, or performer, his retaining Apostolo Zino and Metastasio so many years in his service, chiefly to furnish dramas for music, and employing the best composers of the time, of whatever country, to set them, and every great vocal performer of good morals to sing in them, prove him to have been an intelligent, munificent, and dignified patron of the musical art, in all its higher departments, sacred and profane. See OPERA and ORATORIO.

CHARLES XII. king of Sweden, was born in 1682, and succeeded to the crown on the death of his father Charles XI. in 1697. According to the laws of that country, he was not entitled to the reins of government till he had attained the age of 18, but he speedily emancipated himself from the restrictions by which the will of the late king intended him to be bound. In very early life he had been trained to violent and martial exercises; and had in a thousand instances shewn an impracticability of disposition, which no force could conquer, but which was always alive to suggestions of military glory. He was incited to the study of Latin, because his contemporaries, the kings of Poland and Denmark, were reputed to be well versed in that language. From reading the history of Alexander, by Quintus Curtius, his passions were inflamed with a desire of imitating that renowned conqueror, and of becoming himself another Alexander in feats of martial prowess. With this view, he, in a short time after his father's death, gained over a party in the council to deprive the dowager-regent of her authority, and to surrender to him the reins of government without any limitations. An early day was fixed for his coronation; but he, unwilling to wait for the usual forms that long custom had rendered necessary on such solemn occasions, scornfully snatched the crown from the hands of the archbishop of Upsal, and placed it on his own head. At first the young king seemed little ambitious of entering into the details of government; he was fond of amusements, and attached to those who were subservient to his pleasures; but to others, however high their rank, and respectable for talents and wisdom, he exhibited a proud and sullen reserve.

The inexperience of Charles encouraged the kings of Poland, Denmark, and the czar of Russia to enter into a confederacy against him, for the purpose of wresting from him a part of his dominions, which had been ceded to his father and grandfather. The youthful monarch was not disconcerted at the news of this powerful league; he seemed rather to rejoice that an opportunity would be afforded him of displaying his hitherto latent courage and abilities. When their designs were certainly known, a Swedish council was convened, at which the king attended, for some time, the silent spectator of their proceedings; in the midst, however,

of their discussions, respecting the measures to be pursued, he rose, and with a dignified air declared that he had determined never to engage in an unjust war, but having been drawn into one by the ambitious views of an enemy, he would never desist till he had humbled and ruined him. "It is," says he, "my resolution to go and attack the first who shall dare to avow his designs; and when I have conquered him, I trust the others will be intimidated." This declaration, so unexpected on the part of his council, was followed by a total change of conduct. He gave up all his former amusements, and renounced those habits and indulgences that might seem to withdraw his attention from the more important business of his country. In his domestic concerns he enjoined, by sanctions not to be slighted, the strictest economy; he laid aside all the exterior splendour of dress; and prepared to exhibit in his own person the statesman and the hero.

The Danes, commanded by the duke of Wirtemberg, attended by the king in person, commenced the attack, by invading the duchy of Holstein, which belonged to the brother-in-law of Charles. The Swedish sovereign at first sent a body of troops to his succour, and some attempts were made at a negotiation between the parties; but the Danish king, instead of listening to the still voice of peace, excited the sovereign of Poland to invade Livonia with a Saxon army, to draw off the attention of the Swedes from assisting the duke. The king was no sooner informed of this circumstance, than he drew his sword, determining never to sheathe it till he had brought the invaders into a state of complete humiliation. He quitted his capital in May 1700, to revisit it no more; and, embarking his troops at Carlscroon, sailed for Denmark, and proceeded at once to Copenhagen. As soon as the vessel in which he was touched the ground, he leaped into the sea, sword in hand, followed by his guards and great officers; and advancing in the midst of a shower of musket-shot, he asked of the general who stood next him, what the whistling was which he heard: "It is the noise of the bullets fired at you," replied the general. "This then," said the king, "shall henceforth be the music in which I will delight." At the same moment the general was wounded, and a lieutenant fell dead by his side. The Danish entrenchments were speedily forced, and Charles approached Copenhagen without further opposition. The king of Denmark had taken refuge with his army in Holstein. Under these circumstances, Charles resolved to finish the war at once, and prepared to besiege Copenhagen by land, while the fleet blockaded it by sea. The citizens, deserted by their sovereign, and terrified at the preparations making by Charles, besought him not to destroy the town; and the king on horseback, and at the head of his regiment of guards, received the deputies, who fell on their knees, and whose request he granted, on the consideration of their paying a certain sum of money. The king of Denmark, finding his capital gone, and himself without the means of extricating his country from the power of the Swedes, was glad to listen to almost any terms that might be offered. The victorious monarch assured him that he required nothing but justice to be done to the duke of Holstein, which must include a complete indemnification for all his losses, as well as a restoration to all his possessions. Thus, in a few weeks, did a youth only 18 years of age conclude a war on terms the most honourable to himself, and to the total discomfiture of the aggressor. In the mean time Riga, the capital of Livonia, had been so bravely defended, that king Augustus of Poland, in despair of taking it, raised the siege. At this period, the Swedes, after the example of their king, were seized with an enthusiasm

for military glory, that allowed no time for reflexion. Taxes, which are the sinews of war, were considered and readily granted as an honorary tribute; and every family was ambitious of furnishing a foldier. The troops soon became habituated to the toils and privations connected with a military life, and were contented with the coarsest fare, and that even in small quantities.

No sooner had Charles concluded a treaty with the king of Denmark, than he turned his arms against the Russians who had undertaken the siege of Narva, with 80,000 men. The Swedish monarch, though at the head of 20,000 troops, advanced to the relief of the place with less than half that number. When he was within sight of the Russian vanguard, he was urged to reflect upon the great disparity of numbers; to which he replied, "Do you doubt whether the king of Sweden, with 8000 men, can beat the czar of Russia, who is at the head of 80,000 men?" The Russians at first stood the shock with firmness; but, after an engagement of three hours, their entrenchments were forced with great slaughter, and Charles entered Narva in triumph. The Swedes captured many times their own number of prisoners, besides all the enemy's artillery; but the king only retained the principal officers, whom he treated with great kindness. On this occasion the czar, who was absent from this battle, said, "I knew that the Swedes would beat us; but, in time, they will teach us to become in our turns the conquerors."

A close alliance was now formed between the czar and the king of Poland; and the latter engaged to furnish a large succour of Germans. Charles having passed the winter at Narva, entered Livonia, and appeared in the neighbourhood of Riga. He passed the Dwina, on the banks of which were posted the Poles and Saxons, whom the Swedish monarch attacked with great bravery, and after an obstinate and bloody engagement, gained a complete victory. He then advanced to the capital of Courland, from whence he passed into Lithuania, and entered in triumph the town of Bergen, where the czar and the Polish sovereign had a few months before planned his destruction. The king of Sweden now determined to dethrone the sovereign of Poland; the intrigues formed in that country facilitated the enterprise; and Augustus finding little resource in the attachment of his subjects, attempted to negotiate, and employed for the purpose the countess of Konigsmark, one of the most captivating women of the age; but all her seductions were useless against him who had renounced pleasure, and who, as a farther security to his virtue, constantly refused an interview. Aware also of the discontents of the Poles, he entered into a secret correspondence with the malcontents, and marched into Warsaw, which opened its gates to him at the first summons. He was soon waited upon by the leaders of the discontented party, to whom the Swedish monarch gave the most positive assurances that he would never give the Poles peace till they had elected a new king. Augustus, being informed of these proceedings, assembled all his troops, which were at least double the number of those under his opponent. The contending kings met in a plain between Cracow and Warsaw: the attack was begun by the Swedes, and though the battle was fought with the greatest valour on the part of Augustus, yet victory declared itself for Charles. It cost him, however, the life of his friend and relation, the duke of Holstein, over whom he shed tears of unfeigned affection. The king of Sweden marched to Cracow, which immediately surrendered; and Augustus fled into Saxony; in the pursuit of whom Charles unfortunately fell from his horse, and broke his thigh, an accident which detained him some weeks in a state of inactivity. A second victory obliged the Polish sovereign

to provide for his security by retiring into Saxony. At length the Poles resolved to depose their sovereign, which was effected in February 1704; and Stanislaus Leszczinski was chosen his successor on the 12th of the following July, and by the interest of Charles he was crowned at Warsaw the 4th day of October.

The czar sent 60,000 Russians to attack the Swedes in their conquests; they entered Poland in separate armies, and were joined by a great number of Saxons and Cossacks. Charles attacked and defeated the Russian troops, and nothing could impede the progress or equal the celerity of the victorious Swedes. If a river interposed, they swam over it; and the Swedish monarch, at the head of his cavalry, marched 30 leagues in 24 hours. Struck with consternation and dismay at these rapid movements, the Russians retired beyond the Boristhenes, and left Augustus to his fate; who was, in a short time after, compelled to renounce his pretensions to the crown of Poland, and to acknowledge Stanislaus lawful sovereign of the kingdom. He renounced, at the same time, his alliance with the czar, his most powerful friend, and gave up all the subjects of Charles who had withdrawn their allegiance, and especially Patkul, who at the time bore the character of ambassador to the czar. While the treaty was pending, Charles and Augustus had an interview; during which the dethroned sovereign received marks of studied civility from the conqueror, but he was nevertheless obliged to submit to his will, even to the writing a letter of congratulation to his rival and successor Stanislaus. Such conduct on the part of the Swedish monarch cannot be justified on any principle, and the savage treatment of the virtuous Patkul, whom he caused to be broken on the wheel, with every circumstance of ignominy and severity, will for ever render him, on that account, worthy of general indignation.

Charles, now in the zenith of power and reputation, compelled the emperor of Germany to make some very humiliating concessions in favour of his Protestant subjects in Silesia, of whose interests he declared himself the protector. But his heart was principally occupied in measures of revenge against the czar, whom he determined to dethrone, as he had done Augustus: for this purpose he marched at the head of 43,000 men from Saxony. The czar was at Grodno in Lithuania, whither Charles followed him, in the depth of winter, and entered the city at one gate as the czar went out of the opposite one. Determined on his object he pursued the Russians and drove them across the Dnieper. In his way, with the advanced guard alone he defeated a large body of them entrenched behind a morass. The czar Peter began now to be seriously alarmed for his empire, and caused proposals of peace to be made; to which the haughty king answered, "I will treat with the czar at Moscow." To this the czar replied with diffidence, but in the tone of a prediction, "My brother Charles is determined always to act the Alexander, but I flatter myself he will not find me a Darius." In the month of October, 1708, he had arrived within 100 leagues of the Russian capital, when impassable roads and a scarcity of provisions induced him suddenly to turn aside into the Ukraine. A rigorous winter now commenced, which to the Swedes, who were unprovided with proper clothing and necessities, was so far insupportable that in one march two thousand of them perished with cold. Charles, however, shared with his soldiers all the hardships incident to the situation, and thus inspired them with principles of patience and fortitude scarcely to be expected. In April, 1709, the whole army under the Swedish monarch was reduced to about 30,000, and in a few weeks the king penetrated to the town of Pultowa on the eastern frontier of the Ukraine. Here the czar had laid up

his magazines; it was therefore of the utmost importance to Charles to gain possession of the place. He accordingly invested it, but his operations were interrupted by the approach of the czar at the head of 70,000 men. Charles always unwilling to trust to another what he could himself perform, went to reconnoitre the enemy, and was wounded by a musket shot, which broke the bone of his heel. No change in his countenance betrayed the wound to his attendants, and he continued six hours longer on horseback giving his orders with the greatest tranquillity. He was, at length, carried to his tent in excessive agonies, and such was the nature of the wound that the surgeons were of opinion that the king must lose his leg. Another mode was, however, adopted, and the king, during a very painful operation, kept his leg steady with both hands, looking on like an indifferent spectator. The czar having collected all his forces, was advancing, and to the Swedes a retreat seemed impossible. Without calling a council of war, Charles refused to wait for the enemy in his entrenchments, but ordered a general attack for the next day, and then went to sleep. On the 8th of July, 1709, was fought the celebrated battle of Pultowa which decided the fate of the Swedish king: he caused himself to be carried in a litter, at the head of his infantry, and after the combat of cavalry, which was disastrous to his cause, he advanced against the Russian line, defended by a formidable artillery. One of the first volleys killed the two horses of his litter, by another, two fresh horses were killed, and the litter dashed to pieces. He was then carried by his life-guards, and of these twenty-one were destroyed out of twenty-four. The Swedes began to give way on all sides; their principal officers were killed or made prisoners, nine thousand were left dead on the field of battle, and their camp at Pultowa was forced. Even in this extremity the king refused to fly. By the orders, however, of Poniatowsky, he was placed on horseback, notwithstanding the pain occasioned by his wound, and about five hundred horse rallied around him, by whose exertions he was conveyed safe through ten Russian regiments, and brought to his baggage. At length he reached the Dnieper, whither Lewenhaupt had arrived with what remained of the army, amounting to about sixteen thousand men of various countries. These were closely pursued by the Russians, to whom they eventually surrendered, with the exception of the king, who was conveyed across the river in a small boat, a few of his officers who accompanied him, and about three hundred Swedish horse, with a number of Poles and Cossacks, who ventured to swim across. With these Charles escaped to Bender, a Turkish town in Moldavia. Here he was received with every mark of respect, and remained in a state of inaction, employing himself partly in military exercises, partly in reading, and playing chess. The Turks and neighbouring Greeks, having heard of his exploits, flocked in crowds to see him. His inflexible resolution to abstain from wine, and his great regularity in conforming to their customs, and in attending at their religious services, made the Mahometans consider him as a true believer, and inspired them with an ardent desire of marching under him to the conquest of Russia.

While thus at a vast distance from his kingdom, his enemies were busied in pulling down all the fabric of power which he had raised by his conquests. Augustus returned into Poland, and repossessed himself of his throne. The czar took Wiburg, and all Carrelia, poured his troops into Finland and laid siege to Riga. The king of Prussia invaded Swedish Pomerania; and the king of Denmark made a descent on Schonen, and took the town of Helsingburg. The Swedes however, remained firm; and the disasters of their king rather inflamed their loyalty and patriotism than dispirited

them. The idea of dethroning the czar of Russia was still uppermost in the mind of Charles: he solicited the assistance of the Ottoman Porte, and Achmet III. the reigning sultan, sent him a present of a thousand ducats, while the grand vizier said to his envoy, "I will take your king in one hand, and a sword in the other, and conduct him to Moscow at the head of 200,000 men." The czar's money, however, changed the sentiments of the Turkish minister, who laid aside all thoughts of war. The military chest which Peter had taken at Pultowa furnished him with new resources against the vanquished Charles, whose treasures were turned against himself. The hopes which the fallen king had entertained against his enemy being thus frustrated, he accused the grand vizier with corruption, who in his turn procured an order for him to leave the Turkish dominions, but with this he refused to comply. By some unexpected changes in the Ottoman court, his interest again prevailed, and liberal offers were made of sending him home with a large escort, and provisions for all his wants. With this even he was not contented, but persisted in demanding an army for his convoy; and at length he refused to go at all, though he had received 1200 purses from the grand seignor to pay his debts and defray his expences. An order was signed to compel him to depart, but Charles determined to resist the whole Ottoman power with 300 Swedes, and actually began fortifying his camp in the face of an army of 26,000 Turks and Tartars. No entreaties against this mad project had any avail, he conceived his honour concerned, and no considerations of prudence or humanity had weight with him. The Janizaries unwilling, from a respect for his character, to proceed to extremities, sent a deputation of their seniors to propose terms of accommodation, but instead of listening to them, he threatened to cut off their beards, if they did not depart. "Let the *iron-head* then perish, if he will perish," they indignantly replied, and the attack immediately commenced. The little camp was soon forced, and the 300 Swedes were made prisoners. Charles sought refuge in his house, together with a few general officers and domestics. With these he fired from the windows upon the Turks, 200 of whom he killed, and bravely maintained himself till the edifice was in flames. In this extremity, a centinel had the presence of mind to observe that the chancery-house, which was at the distance of fifty yards, had a stone roof, and was proof against fire, and in which they might defend themselves to the last. "There is a true Swede," exclaimed the monarch, rushing out, like a madman, at the head of a few desperadoes. From respect to the person of the king, the Turks at first recoiled, but recollecting their orders, they made him prisoner, and carried him, by main force, to the tent of the bashaw. That officer sent the Swedish monarch in a chariot to Demotica, a small town at the distance of ten leagues from Adrianople where the emperor then resided with his court. Here he remained a considerable time, and lest the Turks should not pay him the respect due to his royal person, or should be tempted to exact from him any thing beneath his dignity, he feigned illness, and confined himself to his bed for the space of ten months. It was generally believed throughout Europe that he was dead, and the senate of Sweden, no longer expecting his return, requested his sister to undertake the regency. She seemed at first willing to comply, but finding it was their intention to put an end to the wars which were ravaging their country, she refused to act, and sent her brother word of their proceedings. He indignantly wrote to the senate, that if they pretended to interfere with public affairs, he would send one of his boots to govern them.

Weary of the state of inactivity in which he lived, he obtained

tained permission to return to his own dominions. He took a formal leave of the Turkish court by a very splendid embassy. He set out on his return in October 1714, and after sixteen days incessant travelling, he arrived in the night at Stralsund: he was admitted with difficulty, but as soon as he made himself known, the whole city was in a blaze of illumination for joy at his arrival. Charles found his affairs in a very disastrous state; but without giving himself time to reflect upon this, he dispatched orders to his generals to renew the war with fresh vigour. Intoxicated by the phrenzy of glory, all the young men crowded to the standard of their king, and scarcely any were left for the labours of agriculture but the aged and infirm, who were little qualified to save Sweden from a famine, with which she was threatened. On opening the campaign, Charles was surrounded by so many enemies, that valour could be of little service, without a greater force. The combined army of Prussians, Danes, and Saxons, invested Stralsund, in hopes that the king would there perish, be taken prisoner, or be compelled to make peace. The isle of Rugen being possessed by the enemy, it was of importance to dislodge them; Charles made a desperate attempt for that purpose, but was repulsed. He returned to Stralsund, sustained the siege in person, and performed, as usual, prodigies of valour. The fall of the city was, however, inevitable, and fearing lest he should come into the hands of the enemy, he embarked in a small vessel, and by favour of the night, passed safely through the Danish fleet, and was landed in Sweden. The next day the town capitulated. He wintered at Carlscroon, refusing to visit his capital till he could appear there under more prosperous circumstances. He levied new troops, and in the following spring made an irruption into Norway with twenty thousand men. He pushed on as far as Christiania, but for want of provisions, was obliged to return to Sweden. He now, through his minister, the baron de Goertz, effected a peace with Russia, and began to devise means for the dethronement of George I. of England, and the restoration of the Stuart family. Another object of his ambition was to re-establish Stanislaus in Poland. To effect these purposes, an alliance was formed between Sweden and Russia, by the intervention of cardinal Alberoni, an Italian, a man of considerable activity and enterprise. The impetuosity of Charles, the alliance which he had formed, and the ambition of his minister, seemed ready to overturn the system of Europe. In the interval, however, of preparing for this vast enterprise, the Swedish monarch, as if willing to lose no time, invaded Norway, in order to wrest it from the king of Denmark, and thus indemnify himself for the provinces which he had ceded to the czar. He formed the siege of Frederickshall, in the month of December, regardless of the cold of a Norwegian winter, which not unfrequently froze the centinels to death on their posts. To animate his troops, the Swedish sovereign exposed himself to all the rigour of the climate, and to the dangers of the siege; and, covered only with his cloak, usually slept in the open air. Anxious to finish the siege, he, on the evening of the 11th of December, visited, with his principal engineer, the trenches that had been formed. He was resting with his elbows upon the parapet, attending to the workmen who were opening the ground by star-light. Almost half his body was exposed to the battery of the enemy, which was firing grape shot at the very spot in which he stood. He had been in that dangerous situation some time, with no one near him except the chief engineer, and an aide-de-camp, when he was seen to fall upon the parapet, heaving a great sigh. He was taken up dead, with his forehead beat in by a cannon shot, and his right hand grasping the hilt of his

sword. Such was the end of this extraordinary character, though there have been historians who maintain that he was assassinated by the French aid-de-camp, Siguier; but after investigating all the circumstances that attended the event, there is no good reason for believing otherwise than that he received his wound from one of the Danish batteries.

Charles died at the age of 36 years and 6 months, after a reign of 21 years. His military talents may command admiration, but there was little in his character to awaken in the feelings any emotions of attachment or esteem. He possessed many eminent, but few, if any, amiable qualities. He was a mere soldier; in person he was well formed: in conversation he was awkward and bashful: he was just, but rarely exhibited any traits of kindness. Charles seems never to have known what it was to fear, and the bluntness of his feelings rendered him insensible to hardships and dangers for himself and others. His wonderful intrepidity and perseverance in whatever he undertook; his fortitude under misfortune; his contempt of danger, and his passion for glory, will for ever rank him foremost among military heroes, but no king was ever more lavish of human blood, or ever less consulted the real interests and happiness of his people. *Univ. Hist. Voltaire Hist. de Charles XII. Du Fresnoy. Coxe's Travels, vol. 4.*

Of the other eleven Charleses of Sweden, there is little to be said to entitle them to separate articles in this work. Charles Canutson, the eighth of that name, from grand marshal in the reign of Eric, made himself sovereign in the year 1434. In the exercise of his office he was twice compelled to renounce all pretensions to the crown. He retired to Finland, where his credit was so low, that the archbishop refused him a small loan. His retreat did not give peace to his distracted country; he was accordingly recalled, and put in possession of all the honours of sovereignty; and in 1479, he closed an eventful life, resigning his kingdom to his nephew Stene Sture. By the historians of his country he is praised for his regard to justice, as well as for political talents: he is said also to have been versed in philosophical and mathematical knowledge.—Charles X. was born in 1622, and very early engaged in military service. His rank and high reputation as a military commander caused him, in 1648, to be appointed general in chief of the Swedish forces. In 1655, he succeeded to the crown. He immediately revived the martial spirit of the country, and during the six years of his reign was engaged continually in war. He died in 1660, of a fever, leaving behind him a considerable reputation for private virtues, which were wretched compensations for the disasters which he inflicted on his country, by an inordinate ambition, and a fondness for martial glory.—His son, Charles XI. though a minor, at the death of his father, concluded an advantageous peace with his neighbours. In a few years he made himself absolute, after which one of his first measures was to raise the nominal value of the coin, in order to liquidate the public debts. Such a step is always unjust, and in general, very injurious to the state that adopts it. He forbade the exercise of any religion except the Lutheran, and performed many other acts of despotic authority. His subjects remonstrated against his assumed arbitrary power by means of deputies; these he caused to be prosecuted and convicted of high treason, among them was Patkul, who pleaded the cause of his country with energy and manly eloquence, for which a sentence of capital punishment was passed against him, which he avoided by flight. The character of this monarch was stern, inflexible, and unfeeling; in reply to his queen, who was interceding in behalf of some of his subjects grievously oppressed, he said, “Madam, we have taken you to bring us children, not to give

give us advice." This sovereign was chaste, temperate, economical, vigilant, and active: he was a patron of literature; severe, yet not implacable: prone to anger, but easily softened. His love of peace, and the reputation of his character, gave him an ascendancy in Europe, and he was considered as the principal mediator at the treaty of Ryfwick. In his endeavours to effect a general pacification he died in April, 1697. *Univ. Hist. Coxe's Travels.*

CHARLES EMANUEL I. duke of Savoy, surnamed the Great, was born in 1562, and succeeded to the throne of his country in 1580. This prince was of a bold and enterprising spirit, and during a long reign engaged in many actions which could not be justified upon any principles of justice. During the reign of Henry III. of France, he invaded that country, and wrested from it the marquisate of Saluces, thereby gaining a frontier for Turin his capital, which before was exposed to the inroads and insults of his enemies. It was on this occasion that the duke struck a medal in commemoration of the event, with the word *opportune* as a motto; intimating that he had hit upon the lucky moment for the enterprise. Acting upon the same maxim, he seized upon some other provinces of France, during the reign of Henry IV.; he even aspired to the crown of that kingdom, but his plans were defeated, and he was obliged to give up a part of his own territory in exchange for the marquisate of Saluces which he had formerly gained by force of arms. Another act of glaring injustice he committed upon the Genevese, whose capital he attempted to take in the midst of a profound peace. The body of his troops destined to scale the walls, obtained their object unperceived, but on an alarm being made, the inhabitants, long famed for their ardent attachment to the rights of independence, attacked the invaders before the troops came up who were ordered to co-operate with them. Some prisoners taken by the Genevese were deservedly hanged as common robbers. A representation of the fact was laid before the several states of Europe, and the duke was obliged eventually to make ample satisfaction to the city. Charles afterwards attacked the Genoese and took many of their towns. He aspired to the imperial crown at the death of Matthias. He projected also the conquest of the isle of Cyprus, and was desirous of accepting the sovereignty of Macedonia, offered to him by the oppressed inhabitants; but in none of these projects was he successful. In a contest with the French he lost the strong fortress of Pignerol, the disgrace of which is supposed to have hastened his death in July 1630, after a turbulent reign of fifty years. This prince had many shining qualities: he was an able commander and a sagacious statesman; he was a patron of literature and the arts: he was deemed pious on account of the several churches that he built: he was, however, licentious in his private character, unbounded in his ambition, faithless, and distrustful, so that it has been said "his heart was as inaccessible as his country." He gained reputation by his valour, but lost all pretensions to rectitude by his invasion of the law of nations, and of the rights of independent states.

The Second Duke of Savoy of this name, was a friend to peace, and an ardent lover of his country. His great ambition was to maintain terms of friendship with surrounding states, and to improve his own by grand and useful projects. He adorned his capital with some of its most magnificent edifices, and he is celebrated for penetrating the rock Monte Viso, with an arched road 500 paces in length, and admitting two laden mules to walk abreast, for transporting goods to and from France and Italy. He died in 1675, after a reign of 38 years.

CHARLES EMANUEL III. is, however, by much the most celebrated of the dukes of Savoy. He succeeded to the throne, by the voluntary resignation of his father, in 1730, with the titles of duke of Savoy and king of Sardinia, his predecessor having, at a general peace in 1713, been given Sicily, with the title of king; this, in four years after, he exchanged with the emperor for Sardinia, which it was agreed he should enjoy with the regal title. This prince, in 1733, united with France and Spain in a war against Austria; and in 1742 he allied himself with the queen of Hungary. During the several wars in which he was engaged, he experienced various reverses of fortune, but was for the most part successful. When he had obtained a peace, he devoted himself to the establishment of such regulations as might be beneficial to his subjects: he was particularly anxious to pay the debts which had been incurred by the war. When he had accomplished that favourite object of his heart, he exclaimed, "This day is the happiest of my life; I have just now suppressed the last of the extraordinary taxes." "How few," says a contemporary writer, "of the occupiers of thrones, have been capable of feeling such a pleasure?" His moderation and attachment to his country kept him free from the war of 1756, and in 1763 he enjoyed the felicity of acting as mediator between the contending powers. He zealously promoted every thing that could render his kingdom prosperous. He corrected the abuses of law by a new code, which was afterwards published at Paris, in 2 vols. 12mo. By his example, as well as by edicts, he sanctioned the principles of economy and good morals. He died on the 22d of February, 1773, leaving behind him the character of a wife and good king. *Du Fresnoy. Univ. Hist. Smollett.*

CHARLES, *Cape*, in *Geography*, a cape on the east coast of Labrador, N. lat. 52° 25'. W. long. 55° 20'.—Also, a cape of America on the coast of Virginia, at the east side of the mouth of the Chesapeake. N. lat. 37° 12'. W. long. 75° 58'.

CHARLES *River*, a river of America, in the state of Massachusetts, anciently called Quinobequin, the principal branch of which rises from a pond bordering on Hopkinton. It passes through Holliston and Bellingham, divides Medway from Medfield, Wrentham, and Franklin, and proceeding to Dedham, forms, by a curious bend, a peninsula of 900 acres of land. A stream, called "Mother Brook," runs out of this river in this town, and falls into Neponset river, forming a natural canal, uniting the two rivers, and affording a number of excellent mill-seats. From Dedham the course of the river is northerly, dividing Newton from Needham, Weston, and Waltham, passing over romantic falls: it then bends to the N.E. and E. through Watertown and Cambridge, and passing into Bolton harbour, unites with the waters of Mystic river at the point of the peninsula of Charlestown. It is navigable for boats 7 miles to Watertown. The most remarkable bridges on this river are those which connect Boston with Charlestown and Cambridge. On this river are 7 paper mills, besides other mills.

CHARLES *County* lies on the western shore of Maryland, between Potowmack and Patuxent rivers. Its chief town is Port Tobacco, on a river of that name. Its extreme length is 28 miles, and breadth 24; and it contains 20,613 inhabitants, including 10,085 slaves. The country has few hills, is generally low and sandy, and produces tobacco, Indian corn, sweet potatoes, &c.

CHARLES, a cape on the S.W. part of the strait entering into Hudson Bay. N. lat. 62° 40'. W. long. 75° 15'.

CHARLES

CHARLES City, a county of America in the state of Virginia, lying between Chickahominy and James rivers. It formerly contained part of what now forms Prince George's county. It has 5588 inhabitants, including 3141 slaves.

CHARLES-fort, a fort on the west coast of the island of Barbadoes; one mile S. of Bridge Town.—Also, a fort on the west coast of the island of St. Christopher; one mile S.E. of Sandy Point town.

CHARLES-fort, a fort on the east side of the bay of Kinfales, county of Cork, Ireland. It was begun by the earl of Orrery in 1670, and was finished at the expence of 73,000*l*. The duke of Ormond, on visiting it in 1681, called it Charles-fort in honour of the reigning monarch. It is a regular fortification, with a strong citadel to the land side, and is so situated, that all ships coming into the harbour, must sail within pistol shot of the battery. It has always a regiment in garrison, and another regiment is quartered in the town of Kinfales, about a mile and a half distant.

CHARLES island, an island in Hudson's Straits. N. lat. $62^{\circ} 40'$. W. long. $73^{\circ} 55'$.—Also, a small island in that part of the straits of Magellan, called Royal Reach.

CHARLES, ST. a lake of Canada, about twelve miles distant from Quebec; about $4\frac{1}{2}$ miles in length, and about $\frac{3}{4}$ of a mile in average breadth. It consists of two bodies of water nearly of the same size, communicating by a narrow pass, through which a current sets towards Quebec. The views on the upper part of this lake are highly picturesque, exhibiting rocks and trees beautifully blended, and shores that are bold and richly ornamented with hanging woods. Towards the upper end the view is terminated by a range of blue hills, which appear at a distance peeping over the tops of the tall trees. The depth of the water in the lake is, at an average, about 8 feet. The water is clear, but not well tasted; and as several streams fall into it, to supply what runs off by the river St. Charles, it is kept in a constant state of circulation. The shores abound with bullfrogs.

CHARLES, ST. a river that flows from the above-mentioned lake into the basin near Quebec; at its mouth it is about 30 yards wide, but not navigable for boats, except for a few miles, on account of its numerous rocks and falls. In the spring of the year, when it is swollen by the floods, rafts have been conducted down the whole way from the lake; but the passage is difficult and tedious, as there are several portages. The distance from the lake to Quebec being so short, land carriage must always be preferred to a water conveyance along this river, except for timber. The course of the river is very irregular, and the views upon it extremely romantic, particularly in the neighbourhood of Lorette, a village of the Huron Indians, where the river, after falling in a beautiful cascade over a ledge of rocks, winds through a deep dell, shaded on each side with tall trees.

CHARLES's Wain, in *Astronomy*, seven stars in the constellation *Ursa Major*. This figure is also called *David's Chariot*, the *Plough*, &c. These appear to have altered in brightness with respect to each other, since the time they were marked by Bayer. For if their present apparent order in splendour be denoted by the first seven figures, 1 answering to that of the highest magnitude; then α , which was the brightest according to Bayer, is now the fourth in order of brightness; β , which was the second in brightness, is the fifth in the present order; γ answers to the sixth; δ to the seventh; ϵ to the first; ζ to the third; and η , which was the last in order according to Bayer, is apparently the second in brightness. Upon the 3d of December, 1786, M. de La Lande observed a change in the above order.

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CHARLESTON, in *Geography*, a post town of Cecil county, in the state of Maryland, near the head of Chesapeake bay; 6 miles E.N.E. from the mouth of Susquehanna river; 10 W.S.W. from Elkton, and 50 S.W. by W. from Philadelphia. N. lat. $39^{\circ} 34'$. In this place there are about twenty houses, chiefly inhabited by people who are employed in the herring fishery. Beyond it the country is much diversified with hill and dale; and the soil being of an indifferent quality, the lands are so little cleared, that in many parts the road winds through uninterrupted woods for four or five miles together. The scenery in the neighbourhood is highly interesting. Near Charleston there is a small foundery for cannon, which are bored by water, and of which two 24 pounders are manufactured every week. The iron is extremely tough, so that few of the guns burst on being proved.

CHARLESTON, a district in the lower country of South Carolina, lying between Santee and Combahee rivers, and divided into 14 parishes. To the state legislature it sends 48 representatives and 13 senators, and to congress one member. It contains 66,986 inhabitants, of whom 16,532 are free; and pays taxes amounting to 21,473*l*. 1*s*. 6*d*. sterling.

CHARLESTON, the most considerable town, though not the present seat of government, in the state of South Carolina, situate in a district of the same name, on a tongue of land formed by the confluent streams of Ashley and Cooper, two large and navigable rivers, though not of great extent. By their union below the town they form a spacious and convenient harbour, which communicates with the ocean at a distance of about 7 miles below Sullivan's island. The tide in these rivers which commonly rises about $6\frac{1}{2}$ feet, has the singular property of uniformly rising 10 or 12 inches more in the night.

The situation of the town is flat and low, and the water brackish; but the agitation occasioned by the tides, and the refreshing sea breezes contribute to render it more salubrious than any part of the low country in the southern states. The streets, though too narrow for a place so large, and so warm a climate, are regularly formed; running from E. to W. and from river to river, they open in beautiful prospects, and they are kept clean and healthy by means of subterraneous drains. The streets are intersected at right angles by others, which distribute the town into a number of squares. The modern houses are chiefly constructed with brick and have tiled roofs; and many of the buildings are neat, elegant, and airy. The public edifices are, an exchange, a state-house, an armoury, a poor house, and an orphan's house. Besides several respectable academies, here is a college adapted to the accommodation of a number of students. The two banks of Charleston are a branch of the national bank, and the South Carolina bank, established in 1792. The places of public worship are, two episcopal churches, two for Independents, one for Scotch Presbyterians, one for Baptists, one for German Lutherans, two for Methodists, one for French Protestants, one for Quakers, a Roman Catholic chapel, and a Jewish synagogue. The adjacent country abounds with poultry and wild ducks; fish are rare in the market; and with regard to the beef, mutton, and veal, they are not generally esteemed of the best kind. Charleston was incorporated in 1783, and divided into 13 wards, in which are as many wardens, chosen by the inhabitants, one of whom is elected intendant of the city, by whom and the wardens is formed the city council, which is empowered to make and enforce bye-laws for the regulation of the police. The number of inhabitants was estimated in 1787, at 15,000, including 5400 slaves, and occupying 1600 houses;

houses; but in 1791, the inhabitants amounted to 16,359, of whom 7684 were slaves. This town has often suffered by fire, and particularly in June 1796. The value of exports from the port of Charleston in the year ending Nov. 1787, amounted to 505,279*l.* 19*s.* 5*d.* sterling, and the number of vessels cleared in that year from the custom-house was 987, of which 735 were American, and the rest belonging to Great Britain, Ireland, Spain, France, and the United Netherlands. In 1794, the value of exports amounted to 3,846,392 dollars. The light-house of this town lies in N. lat. $32^{\circ} 41' 52''$. White point at the south end of the town, in N. lat. $32^{\circ} 44' 30''$. W. long. $80^{\circ} 39' 45''$.

CHARLESTOWN, a township of Montgomery county, in the state of New York, on the south side of Mohawk river, about 32 miles W. of Schenectady; 496 of the inhabitants, being by the state census of 1796, electors.—Also, a township of Mason county in Kentucky, situated on the Ohio at the mouth of Lauren's creek; 6 miles N. of Washington, and 60 N.E. of Lexington. N. lat. $38^{\circ} 43'$.—Also, a township in Chester county, Pennsylvania.—Also, a post town in the county of Cheshire, and state of New Hampshire, on the E. side of Connecticut river, 30 miles S. of Dartmouth college, 116 N. of W. of Bolton, and 431 N.N.E. of Philadelphia; incorporated in 1753, and containing about 100 houses, a congregational church, a court-house, and an academy. Through this town the road passes from Boston to Quebec. N. lat. $43^{\circ} 16'$. W. long. $72^{\circ} 19'$.—Also, the principal town in Middlesex county, Massachusetts, called by the aboriginal inhabitants "Mishawun," connected with Boston by Charles river bridge. This town is built on a peninsula, formed by Mystic river on the E. and a bay from Charles river on the W. It is advantageously situated for health, navigation, trade, and almost all kinds of manufactures. The adjoining hills, celebrated in the history of the American revolution, afford delightful prospects of Boston and its variegated harbour of Cambridge and its colleges, and of an extensive tract of highly cultivated country. It contains within the Neck or parish about 250 houses, and 2000 inhabitants. The principal public buildings are a congregational church and an almshouse. Its chief manufactures are those of pot and pearl-ashes, ship-building, rum, leather, silver, tin, brass, and pewter. Its houses, population, trade, and navigation, have greatly augmented within a few years past. This town is a port of entry in conjunction with Boston. At the head of the Neck is a bridge over Mystic river, connecting Charlestown with Malden.—Also, a village in Berkeley county, Virginia, situate on the great road leading from Philadelphia to Winchester; 20 miles from Winchester.—Also, a township in Washington county, Rhode island, having the Atlantic to the S. and separated from Richmond towards the N. by Charles river, a water of Pawcatuck, 19 miles W. of Newport; containing 2022 inhabitants, including 12 slaves.—Also, a town on the island of Nevis, one of the Caribbees, belonging to Great Britain. It has large houses and well-furnished shops, and is defended by Charles-fort. Near the town is a high mountain, the altitude of which, taken from a quadrant in Charlestown bay, is said to be $1\frac{1}{2}$ mile perpendicular, and from the bay to the top 4 miles. N. lat. $16^{\circ} 55'$. W. long. $62^{\circ} 42'$.—Also, one of the principal towns in the island of Barbadoes called Ostins.

CHARLETON, in *Biography*. See **CHARLTON**.

CHARLETON Island, or *Charles Island*, in *Geography*, an island situated at the bottom of James's Bay, in New South Wales, on the coast of Labrador, and exhibiting a beautiful prospect of trees and branches, which are spread over the island.

The air at the bottom of the bay, though in N. lat. 51° , is excessively cold for nine months of the year, and very hot for the other three, except on the blowing of a N.W. wind. The soil, on both the east and west sides, bears all kinds of grain; and about Rupert's Bay are some fruits, as gooseberries, strawberries, and dewberries. N. lat. $52^{\circ} 30'$. W. lon. 82° .—Also, a township in Saratoga county, New York. By the state census of 1796, 268 of its inhabitants were electors.—Also, a township in Worcester county, Massachusetts, incorporated in 1754, and till that time forming the western part of Oxford; 60 miles S.W. of Boston, 15 S. W. of Worcester; containing 1965 inhabitants.

CHARLEVAL, **CHARLES FAUCON DE VELY**, *lord of*, in *Biography*, a polite scholar and poet, was born in 1613, and, notwithstanding the feebleness of a peculiarly delicate constitution, lived to the advanced age of 80 years. Of his conversation and writings, it is said, they were characterized by sweetness and refinement; and Scarron said of him, "that the Muses fed him only with blanc-mange and chicken-water." He was not only personally attached to polite literature, but a liberal patron of literary merit. Upon being informed that M. and Monf. Dacier were retiring from Paris to the country, in order to avoid expence, he pressed them to accept of 10,000 livres in gold. His death was occasioned by a fever, which his physicians thought that they had subdued by frequent bleedings. On saying to one another, in the presence of Thevenot, the king's librarian, "the fever is going at last;" he interposed, and observed, "O no, it is the patient that is going;" and he died in three hours. A small collection of his poems, consisting of stanzas, epigrams, songs, and sonnets, which are easy and elegant, but feeble in thought and style, appeared in 1759. *Nouv. Dict. Hist.*

CHARLEVAL, in *Geography*, a town of France, in the department of the Eure, and district of Les Andelys; 10 miles S.E. of Rouen.

CHARLEVILLE, a market and post town of the county of Cork, Ireland, situated on the border of the county of Limerick. It is in many respects a flourishing town, and its trade is daily increasing. It was formerly called Rathgogan; but the first Lord Orrery, better known by his former title of Broghill, being the possessor of it, changed its name to Charleville, in honour of the king; made it the seat of his government, as president of Munster, and had it erected into a borough, so that it sent two members to parliament, till the union deprived it of this privilege. Lord Orrery also established a free school there; and one of his successors gave ground for a charter-school, for the reception of 50 children. The country round about is very fertile; the soil is a light brown earth lying deep on a limestone bottom. Mr. Young speaks of 30 looms for making serge being in this town. It is 112 miles S.W. from Dublin, and 29 N. from Cork. Smith.

CHARLEVILLE, a town of France, in the department of the Ardennes, and chief place of a canton in the district of Mezieres, from which it is separated by the Meuse. Before the revolution, it belonged to the prince of Condé, being exempt from the general taxes of the kingdom. The place contains 7400, and the canton 12,567 inhabitants: the territory includes $137\frac{1}{2}$ kilometers and 12 communes.

CHARLEVOIX, **PETER-FRANCIS-XAVIER DE**, in *Biography*, a writer of voyages and travels, was born at St. Quentin, in 1684; and having entered the society of Jesuits, taught the languages and philosophy with reputation. After returning from his foreign missions, he was engaged for 24 years in the conduct of the "Journal de Trevoux," and was much esteemed by his brethren of the society for the purity

ity of his morals and the extent of his knowledge. He died in 1761. His works are, "A History of the Island of St. Domingo," 2 vols. 4to. 1730. "A History and Description of Japan," 1736. 2 vols. 4to. and 6 vols. 12mo. in which work is contained every thing that is true and interesting in Kämpfer's account of Japan; "History of Paraguay," 6 vols. 12mo. "General History and Description of New France," 1744, 3 vols. 4to. containing the result of his own observations on the manners and customs of the native Americans, during his residence in Canada, and in the course of his journey from Quebec to New Orleans, which are peculiarly valuable. Nouv. Dict. Hist.

CHARLIER, JEAN, an eminent ecclesiastic, born in 1363, at Gerfon, in France, from whence he takes the name Gerfon, by which he is more commonly known than by that of Charlier. He received his education at Paris; after which, he studied divinity ten years under Peter d'Ailly and Giles Deschamps, and received the degree of doctor in 1392. Three years after, he was appointed to the chancellorship and canonry of the church at Paris. At this period, the violent disputes between the dukes of Orleans and Burgundy, and the schism in the papal see, rendered Charlier's office very difficult to be executed. He went as a deputy, with others, in 1406, to Gregory and Benedict, the competitors for the papal see, with a view of persuading them to restore union to the church; and was afterwards highly instrumental in the deposition of both, and in the election of Alexander V. On the assassination of the duke of Orleans, by the order of the duke of Burgundy, in 1408, he inveighed publicly and loudly against the foul crime, by which he incurred the greatest danger from the triumphant party. He attacked the propositions written by John Petit in defence of the action committed by the duke of Burgundy; procured the censure of them by the faculty of theology at Paris, and supported their condemnation at the council of Constance, where he appeared in the capacity of ambassador from the king of France, and deputy from the university of Paris. At that council, he spoke on all matters of doctrine and discipline with so much eloquence, and conducted the cause in which he had embarked so ably, that he obtained the highest applause from cardinal Zabarella, and the titles of *evangelical* and *most christian* doctor were conferred upon him. At the instance of Gerfon alone, the council of Constance decreed, that Petit's principle was heretical, seditious, authorising treason and perjury; and they farther decreed, that whoever maintained it should be considered as obstinate heretics. On every occasion he displayed the purest and most enlightened zeal for the reformation of manners, and his own example proved the sincerity of the motives by which his conduct was actuated. His noble indignation against the infamous principles avowed and defended by Petit, drew upon him the malice of the Burgundian faction, so that he dared not, upon the breaking up of the council, return immediately to France, but remained in Germany in the disguise of a pilgrim. At length he undertook the humble occupation of a schoolmaster at Lyons, in which he continued some years, and died in 1429, aged 66. Gerfon was author of many works, which were collected in 1706, and published at Antwerp, in five volumes folio. To him has sometimes been ascribed the celebrated treatise "*On the Imitation of Christ*;" but Du Fresnoy, and other French historians, have determined that this was not written by Gerfon. To the Antwerp edition of his works is prefixed a piece entitled "*Gerfonia*," containing a multitude of curious biographical anecdotes of the author, Peter d'Ailly, and other contemporary divines. According to the testimony of Du

Pin, the church never had an author of greater reputation, more profound knowledge, and more solid piety, than Gerfon. His style, though harsh and sometimes careless, is methodical, and his arguments are generally conclusive. "He defends the truth," says the ecclesiastical historian, "upon all occasions, with an admirable and undaunted courage. He suffered a cruel persecution for a righteous cause, and died in exile for maintaining it with vigour." Du Fresnoy. Du Pin. Priestley's Eccl. Hist.

CHARLIEU, in *Geography*, a town of France, in the department of the Loire, and chief place of a canton, in the district of Roanne; 12 miles N.W. of Lyons, and 3 N. of Roanne. The place contains 2829, and the canton 10361 inhabitants: the territory includes 147½ kilometres and 15 communes.

CHARLOCK, in *Botany*. See *SINAPIS arvensis*, and *RAPHANUS raphanistrum*.

CHARLOCK, in *Gardening*, (*Sinapis nigra*), is a weed too generally known to the farmer to require a minute description. It is frequently called *chadlock*, *catlock*, *corlock*, and *white rape*. Almost the whole plant is covered with pellucid hairs.

There are, according to some, two sorts of charlock, one bearing white and the other yellow flowers; but they are said to be only a variety of the same plant.

And it is observed by the author of the Staffordshire agricultural report, that the "yellow-flowered weed termed chadlock by the farmer, is not one individual, but three separate and distinct plants, each species more or less abounding in different places, and which are as follow: 1. The rough-leaved chadlock, or wild mustard, (*sinapis nigra*); 2. the smooth-leaved or wild rape, (*brassica napus*); and the rough-leaved wild radish with white flowers, (*raphanus raphanistrum*). These plants are all annuals, produced entirely from seeds, which they bear in great abundance, and which seeds will lie in a clod as safe as in a granary, and vegetate at the end of twenty years, when ploughed up and exposed to moisture. These intruders are only to be extirpated by ploughing them under when the field is fallow, or by weeding them out of the crop before their seed shall have been ripened; for if suffered to perfect and shed their seed, each single plant will produce an hundred; the farmer should therefore carefully prevent this by weeding or hoeing them out in time. The increase of the above and some of our field weeds, when they are permitted to shed their seed, is, he says, beyond all calculation."

The young plants of charlock, are said so nearly to resemble those of turnips that they are not easily distinguished but by the taste; the charlock being hot and bitter, and the turnip mild. Farmers should therefore be very careful in weeding their turnips lest they mistake them for charlock. Mr. Lisle has suggested that cold wet lands are always more subject to charlock than white or chalky lands; and that by an experiment which he made in sowing charlock seed and turnip-seed at the same time, he found that the turnips appeared in three days, but the charlock not in less than ten.

It has been remarked that sheep are fond of eating these weeds; and that of course advantage may be derived from feeding them down in the spring by sheep. See WEEDS.

CHARLOTIA, in *Geography*, a town on the E. shore of St. John's river in East Florida, seated on a high bluff, 15 or 20 feet in perpendicular ascent from the river, and half a mile or more in length. The aborigines of America seem, from the remains of great tumuli and conical mounts of earth and shells, and other traces of a settlement, to have

had a large town in this place. The river for an interval of about 12 miles above the town, is divided into many channels by a number of islands.

CHARLOTTE, a considerable township on the east side of lake Champlain, and the south-westernmost in the county of Chittenden and state of Vermont. It is separated on the north from Burlington by Shelburne, and contains 635 inhabitants.

CHARLOTTE, a county of Virginia, lying S. W. of Richmond on the head waters of Staunton river, and containing 10,078 inhabitants, of whom 4816 are slaves. The court-house is distant 21 miles S. S. W. from Prince Edward court-house, and 379 in about the same direction from Philadelphia.

CHARLOTTE'S Bay, a bay on the south-east of Nova-Scotia. N. lat. $44^{\circ} 35'$. W. long. $58^{\circ} 50'$.

CHARLOTTE, Cape, a cape at the south extremity of New Georgia. S. lat. $54^{\circ} 32'$. W. long. $36^{\circ} 11'$.

CHARLOTTE Fort, a fort of America, in the state of South Carolina, near the town of Petersburg in the state of Georgia.

CHARLOTTE'S, QUEEN, Isles, a group of islands on the N. W. coast of America, bounded towards the south by Cape St. James, and to the north by Cloak Bay, North Island, and Dixon's Straits; and situate between N. lat. $51^{\circ} 48'$ and $54^{\circ} 12'$, and W. long. $134^{\circ} 30'$ and 130° . The inhabitants of these islands consist, according to captain Dixon's account, of several tribes of Indians, who are in their disposition and manners ferocious and savage, so that they are frequently in a state of hostility with one another, and feast on the bodies of their enemies that are slain in battle, whilst they preserve the heads as trophies of victory. However, they carry on by means of their canoes, a very considerable trade in furs of an excellent quality. They appeared to be much addicted to plunder, and with this view they not only permitted, but urged their females to go on board the English ships whenever invited, availing themselves of the opportunities which these visits afforded them of stealing, with singular dexterity, whatever fell in their way. Although every tribe in these islands is governed by its respective chief, they are nevertheless divided into families, each of which appears to have regulations, and a kind of subordinate government of its own.

The chief usually trades for the whole tribe, but sometimes each separate family, disapproving his method of barter, has claimed a right to dispose of its own furs, and the chief has always complied, though it is uncertain whether he receives in consideration of his compliance any emolument. The number of sea-otter skins collected by captain Dixon at these islands was no less than 1821, many of which were very fine; other furs are found in less variety here than in many other parts of the sea-coast; racoons, pine-martins, and seals, being the only kinds that were seen. Portlock and Dixon's Voyage, &c. p. 228, &c. 8vo. Vancouver's Voyage, vol. i. p. 369, &c. It has been disputed to whom we are indebted for the first discovery of Queen Charlotte's Islands: captain Meares, (Voyages, p. 53,) says, that captains Lowrie and Guyse, who commanded two vessels that were fitted out at Bombay in 1786, and which arrived at Nootka Sound on the 29th of June, where they remained till the 27th of July, indisputably discovered that land to which Mr. Dixon gave the name of Queen Charlotte's Islands; which he is said to have done merely from conjectural opinion, as they were never proved to be such, till captain Douglas, in the *Iphigenia*, sailed through the channel which separates them from what was then supposed to be the American continent. M. Fleuriu, in his intro-

duction to Marchand's voyage, does not presume to dispute with the English this last discovery; for he says that La Perouse, who had rightly presumed that these lands must be an island, had not an opportunity of satisfying himself in this particular; but he contests with captain Meares the priority of the discovery attributed to captains Lowrie and Guyse. It is not known, he says, at what precise period they saw Queen Charlotte's Islands, nor how the discovery was made, nor what portion of these lands they examined; but we certainly know, that La Perouse discovered them on the 10th of August of the same year; that he followed and examined the coasts of them for 10 days, and ranged along them from north to south, over an extent of 50 leagues. After all, on whatever side the priority lies, the two discoveries must be nearly contemporary; and it is alleged, that on both sides the honour is equal. Captain Dixon continuing his rout in 1787, from the space included between the parallels of 50° and 55° to the S. S. E. discovered on the 1st of July, land in $54^{\circ} 24'$, which was the north part of those islands that are now laid down in the English charts under the name of Queen Charlotte's Islands, and of which La Perouse had been the first discoverer the preceding year. Dixon ranged along the Archipelago, as La Perouse had done, by the western shore, to its southern extremity, doubled it to the southward, and stood again to the northward, ranging along the east shore, as far as $53^{\circ} 10'$. He afterwards ran down the east coast of these islands, as he had ascended it, without pushing his researches towards the continent. Captain Duncan in 1788 anchored and traded in several harbours of the east coast of Queen Charlotte's Islands, examined and visited them, from the latitude of 52° to 54° . Captain Douglas, who made a voyage to the N. W. coast of America in 1788, in company with captain Meares, running down the coast, visited some ports which had not been known, and one among others, towards the latitude of 55° , to which he gave the name of Port Meares. That harbour is situated on the northern side of the strait, which to the northward separates from the continent the lands discovered in 1786 by La Perouse, and called Queen Charlotte's Islands. It appears that captain Douglas is the first known navigator who passed through this strait, and thus penetrated by the north side into the gulf or channel which is situated between the islands to the west and the archipelago of San Lazaro. Douglas ranged along this channel throughout its whole length, without ever ceasing to see land on both sides, the arm of the sea that separates the islands from the continent not being more than 20 leagues wide; and he ran down as far as Nootka Sound, where he rejoined captain Meares. The two ships of these commanders carried to Canton the furs which they had procured on the different parts of the coast that they had visited. See Marchand's voyage by Fleuriu, vol. i. Intro.

CHARLOTTE'S, QUEEN, Sound, a sound of New Zealand, visited by captain Cook in 1774; the situation of which was minutely ascertained by the observations of Mr. Wales, to be in N. lat. $41^{\circ} 5' 56.5''$. E. long. $174^{\circ} 25' 7.5''$.—Also, a sound on the western coast of N. America, in N. lat. about 51° , and E. long. 128° .

CHARLOTTE'S Town, a town of the island of Dominica, on the west coast, formerly called Roseau. N. lat. $15^{\circ} 25'$. W. long. $69^{\circ} 24'$.

CHARLOTTE'S Town, a town of the island of St. John, in the gulf of St. Lawrence, situate about the center of the island, towards the south coast. N. lat. $46^{\circ} 15'$. W. long. $62^{\circ} 50'$.

CHARLOTTEBURG, a town of America, in the county of Brunswick and state of North Carolina, seated on an island, and having an inlet and sound of the same name, a little to the south of it. N. lat. $35^{\circ} 18'$. W. long. 81° .

CHARLOTTENBERG, a town of Germany, in the circle of Westphalia, and county of Holzapfel, built by the French refugees; 4 miles S.W. of Holzapfel.

CHARLOTTENBURG. See **BERLIN**.

CHARLOTTENBURG, a town of America, in the state of Jersey, and county of Bergen; 12 miles N. of Morris town.

CHARLOTTENLUND, a town of Denmark, in the island of Zealand; 4 miles N. of Copenhagen.

CHARLOTTESVILLE, or **CHARLOTTE**, a post town of America in Salisbury district and state of North Carolina, and the chief town of Mecklenburg county, seated on Steel creek, which joins the Sagaw, and falls into Catabaw river, about 10 miles N. of the South Carolina boundary, and 44 S. of Salisbury, containing about 40 houses, a court-house, and gaol.

CHARLOTTESVILLE, a town of America, the capital of Albemarle county in the state of Virginia, lying on the post road from Richmond to Danville in Kentucky; and containing about 45 houses, a court-house, and a gaol; 86 miles W.N.W. of Richmond, and 40 S.E. by E. of Staunton.

CHARLTON, **WALTER**, M. D. in *Biography*. Of this learned and ingenious physician, and of his numerous writings, Anthony Wood, who was cotemporary with him, has given a long account, from which the following is principally taken. He was born at Shepton Mallet, in Somersetshire, on the second of February 1619, and received the rudiments of his learning under his father, who was rector of the place. In 1635, he was admitted a commoner in Magdalen Hall, Oxford, and put under the tuition of Mr. John Wilkins, afterwards bishop of Chester, under whom he made considerable progress in logic and in philosophy. His disposition leading him to the study of medicine, he soon became conspicuous for his proficiency in that art, and in 1642 he was created doctor in medicine by the favour of the king, Charles the first, and appointed his physician in ordinary. With this title he came to London, was admitted a fellow of the college of physicians, and continued to enjoy a considerable share of credit during the troublesome times that followed. On the restoration of king Charles the second, he was made one of his physicians in ordinary, and a member of the newly formed royal society, about which time his first publication appeared, "*Spiritus Gorgonicus exutus, seu de causis, signis, et sanatione Lithiasis.*" 8vo. Lug. Bat. 1650. in which he adopts the opinion of Van Helmont, as to the cause of the generation of urinary calculi, and recommends the seed of the wild carrot as a powerful lithontriptic. "*Exercitationes pathologicae, in quibus morborum pene omnium natura et causa ex novis anatomicorum inventis inquiruntur.*" London, 1661, 4to. In this, as well as in the rest of his medical lucubrations, there is little new; but they tended to spread the knowledge of the many improvements in anatomy and physiology which had been made by the Bartholines, by Harvey, Ghiffon, &c. "*Natural History of Nutrition, Life, and voluntary Motion, containing all the new Discoveries of Anatomists.*" 4to. London, 1658. But his inquiries were not confined to medical subjects. He wrote "*The Darkness of Atheism discovered by the Light of Nature.*" "*The Ephesian and Cimmerian Matrons; two remarkable*

examples of the power of love and wit." In 1660, to shew his loyalty, which had perhaps been suspected, from his living about the court of Oliver Cromwell, he circulated a sheet, containing a character of his most sacred majesty, Charles the Second; and in 1663 he published "*Chorea Gigantum; or the most famous Antiquity of Great Britain, vulgarly called Stone Henge, standing on Salisbury Plain, restored to the Danes.*" 4to. Inigo Jones had supposed it was a Roman temple. Charlton, instructed, Wood says, by Olaus Wormius, the Danish antiquary, insisted, that the stones were placed there by the Danes, but they were supposed, with more propriety, to be Druidical remains. We have also by him an Harveian oration, printed in 1680: Lectures on the structure of the heart, the course of its motion, &c. read before the college on the 19th, 20th, and 21st, days of March, 1682, with numerous other pieces, for titles of which see Wood's *Athenae Oxon.*, Haller's *Bib.*, General Biography, &c. In 1689 he was made president of the College of Physicians, which office he held two years. It is probable, however, that he never had any very considerable share of practice, as we find him soon after this retired to the island of Jersey, "where he now is, Ant. Wood says, viz. 1695, a learned and unhappy man, aged, and grave, yet too much given to romances." Wood gives a list of more than twenty publications by Charlton, and he is known to have intended many more, the manuscripts being now in the British museum. The greater part of his publications and writings were alien to the practice of medicine, and must therefore have tended rather to obstruct, than forward his acquisition of fortune. He died in the year 1707, in the 88th year of his age.

CHARLTON, in *Geography*, an island in the southern part of Hudson's bay. N. lat. $52^{\circ} 8'$. W. long. 85° .

CHARLY, a town of France, in the department of the Aisne, and district of Chateau-Thierry, 2 leagues S.W. of it.

CHARM, derived from the Latin *carmen, versè*, a magic power, or spell, by which with the assistance of the devil, forcerers and witches are supposed to do wondrous things far surpassing the powers of nature. See **MAGIC**.

Phylacteries, ligatures, &c. are, all, kinds of charms.

CHARMANDA, in *Ancient Geography*, a nation of Asia, placed by Xenophon on the other side of the Euphrates.

CHARMES, in *Geography*, a town of France, in the department of the Vosges, and chief place of a canton, in the district of Mirecourt, $2\frac{1}{2}$ leagues N.E. of it. The place contains 2686, and the canton 10743 inhabitants; the territory includes $217\frac{1}{2}$ kilometres and 27 communes.

CHARMIDAS, in *Biography*, the companion of Philo of Larissa (see **PHILO**), and celebrated for the compass and fidelity of his memory, and for his moral wisdom. Cic. *Tusc. Quæst.* l. i. Plin. *H. N.* l. x. c. 16. Stobæus, *serm.* 212.

CHARMIS, a native of Marseilles, but for his great skill in the practice of medicine invited to Rome, where he flourished in the time of the emperor Nero. Having succeeded in restoring some of the principal men there to health, by means of the cold bath, he soon found himself at the head of the profession, and was thence enabled to acquire a large property. He is said to have charged one of his patients 200 sesterces, a sum equal, Le Clerc says, to 20,000 livres, or 800l. sterling, for a single cure. He decried, Pliny says, the practice of his brethren; though he might have recollected, that the cold bath, by the use of which he acquired his reputation, had been recommended by Ant. Musa. He invented

an antidote, to which he gave his name; the formula is preserved by Galen, but it has been long out of use. *Lc Clerc. Hist. de la Med.*

CHARMIS, in *Ancient Geography*, a small town of the island of Sardinia, founded, according to Steph. Byz. by the Carthaginians.

CHARMOGOL, in *Geography*, a town of Persia, in the province of Chorasan: 200 miles N. of Herat.

CHARMONT, a town of France, in the department of the Marne; 14 miles N.E. of Vitry.

CHARMOSYNA, in *Mythology*, a festival at Athens; and, according to Plutarch, in Egypt.

CHARMOTAS, in *Ancient Geography*, a sea-port of the Arabic gulf, the entrance of which, according to Strabo, was strait and dangerous.

CHARMOUTH, in *Geography*, a village of England, on the coast of the county of Dorset, at the mouth of a small river called *Char*, where the Danes made a descent, and ravaged the country, in the years 833 and 840; 3 miles E. of Lime.

CHARMUT, in *Ichthyology*. The Linnæan *Silurus anguillaris*, which inhabits the Nile, and other rivers of Asia, is known among the Arabians by the name of Charmut. See *SILURUS anguillaris*.

CHARMUTH, *Silurus charmuth niloticus* of Hasselquist is the Linnæan *Silurus anguillaris*, which see.

CHARMUTHA, in *Ancient Geography*, a peninsula of the Arabic gulf, on the coast of Arabia Felix, according to Diodorus Siculus.

CHARNEL, a portico, or gallery, anciently near the church-yard; over which were disposed the bones of the dead, when the flesh was consumed.

The charnels, or charnel-houses, are now usually contiguous to the church.

CHARNEZAY, in *Geography*, a town of France, in the department of the Indre and Loire, and district of Loches; 10 miles S. of it.

CHARNUB, in the *Materia Medica*, a name given by some of the ancient writers to the *siliqua dulcis*, or carob-tree. The Arabian physicians mention two kinds of this; the Syrian, and Nabathæan: the first they call *aljembut*, and the other *alnabat*. Avicenna tells us, that the first of these was a purge, and was given with success in pains of the bowels; and the other an astringent, given in profluvia of the menses.

CHARNY, in *Geography*, a town of France, in the department of the Meuse, and chief place of a canton in the district of Verdun; one league N. of Verdun. The place contains 615, and the canton 9011 inhabitants: the territory comprehends 215 kilometres and 21 communes.

CHARNY, a town of France, in the department of the Yonne, and chief place of a canton in the district of Joigny; 19 miles N.W. of Auxerre. The place contains 813, and the canton 13,141 inhabitants: the territory includes 287½ kilometres and 21 communes.

CHAROLLAIS, a small country of France, before the revolution; so called from Charolles, the capital.

CHAROLLES, a town of France, in the department of the Saône and Loire, and chief place of a district. The place contains 240, and the canton 10,811 inhabitants: the territory includes 190 kilometres and 14 communes.

CHARON, a town of France, in the department of the Lower Charente; 3 leagues N. of Rochefort.

CHARON, in *Mythology*, the ferryman of hell; son of Erebus and Nox, according to the theogony of Hesiod, whose province it was to carry in his boat, over the waters of

Acheron, Styx, Cocytus, and Phlegethon, the souls of the dead; particularly of those who were buried; for persons who were not interred were supposed to wander about the shores for 100 years before they were carried over. Thus Virgil (*Æn. vi.*) describes their state:

“Centum errant annos, volitant hæc litora circum:
Tum demum admissi flagna exoptata revifunt.”

A hundred years they wander on the shore,
At length, their penance done, are wafted o'er.

However, Charon was first paid his fare, which was never less than one obolus, nor more than three, which was put into the mouths of persons interred. Some mythologists have derived his name from *Acharon*, sine gratia, formed of *α priv.* and *χαρις, gratia*, denoting the ungracefulness of his aspect. Others say, that *Charon*, in the old Egyptian, signified simply a ferry-man. The Arabian historians describe Charon as a person of great power; who could load several camels with the keys which opened the numerous apartments that contained his treasures. Perhaps in Egypt the name of Charon was a dignity bestowed on the boatmen who conveyed the bodies of the Pharaohs over the lake Mæris to deposit them in the cells of the labyrinth, of which he was the keeper. Without doubt, the person who performed the same office on the lake of Memphis, with respect to the inhabitants of that city, had the same title. If this conjecture be founded, we discover the reason why the Greeks, borrowing from the Egyptians, gave the name of Charon to the boatman of hell; and why the Arabs call the lake of Mæris, “birkut Caroun,” and ruins in its vicinity “balad Caroun,” the burgh of Charon, and “cafr Caroun,” the palace of Charon. The present inhabitants of Egypt have a kind of traditionary fable, that Charon was a person of mean extraction, who placed himself near this lake, and demanded a certain sum for every corpse that was ferried over to be interred; which imposition he continued for several years without any authority; but as he insisted upon receiving the usual fare for the king's son, the fraud was discovered and discontinued. The king, however, as the fable reports, perceiving the advantage of this impost, confirmed it by royal authority, and appointed Charon to the post he had before occupied, which he rendered the most lucrative office in the kingdom. It is also said that he became so rich and powerful, as to assassinate his sovereign, and ascend the throne in his stead. To this fanciful narration we may subjoin the account given by Tzetzes, who, representing the Fortunate islands as British, observes, that the souls of the dead are reported to be carried thither; and that on the shore of the ocean, which washes the island called Britain, men subsist by fishing, who are subject to the Franks, but pay them no tribute, because, as it is reported, they transport the souls of the dead to the coast of Britain, which is reckoned among the islands of the blessed, and the habitation of deceased persons, conveyed thither by these fishermen. Charon is represented by the poets as a fat, squalid, old man, with a long grey beard, and rheumatic eyes, clad with tattered rags, that scarcely covered his nakedness. Virgil describes him as possessing the vigour and firmness of old age, meanly clad, with a long beard, grey matted hair, and fixed fiery eyes. Thus,

“Portitor has horrendus aquas et flumina servat
Terribili squalore Charon: cui plurima mento
Canities inculta jacet; stant lumina, flammæ:
Sordidus ex humeris nodo pendet amictus.

*Ipse ratem conto subigit, velisque miniftrat,
Et ferrugineâ subveſtat corpora cymbâ,
Jam ſenior; ſed cruda Deo viridiſque ſenectus.*"

Æn. vi. v. 298, &c.

There Charon ſtands, who rules the dreary coaſts :
A ſordid god : down from his hoary chin
A length of beard deſcends, uncomb'd, unclean ;
His eyes like hollow furnaces on fire ;
A girdle, foul with greaſe, binds his obſcene attire.
He ſpreads his canvas, with his pole he ſteers,
The freights of ſitting ghoſts in his thin bottom bears.
He look'd in years ; yet in his years were ſeen
A youthful vigour, and autumnal green.

CHARONDAS, in *Biography*, a native of Catanea in Sicily, flouriſhed about 446 years B. C. and is ſuppoſed to have been a diſciple of Pythagoras. He was diſtinguiſhed both as a philoſopher and a legiſlator ; and is ſaid to have framed a code of laws for his own native place and ſeveral other cities of the Chalcidians, and alſo for the Magii ; and they were afterwards adopted by the inhabitants of Thurium in Magna Græcia, rebuilt by the Sybarites, when they eſta bliſhed their republic. Some of theſe laws were ſuch as follow : Perſons who married a ſecond time, if any children by their firſt wives were living, were excluded from the ſenate, and from all public employments, becauſe bad fathers, as the legiſlator conceived ſuch to be, would make bad magiſtrates. All falſe accuſers were carried through every part of the city crowned with heath or broom, and thus expoſed to public ignominy, as the vileſt of men. All thoſe were perſecuted and fined who formed a correſpondence, or contracted a friendſhip with wicked men. Conceiving ignorance to be the greateſt evil and the ſource of vice, Charondas enjoined, that the children of all the citizens ſhould be inſtructed in literature and the ſciences. Inſtead of putting deſerters and thoſe who fled in the day of battle to death, he ſentenced them to appear for three days in the city, dreſſed in the habit of women. To prevent the raſh and haſty abrogation of his laws, he enjoined, that thoſe who propoſed to alter or amend them, ſhould appear in the public aſſembly with a halter about their necks, and if the alteration propoſed did not paſs, they were to be immediately ſtrangled. Charondas did not long ſurvive his own laws. Returning one day from purſuing ſome thieves, and finding a tumult in the city, he came armed into the aſſembly ; though he himſelf had prohibited any perſon's doing ſo by an expreſs law. When a perſon obſerved him and recriminated in ſevere terms on account of the violation of his own laws, "I do not violate them, ſays he, but thus ſeal them with my blood ;" and having thus ſpoken, he plunged his ſword into his boſom, and expired. Diod. Sic. Diog. Laert.

CHARONIUS, *Charonean*, is uſed as an epithet for caves, ſome of which are found in Italy, and in other parts of the world, where the air is ſo loaded with a poiſonous vapour, that animals cannot live in them even a few moments.

CHAROST, in *Geography*, a town of France, in the department of the Cher, and chief place of a canton in the diſtrict of Bourges, ſeated on the river Arnon ; four leagues S.W. of Bourges. The place contains 1050 and the canton 8635 inhabitants : the territory includes 302½ kilometres, and 13 communes.

CHARPE, in *Military Language*. This conſiſts of two ropes or cables faſtened together, ſomewhat croſſways from one ponton to another, as alſo to the banks or ſides of a river, when you wiſh to make a bridge acroſs it, in order to keep the pontons ſteady in their places.

CHARPENTIER, FRANCIS, in *Biography*, a native of

Paris, where he was born in 1620. Although he was originally intended for the bar, his love of retirement, and attachment to literature, diverted him from this purſuit, and induced him to rank himſelf among the men of letters. His reputation and connections cauſed him, in 1651, to be elected a member of the French Academy ; and after he had been employed by the miniſter Colbert, in recommending to the nation the propoſed eſta bliſhment of an Eaſt India company, he was choſen, under the ſanction of the miniſter, a member of the new-inſtituted Academy of Inſcriptions and Belles Lettres, for which diſtinction his knowledge of the ancient languages peculiarly qualified him. M. Charpentier, however, though converſant with ancient writers, and though he had commenced his career by the tranſlation of Xenophon's *Cyropædia* and *Memorabilia*, was very far from indulging a bigotted attachment to antiquity ; and in the diſpute that agitated the literati concerning the comparative merit of the ancients and moderns, he took part in favour of the latter. In 1676, he wrote "A Defence of the Uſe of the French Language for the Inſcription on the Triumphal Arch ;" and in 1683, he publiſhed two volumes "On the Excellence of the French Language." Theſe publications excited the avowed enmity of Boileau, who ſatirized him with an unwarrantable ſeverity ; although it muſt be allowed that his taſte was unequal to his vivacity and learning. The inflated ſtyle of the inſcriptions placed under the pictures of Le Brun in the gallery at Verſailles, ſuch as "The incredible paſſage of the Rhine," and "The miraculous capture of Valenciennes," incurred juſt cenſure, and the epithets were eraſed by the king's order. In his adulation of the king he exceeded his contemporaries, even at a period when they were vying with one another in this kind of panegyric. Charpentier was ambitious of diſplaying his rhetorical powers, which he poſſeſſed in an eminent degree, on various occasions ; and particularly in the meetings of the French Academy, at which he was aſſiduous in his attendance. His laſt work, entitled "A Diſſertation on the Excellence and Utility of Academic Exercices," was publiſhed in 1695. As to his private character, it was eminently mild and honourable. Whiſt he retained the grateful remembrance of benefits which he received, he ſoon forgot injuries, and never cheriſhed rancour againſt any of his adverſaries. He died in 1702 ; and long after his death ſome literary fragments were publiſhed under the title of "Carpentariana," that are held in no great eſtimation. D'Alemb. Hiſt. des Memb. de l'Acad. Fr. Gen. Biog.

CHARPENTIER, in *Military Language*, a carpenter. Such workmen are abſolutely neceſſary in the ſuite of an army. Without their aſſiſtance the miners can do nothing. For all military operations in general their ſervices are indeed more or leſs neceſſary. Care ſhould be taken, that ſuch of them, as follow an army, are ſtrong and robuſt.

CHARPENTIER jaune, in *Ornithology*. See *Picus exalbidus*.

CHARPEY, in *Geography*, a town of France, in the department of the Drôme ; 3 leagues E. of Valence.

CHARPOTE, in *Ancient Geography*, a town of Aſia, ſituate between the mountains, in the valley through which paſſed the river Arſanias in its courſe to the Euphrates.

CHARR, CHAR, or as ſometimes called *Gharre*, in *Ichthyology*, the common name of the Alpine ſalmon, *Salmo Alpinus* of Linnaeus. This fiſh is found in the lakes of Weſt-morland, and the mountainous parts of northern Europe. It is eſteemed an excellent fiſh for the table, and poſſeſſed is conſidered an article of luxury. In England we diſtinguiſh more than one kind of charr, though they are generally believed to appertain to a ſingle ſpecies only. Mr. Pennant ; upon

upon the authority of the Rev. Mr. Farrish of Carlisle, enumerates the *Cafe charr*; the *Gelt charr*, or one which has not spawned the preceding season, and is on that account reckoned to be in the greatest perfection; and the *Red charr*, which last is distinguished in Westmorland by the name of Red charr, because in dressing the flesh assumes a higher colour than the others. The same circumstance is observable in the trout. With respect to the *Torgoch* of the Welsh, or "*Red belly*," a kind of charr found in one of the Snowdonian lakes, we are not satisfied that it is of the same species as the charr of Westmorland, though uniformly described as such by authors. This we shall notice more particularly under the article *Salmo Alpinus*, observing only in this place, that the fish spawns at a different time of the year from the former, that it is smaller, and brighter instead of paler in colour when in season than the red charr of the Westmorland lakes. Vide Donov. Brit. Fishes; and article *SALMO alpinus*.

CHARRÆ, or CHARRHÆ, in *Ancient Geography*, a town of Asia, in Mesopotamia, situate near the river Scyrus, now called "Harran," and thought to be the same that bears this appellation in the history of Abraham's peregrinations.

CHARRARA, in *Geography*, a town of Persia, in the province of Faristan: 48 miles N.W. of Schiras.

CHARRES, a town of Arabia; 9 miles N.N.E. of Sana.

CHARRETTE, a cart. Every one knows the meaning of this word. But it is proper to introduce it, as charrettes are extremely useful in matters of artillery. They serve the purpose of carrying and transporting ammunition; and vary in their forms or figures in different departments thereof, as the lieutenant generals and commanding officers of artillery have them constructed each according to his own method to suit the countries they serve in.

CHARRIERE, JOSEPH, DE LA, in *Biography*, a surgeon of eminence of Annecy, in Savoy. After residing several years in Paris, and receiving the instruction of the best masters there, he returned to Annecy, where he soon distinguished himself by his superior attainments. In 1690, he published, as the result of an extensive practice, "*Traité des Operations de Chirurgie*," 12mo. Paris. He gives the descriptions of each of the diseases, with the reasons for, and the manner of performing the operations; and though this treatise was superseded by the *Institutiones Chirurgicæ* of Heister, as Heister's has been by the works of later writers, it enjoyed, in its time, no small share of reputation, as appears by its having been reprinted six or seven times in the space of twenty years. "*Anatomie nouvelle de la Tête de l'homme*," 12mo. 1703, Paris. The parts are minutely and with sufficient accuracy described, but with no addition to what was before known on the subject. Hall. Bib. Anat. et Chir. Eloy. Dict. Hist.

CHARRING of Posts, in *Rural Economy*, the practice of reducing that part of the surface of posts which is to be put into the ground to somewhat of the state of charcoal, so as to render it more durable and lasting. This method of preparing posts is highly useful where they are to be placed in wet situations, or to stand between wet and dry. The practice is common in Norfolk; where, according to Mr. Marshall, it is thus performed: "A trench is dug eighteen inches wide, eighteen inches deep, and six feet long, and aired by burning some straw and a faggot or two in it previously to laying down the posts. This being done, three posts are laid across the trench; placing the part to be burnt, namely, the part proposed to stand between air and moisture, immediately over the fire; thrusting the fuel (dry oven faggots) in at the windward end of the trench. As one side becomes charred, another is turned downward;

and, to prevent the fire from spreading too wide (reaching too high up the post), the part not intended to be burnt is wetted by means of a wet straw band, tied round the post, on the part where the fire ought to be checked; pouring water from time to time upon the twined straw. The posts having been repeatedly turned on all sides, until white ashes begin to form on the surface of a black coat of coal, about one-tenth of an inch thick, they are removed, and their places supplied by others. Chips, he says, are preferable to faggots, as fuel, in this operation; as they can be dropped in between the posts wherever an increase of fire is wanted."

From the great scarcity of hop-poles it has been suggested that this method may likewise be useful in preserving the bottom parts of them from decaying. As 3000 of these poles are required for an acre of land, this is conceived to be an object of great moment to the hop planter.

CHARROI, *Carriage*, or *Wainage*, in *Military Language*. This word ought to be regarded as extending in its meaning to all carriages, horses, mules, and, in general, to every thing destined for the transport of all kinds of provisions and ammunition for the use of armies.

CHARRON, PETER, in *Biography*, was the son of a bookseller, at Paris, and born in 1541. He was educated for the law at Orleans and Bourges, and in the university of the latter place he took his doctor's degree. He practised as an advocate in the parliament of Paris for five or six years; but renouncing the profession in disgust, he directed his attention to theology, took priest's orders, and became a celebrated preacher. His reputation was such, that he was solicited to accept the office of canon to several churches, and he served as such to several cathedrals; he was also nominated by queen Margaret her preacher in ordinary, and he was in the retinue of Cardinal d'Armagnac, legate at Avignon. After a long absence from Paris, he returned thither in 1588, and made an attempt to gain admission first among the Carthusians, and then among the Celestines, but he was refused, on account of his being too old to adopt their discipline; he therefore resolved to retain the office of a parish priest. At Bourdeaux, he contracted an intimate friendship with the famous Michael Montagne, and imbibed his philosophical sentiments. Their mutual affection was such, that Montagne gave by his will to Charron the privilege of bearing his arms, and Charron made the brother-in-law of Montagne his residuary legatee. In 1594, Charron published his treatise, entitled "*Three Truths*," proposing to maintain, 1. That there is a God and a true religion; 2. That of all religions the Christian is the only true one; and 3. That among Christian communions the Roman-Catholic is the only true church. This orthodox treatise procured for him from the bishop of Cahors the dignity of grand-vicar, and a theological canonship; and in 1595 he was deputed to the general assembly of the clergy, and made secretary to that body. In 1600, he printed a volume of "*Christian Discourses*," and in 1601 appeared the first edition of his "*Treatise on Wisdom*." In 1603, he went to Paris to print a second edition of this work, and there died suddenly in the street. This book, though his character was unblemished, and his sincerity in his religious profession unquestionable, occasioned his being ranked among the most dangerous free-thinkers. Attached from his infancy to a system of faith inconceivable to reason, he seems to have thought it necessary, in vindication of his opinions, to depreciate the conclusions of mere reason. Hence he was led to suggest, that strength of mind inclines to Atheism; and also to assert, that the immortality of the soul, though an universal dogma, is founded on very weak natural arguments. He likewise gave offence by maintain-

ing that, although all religions derive their origin from heaven by divine inspiration, yet all have been received by human hands and means. In the second edition he excepted the Christian religion. He was also charged with laying undue stress on the differences that have always subsisted among Christians, together with the evils resulting from them; and the strength and fairness with which he stated the arguments against revelation were disapproved by some of his adversaries. On these accounts the second edition of his work excited great alarm and opposition among theologians, and the impression was allowed, after some alteration in the work itself, by particular favour. Although the author in this treatise, which was evidently formed on the principles of Montaigne's essays, has introduced many original and ingenious observations, he exhibits upon the whole a gloomy picture of human nature and society. Charron himself, however, was of a gay and cheerful disposition; ready in conversation; and liberal, considering the age in which he lived, as to his mode of philosophising. Gen. Dict. Nouv. Dict. Hist. Brucker's Phil. by Enfield, vol. ii.

CHARRONS, cartwrights, workmen very necessary in the suite of an army, and particularly of the artillery.

CHARROUX, in *Geography*, a town of France, in the department of the Allier, and district of Gannat; 5 miles N. of Gannat.

CHARROUX, a town of France, in the department of the Vienne, and chief place of a canton, in the district of Civray, $1\frac{1}{2}$ league E. of it. The place contains 1581, and the canton 688 inhabitants: the territory includes $237\frac{1}{2}$ kilometers and 9 communes.

CHART, or HYDROGRAPHICAL MAP, in *Navigation*, is a representation, *in plano*, of a part, or of the whole of the water on the surface of the globe, and the adjacent coast. There are various kinds of charts, as Plane, Mercator, &c.

Charts were first introduced into the marine by Prince Henry, duke of Visco, son of John I. king of Portugal, about the year 1400. These were of the kind denominated plane charts, and continued in use for many years, and for very small portions of the coast, even to the present time. For any considerable extent, charts of this construction were soon found to be very erroneous; and their errors were successively exposed by Martin Cortes, a Spaniard, in his treatise, intituled *Breve Compendio de la Sphera, y de la Arte de Nauegar con nuevos Instrumentos y Reglas*, printed at Seville in the year 1556: by Petrus Nonius, a Portuguese, in his treatise *de Arte et Ratione Navigandi*, printed at Basil in 1587; by Mr. Edward Wright, in his *Certain Errors in Navigation detected and corrected*, of which the first edition was printed at London in 1599; and by others. These errors, as enumerated by this last author, in his own words, are the following. "1. Error in the proportion of the length and breadth of places in the common sea chart. 2. Error in finding out the difference of longitude by the common sea chart. 3. Error in the lying and bearing of places one from another, in the common sea chart. 4. Error in setting of places out of the common sea chart into the globe. 5. Error in shewing the distances of places in the common sea chart."

In order to correct these errors of the plane chart, Gerard Mercator, in the year 1556, published a chart, in which the meridians and parallels of latitude are straight lines, as in the plane chart; but in order to compensate the errors arising from the parallelism of the meridians, he increased each degree or portion of the meridian with its distance from the equator. It, however, appears, that his charts had no claim to accuracy; for the intervals between the parallels of each

ten degrees of latitude in the chart, as given by Blundeville in his *Exercises*, page 756, do not agree with the differences of the corresponding meridional parts of those parallels. Thus, the difference, according to the chart, between the parallels of 50 and 60 degrees, is $1\frac{1}{2}^\circ$ less than the difference of the meridional parts of those parallels; and that between the parallels of 70 and 80 degrees is upwards of 4 degrees less than the truth. It is hence evident Mercator had no certain fixed rule for dividing the enlarged meridian. The discovery of a rule for this purpose was left to Wright, who published the first table for that purpose in his book above mentioned; in the preface to which he expresses himself as follows: "But to come to those that may perhaps object, I doe but *adum agere*, in doing no more then hath bin done already by Gerardus Mercator in his universall mappe of the world many years since. I must answer, that indeed by occasion of that mappe of Mercator, I first thought of correcting so many, and grosse errors, and absurdities, as I have already touched, and are hereafter at large shewed in the common sea-chart, by increasing the distances of the parallels from the æquinoctial towards the poles, in such sort, that at every point of latitude in the chart, a small part of the meridian might have the same proportion almost to the like part of the parallel, that it hath in the globe. But the way how this should be done, I learned neither of Mercator, nor of any man else. And in that point I wish I had been as wise as he, in keeping it more charily to myself. For so perhaps it might have been more beneficiall to me."

In the above paragraph, we have Wright's express declaration, that no man taught him the true method of enlarging the meridian line; and as all charts prior to his discovery were erroneous in this increase of the degrees of latitude, he, consequently, was the first discoverer of the true method of constructing this kind of a chart. We cannot omit mentioning, in this place, Wright's very ingenious idea of transferring the several circles, &c. on the globe to a plane surface. "Suppose, says he, a spherical superficies, with meridians, parallels, rumbes, and the whole hydrographical description drawn thereupon, to be inscribed into a concave cylinder, their axes agreeing in one.

Let the spherical superficies swell like a bladder, (whiles it is in blowing), equally always in every part thereof (that is, as much in longitude as in latitude) till it apply, and joyn itself (round about, and all alongit till towards either pole) unto the concave superficies of the cylinder: each parallel upon this spherical superficies increasing successively from the æquinoctial towards either pole, until it come to be of equal diameter with the cylinder, and consequently the meridians still widening themselves, till they come to be so far distant every where each from other as they are at the æquinoctial. Thus it may most easily bee understood, how a spherical superficies may (by extension) be made a cylindrical, and consequently a plain parallelogram superficies; because the superficies of a cylinder is nothing else but a plain parallelogram wound about two equal equidistant circles that have one common axtree perpendicular upon the centers of them both, and the peripheries of each of them equal to the length of the parallelogram as the distance betwixt those circles, or height of the cylinder is equal to the breadth thereof. So as the nautical planisphere may be defined to be nothing else but a parallelogram made of the spherical superficies of an hydrographical globe inscribed into a concave cylinder, both their axes concurring in one; and the spherical superficies swelling in every part equally in longitude and latitude, till every one of the parallels thereupon be inscribed into the cylinder, (each parallel growing as great as the æquinoctial,) or till the whole spherical superficies

cies touch and apply itself every where to the concavity of the cylinder.

In this nautical planisphere thus conceived to be made, all places must needs be situate in the same longitudes, latitudes, and directions or courses, and upon the same meridians, parallels, and rumbes, that they were in the globe, because that at every point between the æquinoctial and the pole, we understand the spherical superficies whereof this planisphere is conceived to be made, to swell equally as much in longitude as in latitude (til it joyn itself unto the concavity of the cylinder) so as hereby no part thereof is any way distorted or displaced out of his true and natural situation upon his meridian, parallel, or rumbe, but only dilated and enlarged: the meridians also, parallels, and rumbes, dilating and enlarging themselves likewise, at every point of latitude in the same proportion.

Now then let us diligently consider of the geometrical lineaments, that is, the meridians, rumbes, and parallels of this imaginary nautical planisphere, that we may in like manner expresse the same in the mariners chart. For so undoubtedly we shall have therein a true hydrographical description of all places, in their longitudes, latitudes, and directions, or respective situations each from other, according to the points of the compass in all things correspondent to the globe, without either sensible or explicable error.

Since, in this projection, the parallels are all made equal to the equator, it is evident they are enlarged in the proportion of the radius to the co-sines of their respective latitudes: wherefore, the meridian, in order to preserve every its proportion to the several parallels thus encreased, must, at the latitude of each parallel, be enlarged in the proportion of the radius to the co-sine of the latitude, or so that the length of a minute of the true or proper meridian, which upon the globe is the same in all latitudes, and equal to the length of a minute of the equator, may be to the length of a minute on the enlarged in any latitude, as the co-sine of the latitude to radius; or, which is the same, as radius to the secant of the latitude: Therefore, the length of a minute on the proper meridian must be to the length of a minute on the enlarged meridian, at any latitude, as radius to the secant of that latitude. Hence, a table of natural secants, to every degree and minute of the quadrant, and whose radius is 1, will expresse the several lengths of the enlarged meridian at the latitudes belonging to those secants respectively. And, hence, the sum of the secants of all the minutes from the beginning of the quadrant, to the degree and minute of any parallel's latitude, will be, in minutes of the equator, or nautical miles, the length of that part of the enlarged meridian which is contained between the equator and the given parallel. In this manner Mr. Wright constructed his "Table of Latitudes for graduating a Meridian in the general Sea-Chart," to every degree and minute of the quadrant, which has since obtained the general name of "A Table of Meridional Parts;" and by the French, that of "Latitudes Croissantes."

The above method of dividing the meridian is not strictly geometrical; and, in order to shew that Wright knew this to be the case, we cannot avoid extracting the following paragraph from his *Correction of Certain Errors*, &c. p. 12. But in this table it was thought sufficient to use such exactness, as that thereby (in drawing the lineaments of the nautical planisphere) sensible error might be avoided. He that listeth to be more precise, may make the like table to decades or tennes of seconds, out of "Joachimus Rheticus his Canon Magnus Triangulorum." Notwithstanding, the *geometrician* that desireth exact truth, cannot be satisfied neither: for whose sake and further satisfaction, I thought

good to adjoyn also this geometrical conceit of dividing a meridian of the nautical planisphere."

"Let the *æquinoctial* and meridian be drawn upon a globe: Let the meridian (divided into degrees, minutes, seconds, &c.) roul upon a straight line, beginning at the *æquinoctial*, the globe swelling in the mean time in such sort, that the semidiameter thereof may be alwaies equal to the secant of the angle, or arch contained between the *æquinoctial* and semidiameter, insisting at right angles upon the foresaid straight line: the degrees, minutes, and seconds, &c. of the meridian, noted in the straight line, as they come to touch the same, are the divisions of the meridian in the nautical planisphere. And this conceit of dividing the meridian of the nautical planisphere may satisfie the curious exactness of the *geometrician*; but for mechanical use, the table before mentioned may suffice."

The above paragraph seems to have induced several eminent mathematicians to endeavour to discover a more accurate method of enlarging the meridian: and, in the year 1645, a method, strictly accurate, was published, as an addition to Norwood's *Epitome of Navigation*, by Mr Henry Bond. This method appears to have been discovered by chance; but neither the name of the discoverer, nor the time when it was discovered, are known. The demonstration of this method was still wanting: this, however, was given, for the first time, by the excellent Mr. James Gregory of Aberdeen, in his *Exercitationes Geometricæ*, published in the year 1668, but not without a long train of reasoning: and in the year 1690, a more concise demonstration was given by Dr. Halley in the *Philosophical Transactions of London*, N^o 219. vol. xix. Both these demonstrations are reprinted in the 2d volume of Baron Maseres' *Scriptores Logarithmici*, printed in the year 1791.

In Dr. Halley's demonstration, it is shewn, that if, "in the common tables of logarithmic tangents, the indices alone be considered as integers, and all the rest of the places as decimals; then the difference between the logarithm of the radius, and the logarithmic tangent of half the complement of any given latitude, divided by 0.000 126 331 14, &c. will be the meridional parts corresponding to that latitude." For the demonstration of this proposition, the reader is referred to the article *MERIDIONAL Parts*. Dr. Halley has shewn various other methods of constructing a table of meridional parts.

CHART, globular, is a projection so called from the conformity it bears to the globe itself. This projection was proposed by Mess. Senex, Wilson, and Harris, in which the meridians are inclined, the parallels equidistant and curvilinear, and the rhumb-lines real spirals, as on the surface of the globe. From this last property, it is evident it can be of very little use in navigation; as a map, however, it has its advantages.

CHART, reduced, is that in which the meridians and parallels are represented by straight lines; these last are parallel to, and equidistant from, each other; but the former being directed to the pole, are not parallel: and hence a rhumb-line on this chart is a curve, and, therefore, it is of little use in navigation. The degrees of latitude are equal, but those of the extreme and intermediate parallels are unequal; the length of each extreme parallel being equal to the length of a degree on the meridian, multiplied by the cosine of the corresponding parallels. A chart of this kind will answer tolerably well for the equatorial parts of the earth, but not for parts distant from the equator, unless for a small country, and then only as a map.

CHART, spheroidal, a chart adapted to the spheroidal figure of the earth. In Mercator's chart, the figure of the earth

earth is supposed to be that of a perfect sphere: but theory confirmed by observation has shewn it to be an oblate spheroid. Sir Isaac Newton, from theory, found the ratio of the equatorial to the polar axis to be as 230 to 229. By comparing mensurations made at different parts of the earth, this proportion has been found to vary considerably, some making it more, and others less, than what sir Isaac Newton assigned. From a comparison of the measure of a degree in France with that at the polar circle, the diameter of the equator to the axis of the earth was found to be as 178 to 177. Vide *Degree du Meridien*, &c. Paris, 1741, p. lvi. According to Don George Juan, this proportion is as 266 to 265; and agreeable thereto he calculated a table of meridional parts for the spheroid. Again, M. Du Séjour, from a comparison of the lengths of pendulums vibrating seconds in different latitudes, concludes the proportion to be as 321 to 320. *Traite Analytique*, tom. ii. p. 270. And, agreeable to this proportion, J. De Mendoza Rios, esq. calculated a table of meridional parts for the spheroid, which is inserted in the *Connoissance des Temps pour l'année 1793*.

In the year 1758 Mr. Benjamin Martin published the first spheroidal chart, in his "New Principles of Geography and Navigation," adapted to don George Juan's proportion of the equatorial diameter of the earth's axis. These charts have not, however, come into general use.

CHART, variation, a Mercator's chart, upon which are laid down curve lines, representing the variation of the compass at those places through which they pass. This chart was first constructed by Dr. Halley, in the year 1700, with a view to find the longitude. Since the variation at the same place is liable to an annual change, the above chart, in a few years, became almost useless. In the years 1744 and 1756, it was republished in London by Messrs. Mountain and Dodson, from nearly one hundred thousand observations. It was also published at Paris, in 1765, by M. Bellin, and again at London in the years 1788 and 1794. Variation charts, adapted to different years, have been published by Mr. Samuel Dunn. Vide Dr. Mackay's *Longitude*, vol. i. p. 264. For the method of finding the longitude at sea by this method, the reader is referred to the article **LONGITUDE**; see also **VARIATION**.

CHART of the Inclination, or Dip of the Magnetic Needle, contains curve lines expressing the quantity of the inclination or dip of the needle at those places through which they pass. A chart of this kind, for a small portion of England and France, was published by Mr. William Whiston, in his treatise entitled "The Longitude and Latitude found by the Inclinator or Dipping Needle," printed at London in 1721. In the year 1768, M. Wilcke of Sweden published a general chart, exhibiting the lines of equal dip, in the most frequented parts of the globe. This chart was re-published by M. Le Monnier, in his treatise "*Loix du Magnetisme*," printed at Paris in 1776.

It has been proposed to find the latitude by means of a chart of the inclination of the needle; and by both inclination and declination of the needle, the latitude and longitude might be found, provided the theory of the variation was known, and instruments could be constructed to shew the quantity of the variation and dip, with sufficient accuracy.

CHARTS, Construction of.

1. Of the plane chart.

The number of degrees of latitude which the chart is intended to contain, and the extent from east to west being fixed upon; a line is to be drawn near the side or end of a sheet of paper, in length equal to the whole length of the chart, from north to south; and this line is to be divided

into degrees, and numbered accordingly. From each end of this line perpendiculars are to be drawn, and made equal to the intended extent of the chart from east to west, and their extremities are to be joined by a straight line. If the chart is to commence at or near the equator, and to extend only a few degrees of latitude, the divisions of the parallels may be equal to those of the meridian: but if the chart begins at any considerable distance from the equator, it will conduce to accuracy to make the length of each degree of the parallel equal to the co-sine of the mean latitude, the radius being 60 minutes; or, the extreme parallels may be divided according to the above proportion, and in that case it will become a *reduced* chart. Meridians and parallels are there to be drawn at convenient distances.

A scale is now to be made of stiff paper or pasteboard, equal in length to the extent of the chart from east to west, and divided and numbered accordingly. By this scale, the positions of those places contained within the limits of the chart are very easily laid down, by placing the divided edge of the scale over the latitude of the given place; and under the given longitude, a mark being made will represent the position of the place on the chart.

A compass is to be inserted in any convenient place of the chart, an arrow shewing the direction of the flood tide or current. The times of high water at full and change are to be marked in their proper places, expressed in Roman characters; soundings and quality of the ground at bottom, the leading marks to avoid dangers, &c.

II. Of a Mercator's Chart.

A Mercator's chart, for any given portion of the surface of the globe, is constructed as follows:

The limit of the proposed chart is first to be determined, that is, the number of degrees of latitude and longitude which it is to contain, and the degree of latitude and longitude of its commencement.

Find the meridional parts answering to each degree of latitude within the intended limits of the chart, and take the difference between each, and that corresponding to the least degree of latitude in the chart; and reduce these differences to degrees, by dividing by 60.

A parallel, representing that of the least latitude, is to be drawn; upon which the number of degrees in the proposed difference of longitude, from a scale of equal parts, is to be laid off, and divided into degrees, and smaller portions if convenient, and numbered at each fifth or tenth degree. From each end of this parallel a perpendicular is to be drawn, and made equal to the difference of the meridional parts of the extreme latitudes taken from the divided parallel; and the ends of these meridians are to be joined by a straight line, which will represent the other extreme parallel, and which is to be divided and numbered in the same manner as the first drawn parallel; the meridians are then to be divided into degrees, and numbered at every fifth or tenth degree.

Take the meridional difference of latitude between the beginning of the chart, and the next fifth or tenth degree of latitude from the divided parallel, and lay it off from the first parallel on each of the scale meridians, and join these points by a straight line. In like manner, the meridional difference of latitude answering to each successive interval of five or ten degrees, is to be taken from the first drawn parallel and laid off, and the corresponding parallels are to be drawn and numbered accordingly, and the intermediate spaces are to be subdivided. If the chart is upon a large scale, the meridional difference of latitude answering to each degree, is to be laid off from the least parallel.

If the chart is intended to be upon a larger scale, equimultiples of the intervals are to be taken, such as will answer to the proposed extent of the chart.

A slip of strong paper is to be divided and numbered in the same manner as the first drawn parallel. Now, each place within the limits of the chart is to be laid down, by placing the slip of paper so that its extreme points of division may be at the latitude of the given place on each meridian; then, under the longitude of the place a mark is to be made, which will represent the position of that place. In like manner, all the places on the coast are to be laid down and connected by observations made on the coast; or if no sketch had been previously made, the contour of the coast is to be drawn agreeable to the best charts. Meridians and parallels are to be drawn through every fifth or tenth degree of latitude and longitude and extended to the coast.

A compass is to be inserted in some convenient part of the chart, and the points extended to the land: an anchor is to be drawn where there is good anchoring ground, and in places where it is safe only to stop a tide, an anchor without a stock is to be laid down. The soundings, the quality of the ground, the times of high water at full and change, &c. are to be marked in their proper places.

For the method of laying down a Mercator's chart by means of a scale of logarithmic tangents, the reader is referred to Dr. Mackay's Treatise on Navigation, from which the greater part of the preceding, and also the remaining part of this article are extracted.

III. Of the Variation Chart.

Having constructed a general chart according to Mercator's projection, mark down with dots all the places in which the declination of the magnetic needle has been ascertained; then draw lines through those points having the same declination. These lines, or arcs, are called *lines of declination*; and by proceeding in this manner as far as the variation is known the chart will be completed.

CHARTS, manner of using.

The principal use of a chart is, to find the course and distance between any two places within its limits, and to lay down the place of a ship on it, so that the position of the ship with respect to the intended port, the adjacent land, islands, &c. may be readily perceived.

As it is incompatible with the plan of the present work to insert large charts, therefore, in performing the following examples, it is supposed, the practitioner has the necessary charts beside him.

I. USE OF THE PLANE CHART.

PROBLEM I.

To find the Latitude of a Place, on the Chart.

Rule.—Take the nearest distance between the given place and the nearest parallel of latitude, which being applied the same way on the divided meridian, from the point of intersection of the parallel and meridian, will give the latitude of the proposed place.

Example.—Required the latitude of Port Louis, in the isle of France.

The least distance between Port Louis and the nearest parallel being laid the same way on the meridian, from the extremity of that parallel, will reach to $20^{\circ} 8' S.$ the latitude required.

PROBLEM II.

To find the Course and Distance between two given Places on the Chart.

Rule.—Lay the edge of a scale over the given places, and

take the nearest distance between the center of any of the compasses on the chart and the edge of the scale, move this extent along, so as one point of the compass may touch the edge of the scale, and the straight line joining the points may be perpendicular thereto; then will the other point shew the course, and the interval between the places being applied to the scale, will give the required distance.

Example.—Required the course and distance from Cape St. André to Cape St. Sebastian, both in the island of Madagascar?

The edge of a scale being laid over the two places, then, by moving the compass as directed, the course will be found to be N.E. $\frac{1}{2}$ E. and the interval between them will measure 105 leagues.

PROBLEM III.

The Course and Distance sailed from a known Place being given to find the Ship's Place on the Chart.

Rule.—Lay the edge of a scale over the place sailed from, parallel to the given course; then take the given distance from the scale on the chart, and lay it off from the given place by the edge of the scale, and it will give the point on the chart representing the place of the ship.

Example.—The correct course of a ship from Cape St. Maria, on the N. side of the entrance of the river La Plata, was N.E. by E. and the distance 238 leagues. Required the place of the ship on the chart?

The edge of the scale being laid over Cape St. Maria, in a N.E. by E. direction, and the distance 238 leagues, laid off from Cape St. Maria by the edge of the scale, will give the place of the ship, which will be found to be in latitude $28^{\circ} 15' S.$

PROBLEM IV.

Given the Latitude in, and Meridian Distance, to lay down the Place of the Ship on the Chart.

Rule.—Through that place from which the meridian distance is reckoned, let a meridian be drawn, then lay a scale over the given latitude, and the meridian distance being taken from the scale on the chart, and laid off by the edge of the scale from the point of its intersection with the meridian, will give the ship's place.

The manner of performing this problem is obvious; and the various other problems that may be resolved on the plane chart, require no further explanation, being only the construction of the remaining problems in plane sailing.

II. USE OF MERCATOR'S CHART.

PROBLEM I.

To find the Latitude of a Place with the Chart.

Rule.—This is performed in the same manner as Problem I. on the plane chart.

PROBLEM II.

To find the Longitude of a Place on the Chart.

Rule.—Take the least distance between the given place and the nearest meridian, which being laid off on the equator, or divided parallel, from the point of intersection of the parallel and meridian, will give its longitude.

Example.—Required the longitude of Funchal in the island of Madeira?

The least distance being taken between Funchal and the nearest meridian, and laid off from the intersection of that meridian with the divided parallel, will give $17^{\circ} 6' W.$ the longitude required.

PROBLEM

C H A R T.

PROBLEM III.

To find the Course between two given Places on Mercator's Chart.

Rule.—For the manner of performing this problem, the reader is referred to the use of the plane chart, Problem II.

PROBLEM IV.

To find the Distance between two given Places on the Chart.

1. When the given places are under the same meridian.

Rule.—Find the latitude of each; then, the difference, or sum of their latitudes according as they are on the same, or on opposite sides of the equator, will be the distance required.

Example.—Required the distance between the nearest extremities of the islands of Grenada and Gaudaloupe?

Latitude of southernmost extremity of Gaudaloupe	-	-	-	15° 52' N.
Latitude of northernmost extremity of Grenada	-	-	-	12° 14' N.

Distance - - - 338 = 218 M.

2. When the given places are under the same parallel.

Rule.—If that parallel is the equator, the difference, or sum of their longitudes, found by Problem II. is the distance between them. If not, take half the interval between the given places, lay it off on the meridian on each side of the given parallel, and the intercepted degrees will be the distance between the places.

If the given parallel is near the north or south extremity of the chart, the following method may be used. Take an extent of a few degrees from that part of the meridian where the given parallel is the middle of the extent; then the number of extents, and parts of an extent, contained between the given places, being multiplied by the length of an extent, will give the required distance.

Example.—Required the distance between Cape Cautin and Funchal, both lying nearly in the same parallel?

By proceeding as directed above, the distance will be found to be 6° 44', or 134 $\frac{2}{3}$ leagues.

3. When the given places differ both in latitude and longitude.

Rule.—Find the difference of latitude between the given places, and take it from the equator, or graduated parallel; then, lay the edge of a scale over the given places, and move or slide one point of the compass along the edge of the scale, until the other point just touches a parallel. Now, the distance between the place where the point of the compass rested, and the point of intersection of the edge of the scale and parallel being applied to the equator or divided parallel, will give the distance between the places in degrees and parts of a degree; which, multiplied by 60, will give the distance in miles.

Example.—Required the distance between Cape Finisterre and Porto Santo?

Take the difference of latitude between the given places, viz. 9° 54', from the graduated parallel, and move one point of the compass along the edge of the scale, laid previously over these places, until the other point just touches a parallel; now, the interval between the place where the point of the compass rested, and the point of intersection of the scale and parallel, being applied to the divided parallel, will measure 11° 24', or 228 leagues.

Remark.—To some charts a set of scales is adapted to

each degree of latitude within the limits of the chart; by which the distance between any two places is easily measured, by applying that distance to the scale answering to the middle parallel of latitude of the two places.

PROBLEM V.

Given the Latitude and Longitude in, to find the Ship's Place on the Chart.

Rule.—Lay the edge of a scale over the given latitude and lay off the given longitude from the first meridian, or the difference of longitude from the nearest meridian, by the edge of the scale, and the ship's place will be obtained.

Example.—The latitude is 47° 30' N. and longitude 12° 15' W.; it is required to lay down the ship's place on the chart?

Lay the edge of the scale over the latitude 47° 30' N.; then take, from the divided parallel, the interval between 10° and 12° 15', which laid off by the edge of the scale from the meridian of 10°, will give the ship's place.

PROBLEM VI.

Given the Course steered from a known Place, and the Latitude in, to find the Ship's Place on the Chart.

Rule.—Lay the edge of a scale over the place sailed from, in the direction of the given course, and its intersection with the parallel of latitude arrived at will be the place of the ship.

Example.—A ship from the Lizard sailed S.W. by S. and by observation is in latitude 45° 20' N. Required the place of the ship on the chart?

The edge of a scale being laid over the Lizard, parallel to the S.W. by S. rhumb, will intersect a parallel drawn through the given latitude, 45° 20' N. in the ship's place.

PROBLEM VII.

Given the Course steered, and Distance run from a known Place, to lay down the Ship's Place on the Chart.

Rule.—Lay the edge of a scale over the place sailed from, in the direction of the given course; then, take the distance from the equator, put one point of the compass at the intersection of any parallel with the edge of the scale, and the other point of the compass will reach to a certain place by the edge of the scale; now, this point remaining fixed, draw in the other point of the compass, until it just touches the above parallel; apply this extent to the equator, or divided parallel, and it will give the difference of latitude. Hence, the latitude come to will be known; and the point of intersection of the corresponding parallel with the edge of the scale, will be the place of the ship.

Example.—A ship from Cape St. Vincent sailed S.S.W. 300 miles. Required the ship's place on the chart?

Lay the edge of a scale over Cape St. Vincent, parallel to the S.S.W. rhumb. Take the distance five degrees from the divided parallel; place both points of the compass close to the edge of the scale, so that one of them may be at the intersection of a parallel with the edge of the scale, and the other on that side of the parallel on which is the acute angle formed by the scale and parallel. Now this last point of the compass remaining in the same position, diminish the extent of the compass, until the other point touches the parallel, and this extent applied to the divided parallel, will measure 4° 37'; hence, the latitude in, is 32° 25' N.; and a parallel drawn through 32° 25', will intersect the edge of the scale in the place of the ship.

PROBLEM VIII.

Given the Latitude and Longitude sailed from, the Course steered, and Longitude come to; to find the Ship's Place on the Chart.

Rule.—Draw a meridian through the longitude come to; then,

then, lay the edge of a scale over the place sailed from, in the direction of the course, and its intersection with the meridian will be the place of the ship.

Example.—The true course of a ship from Cape St. Bernard, in the island of Bourbon, was N.E. $\frac{1}{2}$ N. and the longitude came to $59^{\circ} 46'$ E. Required the ship's place on the chart?

The edge of a scale laid over Cape St. Bernard, in a N.E. $\frac{1}{2}$ N. direction, will intersect a meridian drawn through the given longitude $59^{\circ} 46'$ E. which will represent the ship's place; the latitude of which is $15^{\circ} 18'$ S.

CHART, *Biographical*, See BIOGRAPHY. See also Playfair's *Chronology*, p. 247.

CHART, *Chorographic*, is a delineation of particular countries.

CHART, *Heliographic*, a description or delineation of the body of the sun and of the maculæ or spots observed on it.

CHART, *Historical*. See HISTORY.

CHART, *Selenographic*, a representation of particular appearances of the spots of the moon, or of her appearance and maculæ.

CHART, *Telegraphic*, a description or delineation of the telegraph on paper.

CHART, *Topographic*, is a specific delineation of military posts and positions in given tracts of country. This ought always to be as correct as possible in regard to their relative distances of the positions and more especially with regard to their relative heights. It is in this respect particularly that military surveys and reconnoissances are defective. The French have formed companies of topographers for the purpose of correctly and expeditiously pointing out to generals and other commanding officers all the leading points and relative situations of ground and locality. A general, however, should not rely implicitly on their reports or delineations, but ought if practicable to examine the principal positions himself, particularly those that he fixes on for his encampments.

CHARTA primarily signifies a sort of paper made of the plant papyrus or biblus.

CHARTA *emporetica*, in *Pharmacy*, &c. a kind of paper made very soft and porous, and used as a filtre.

CHARTA, is also used in ancient customs for a charter or deed in writing. See CHARTER.

CHARTA *de foresta*. See CHARTER of the forest.

CHARTA *magna*, the great charter, is an ancient instrument, containing several privileges, and liberties, granted to the church and state, by Edward the Confessor, together with others relating to the feudal laws of William the Conqueror, granted by Henry I., all confirmed by the succeeding princes about thirty times. See MAGNA *charta*.

CHARTA *mercatoria*, a charter or declaration of protection and privileges granted to foreign merchants, first published by Edward I. in 1303; who also ascertained the customs or duties, which those foreign merchants, in return for the said charter, were to pay on merchandize exported and imported. Upon the grounds of this famous charter, historians agree that this king was the first who established the great customs on merchandize. This charter was confirmed by Edward III. in 1328.

CHARTA *pardonationis se defendendo*, is the form of a pardon for a person's killing another man in his own defence.

CHARTA *pardonationis utlagariæ*, is the form of a pardon of a man who is outlawed.

CHARTA *simplex*, is a single deed, or deed-poll. See DEED.

CHARTA, in *Ancient Geography*, a place of Asia in Mesopotamia, where the Romans had a garrison.—Also, a town of Palestine, mentioned in the book of Joshua as belonging to the tribe of Zebulun; it was granted to the Levites of the family of Merari.

CHARTAGNE, in *Military Language*, a solid retrenchment almost always withdrawn from the enemy's view, that is thrown up in a wood or forest for the defence of an important pass.

CHARTAIA, in *Ancient Geography*, a large and rich town of Asia, situated to the east of Hircania.

CHARTAN, a town of Palestine, in the tribe of Nephtali. It was granted to the Levites of this tribe, who were of the family of Gershon.

CHARTANI, a people of Africa, placed by Ptolemy in Libya near Egypt.

CHARTARIUS, the same with CHARTOPHYLAX.

CHARTEL. See CARTEL, CHAMPION, COMBAT; DUEL, &c.

CHARTER, *Charta*, in *Law*, an instrument or written evidence of a thing under the seal of a prince, lord, church, chapter, or community.

The word charter comes from the Latin *charta*, anciently used for a public or authentic act; from *χαρτις*, thick paper or pasteboard, whereon public acts were used to be written.

Bracon says, donations are sometimes made in charters, *in perpetuum rei memoriam*; and Britton, in his 39th chapter, divides charters into those of the king and those of private persons.

CHARTERS of community, were certain privileges first obtained by violence, or purchase, and afterwards freely bestowed by emperors, kings, and barons; whereby the inhabitants of towns and cities were enfranchised, all marks of servitude abolished, and these cities, &c. were formed into corporations and bodies politic, to be governed by a council and magistrates of their own nomination. The first person who conferred these privileges, was Lewis the Gros in France, about the beginning of the twelfth century: and his example was soon very generally followed. These charters convey a very striking representation of the wretched condition of cities previous to the institution of communities, when they were subject to the judges appointed by the superior lords of whom they held, and had scarcely any other law but their will. Each concession in these charters must be considered as a grant of some new privilege which the people did not formerly enjoy, and each regulation as a method of redressing some grievance under which they formerly laboured. The charters of communities contain likewise the first expedients employed for the introduction of equal laws and regular governments. For an account of the most important articles in these charters ranged under the two general heads, of such as respect personal safety, and such as respect the security of property; See Robertson's *Ch. V.* vol. i. p. 348. &c. See CITIES.

Among royal charters granted to communities, it appears that in the reign of Edward IV. by his letters patent under the great seal of his realm of England, bearing date the 24th of April, 1469, in the ninth year of his reign, this prince, did "for him and his heirs, give and grant licence unto Walter Haliday, Marshall, John Cusi, and Robert Marshall, Thomas Grane, Thomas Calthorne, William Cliff, William Christian, and William Eyneylliam, then minstrels of the said king, that they by themselves should be in deed and name one body and cominality, perpetual and capable in the law, and should have perpetual succession; and that as well the minstrels of the said king, which then were, as other minstrels of the said king and his heirs which should be afterwards,

wards, might at their pleasure, name, chuse, and ordeine, and successively constitute from among themselves, one marshall, able and fit to remain in that office during his life, and also 2 wardens every year to govern the said fraternity and guild."

The original charter is preserved in Rymer's *Fœdera*, tom. xi. *Pro fraternitate ministrorum regis*. James the First, upon what beneficial principle it is now difficult to discover, by letters-patent incorporated the musicians of the city of London into a company, and they still continue to enjoy privileges in consequence of their constituting a fraternity and corporation; bearing arms azure, a swan argent, within a tressure counter-flure, or: in a chief, gules, a rose between two lions, or: and for their crest the celestial sign Lyra, called by astronomers the Orphean Lyre. Unluckily for the *bons-vivans* of this tuneful tribe, they have no hall in the city for festive delights! However, on days of greatest *gourmandise*, the members of this body are generally too busily employed in exhilarating others, comfortably to enjoy the fruits of good living themselves. And here historical integrity obliges us to say, that this company has ever been held in derision by real professors, who have regarded it as an institution as foreign to the cultivation and prosperity of good music, as the train bands to the art of war. Indeed the only uses that have hitherto been made of this charter seem the affording to aliens an easy and cheap expedient of acquiring the freedom of the city, and enabling them to pursue some more profitable and respectable trade than that of fiddling; as well as empowering the company to keep out of processions and city-feasts every street and country dance player of superior abilities, to those who have the honour of being styled the waits of the corporation.

The charter granted by Charles I. to the musicians of the city of Westminster, had lain dormant from that time till the restoration; but immediately after that event, the persons named in it, who were still living, determined to rescue music from the disgrace into which it had fallen, and exert their authority for the improvement of the science, and interest of its professors. Fifty-two musicians, consisting of the king's band and other professors, natives and foreigners, the most eminent of the time, were enrolled in this charter as the king's musicians; "and all such as are, and shall be the musicians of his majesty, his heirs and successors, shall from henceforth for ever, by force and virtue of the said graunt, be a body corporate and politique, in deed, fact, and name."

The other powers granted by this charter, allowed the corporation to meet from time to time, in order to make bye-laws and impose fines on such as transgressed them, "which fines they shall have to their own use."

In pursuance of these powers, the corporation hired a room in Durham Yard, in the Strand, within the city and liberty of Westminster. Their first meeting was on the 22d day of October, 1661, Nicholas Lanier then being marshal; from which day they proceeded to make orders, summoning, fining, and prosecuting the first professors who dared "to make any benefit or advantage of musique in England or Wales," without first taking out a licence from their fraternity. Among the instances of the exercise of their power, Jan. 13th, 1663, it was "ordered that Matthew Lock, Christopher Gibbons, Dr. Charles Colman, and William Gregory, do come to the chamber at Durham Yard, on Thursday next, at two of the clock in the afternoon, and bring each of them ten pounds, or shew cause to the contrary."

This seems to have been one of the most oppressive and unmeaning monopolies with which the Stuarts had long vexed the nation. Such a tyranny as this over the professors of a liberal art, there is reason to fear, would be abused in

whatever hands it was lodged. The College of Physicians, which superintends the dispensations of life and death, may have its use by preventing or detecting *Charlatanerie*; but that the minister of our innocent amusements should be subject to any other controul than that which the common law of the realm is empowered to exercise over men of all ranks and degrees in the state, seems at best but a wanton and useless, if not a noxious delegation of power, which was less likely to benefit the public, or accelerate the progress of the art, than to enable artists to torment and harass each other.

It appears by the transactions of this corporation, the minutes of which are extant in the British Museum among the Harleian MSS. No. 1911, that the meetings of its members continued no longer than 1679; when finding themselves involved in law suits and incapable of enforcing the power they assumed, and penalties they threatened, it was thought most advisable to leave the art and artists to the neglect or patronage of the public.

The fund for the support of decayed musicians or their families, established in 1738, and formed into a regular society of musicians, after the commemoration of Handel, in 1784, having been honoured by his majesty's immediate countenance and protection, and graciously allowed to assume the title of Royal Society of Musicians, had a charter granted them. See *Commemoration of Handel*, and *Fund for decayed Musicians and their families*.

CHARTER of the forest, is that wherein the laws of the forest are comprised and established. In the time of king John, and that of his son, Henry III. the rigours of the feudal tenures and the forest laws were so warily maintained, that they occasioned many insurrections of the barons or principal feudatories; which at last produced this effect, that first king John, and afterwards his son, consented to the two famous charters of English liberties, *magna carta*, and *carta de foresta*. The latter, in particular, was well calculated to redress many grievances and incroachments of the crown in the exertion of forest law. This charter, as well as the other, was established, confirmed, and settled in the reign of Edward I. See *FOREST*.

CHARTER, Great, Magna charta. See *MAGNA charta*.

CHARTERS of immunity or franchise, were granted to some towns and villages by the lords on whom they depended, long before the institution of communities in France. But these are very different from such as became common in the 12th and 13th centuries. They did not erect these towns into corporations; they did not establish a municipal government; they did not grant them the privilege of bearing arms; they contained nothing more than a manumission of the inhabitants from the yoke of servitude; an exemption from certain services which were oppressive and ignominious; and the establishment of a fixed tax or rent which they were to pay to their lord in lieu of impositions which he could formerly lay upon them at pleasure. Two charters of this kind to two villages in the county of Roussillon, one A. D. 974, the other A. D. 1025, are still extant. Such concessions, it is probable, were not unknown in other parts of Europe, and may be considered as a step towards the more extensive privileges conferred by Lewis the Gros on the towns within his domains. See *CHARTERS of community*.

CHARTERS of the king, are those whereby a king makes a grant to a person or community; v. gr. a *charter of exemption*, that a person should not be impanelled on a jury, &c. See *LETTERS patent*.

CHARTER of pardon, is that whereby a person is forgiven a felony, or other offence against the king's crown and dignity, of which there are several sorts. See *PARDON*.

CHARTERS

CHARTERS of *private persons*, are deeds and instruments for the conveyance of lands, &c. And the purchaser of lands shall have all the charters, deeds, and evidences as incident to the same, and for the maintenance of his title. Co. Litt. 6. Charters belong to a feoffee, although they be not fold to him, where the feoffee is not bound to a general warranty of the land; for there they shall belong to the feoffor, if they be sealed deeds or wills in writing; but other charters go to the tenant. Moor. Ca. 637. The charters belonging to the feoffor, in case of warranty, the heir shall have, though he hath no land by descent, for the possibility of descent after. 1 Rep. 1.

CHARTER governments in the *British colonies*, are in the nature of civil corporations, with the power of making by-laws for their own interior regulation, not contrary to the laws of England; and with such rights and authorities as are specially given them in their several charters of incorporation. The form of government is borrowed from that of England. They have a governor named by the king (or in some proprietary colonies by the proprietor), who is his representative or deputy. They have courts of justice of their own, from whose decision an appeal (as some say, in the nature of a reference by way of arbitration) lies to the king in council here in England. Their general assemblies, which are their house of commons, together with their council of state, being their upper house, with the concurrence of the king, or his representative, the governor, make laws suited to their own emergencies. But it is particularly declared, by stat. 7 and 8 W. III. c. 22. that all laws, bye-laws, usages, and customs, which shall be in practice in any of the plantations, repugnant to any law, made or to be made in this kingdom, relative to the said plantations, shall be utterly void and of none effect. These are called *charter governments*, by way of distinction from the *provincial establishments*, the constitutions of which depend on the respective commissions issued by the crown to the governors, and the instructions attending them; under the authority of which, provincial assemblies are constituted, with the power of making local ordinances, not repugnant to the laws of England; and also from *proprietary governments*, granted out by the crown to individuals, in the nature of feudatory principalities, with all the inferior regalities, and subordinate powers of legislation, which formerly belonged to the owners of counties palatine. See farther Blackstone's Comm. vol. i. p. 108.

CHARTERER is in some places, as Cheshire, used for a freeholder.

CHARTER-HOUSE. See CHARTREUSE.

CHARTER-LAND, in *Law*, is such as a man holds by charter, that is, by evidence in writing; otherwise called freehold. This the Saxons called boek-land; which Lambard renders, *terra ex scripto*. See BOCK-LAND.

It was held on more easy conditions than the folk-land, or *terra sine scripto*, held without writing: the former being *hereditaria libera & immunis*; whereas the latter *censum pensabat annuum, atque officiorum quadam servitute erat obligatus*. This kind of land was held by deed under certain rents and free services, and in effect was in no respect different from free fofage lands; and hence have arisen most of the freehold tenants who hold of particular manors, and owe suit and service to the same.

CHARTERPARTY, in *Commerce*, denotes the instrument of freightage, or articles of agreement for the hire of a vessel. This, among merchants and sea-faring men, is commonly called "a pair of indentures," containing the covenants and agreements made between them, touching their merchandize and maritime affairs. 2 Inst. 673.

The charterparty is in writing; and it is to be signed both by the proprietor, or the master of the ship, and the merchant who freights it.

The charterparty is to contain the name and the burden of the vessel; those of the master and the freighter; the price, or rate of freight; the time of loading, and unloading; and the other conditions agreed on.

It is properly a deed, or policy, whereby the master, or proprietor of the vessel, engages to furnish immediately a tight sound vessel, well equipped, caulked, and stopped, provided with anchors, sails, cordage, and all other furniture to make the voyage required, as equipage, hands, victuals, and other munitions; in consideration of a certain sum to be paid by the merchant for the freight. Lastly, the ship, with all its furniture, and the cargo, are respectively subjected to the conditions of the charterparty.

The charterparty differs from a *bill of lading*, in that the first is for the entire freight, or lading, and that both for going and returning; whereas the latter is only for a part of the freight, or at most only for the voyage one way.

The common law construes charterparties, as near as may be, according to the intention of them, and not according to the literal sense of traders, or those that merchandize by sea; but they must be regularly pleaded. In a case of covenant by charterparty that the ship should return to the river of Thames by a certain time, "dangers of the sea excepted," and afterwards, in the voyage, and within the time of the return, the ship was taken upon the sea by pirates, so that the master could not return at the time mentioned in the agreement; it was adjudged that this impediment was within the exception of the charterparty, which extends as well to any dangers upon the sea by pirates and men of war, as dangers of the sea by ship-wreck, tempest, &c. Stile 132. 2 Rol. Abr. 248. A ship, freighted at a certain premium per month of the time that she shall be out, and covenanted to be paid after her arrival in the port of London, is cast away in coming up from the Downs, but the lading is all preserved; in this case the freight shall be paid, for the money becomes due monthly by the contract, and the place mentioned is only to ascertain where the money is to be paid; and the ship is entitled to wages, like a mariner that serves by the month, whose executors, if he dies in the voyage, are to be answered "pro rata." Mollo de Jur. Marit. 260. If a part-owner of a ship refuse to join with the other owners in the fitting out of the ship, he shall not be entitled to his share of the freight; but by the course of the Admiralty, the other owners ought to give security if the ship perish in the voyage, to make good to the owner standing out, his share of the ship. Sir L. Jenkins, in a case of this nature, certified that by the law marine and course of the Admiralty, the plaintiff was to have no share of the freight; and that it was so in all places; for otherwise there would be no navigation. Lex Mercat. See FREIGHT and INSURANCE.

The president Boyer says, the word comes from hence, that *per medium charta incidebatur, & sic fiebat charta partita*; because in the time when notaries were less common, there was only one instrument made for both parties: this they cut in two, and gave each his portion, and joined them together at their return, to know if each had done his part. This he observes to have been practised in his time; agreeable to the method of the Romans, who, in their stipulations, used to break a staff, each party retaining a moiety thereof as a mark.

CHARTER-SCHOOLS, are schools in Ireland, of which there are 38, designed for the instruction of the children of the Papists and other poor natives, in the English tongue and the

the principles of morality and true religion; besides two called the "Ranelagh Schools," which admit only the children of Protestants. The excellent Mr. Howard, in his journey to Ireland, examined the state of these schools, and made a report upon them to the committee of the House of Commons in 1788. He has given a particular account of them, with appropriate remarks in his "Account of the principal Lazarettos in Europe," &c. p. 101, &c. See SCHOOL.

CHARTIER, ALAIN, in *Biography*, a native of Bayeux, one of the first French citizens who aspired to elegance, flourished about the year 1430. He was secretary to the kings Charles VI. and VII. and employed in several embassies. His compositions in prose excelled those that were poetical, and he spoke as well as he wrote, so that he was esteemed the father of French eloquence. The following curious anecdote relating to him is recorded. Margaret of Scotland, first wife to the dauphin, afterward Lewis XI., as she passed through the Louvre, observed Alain asleep, and went and kissed him. When her attendants expressed their surprize that she should thus distinguish a man remarkable for his ugliness, she replied, "I do not kiss the man, but the mouth that has uttered so many charming things." His works were published by the elder Du Chesne, in 1617, in 4to.: the first part consisting of his works in prose, viz. the "Curial," a "Treatise on Hope," the "Luadilogus Investif" against Edward III.; and others, partly spurious; And the second part containing his poems, which are, for the most part, obscure and tedious. Alain Chartier died at Avignon in 1449. Nouv. Dict. Hist.

CHARTIER, JOHN, brother of the preceding, was a Benedictine monk, and chanter of St. Denys. He was the author, at least the compiler, of a dry work, displaying much credulity and inaccuracy, entitled the "Great Chronicles of France," commonly called "Chroniques de St. Denys," from Pharamond to the death of Charles VII., 3 vols. fol. Paris, 1493. His "History of Charles VII." was published at the Louvre, in 1661, fol. by the learned Godefroid, who enriched it with his notes and several unedited pieces. Nouv. Dict. Hist.

CHARTIER, RENÉ, born at Vendome, where he received the rudiments of his education. He was sent thence to Paris, and having completed his studies, was made doctor in medicine on the 14th of August 1608. He was soon after appointed by the faculty of medicine professor in surgery and pharmacy. In 1612, he was made physician in ordinary to the king, and to the princesses of France. With one or other of the princesses, in their turn, he visited the courts of Spain, Savoy, and England. Returning at length, and settling at Paris, his whole time seems to have been employed in forming the splendid edition of the works of Hippocrates and Galen, which goes under his name, and in which he is said to have expended so large a sum of money, (cinquante mille ecu, his biographer says) as to reduce himself nearly to a state of indigence. The work is printed in 13 volumes, though usually bound in 9, and the volumes came out at different times, but not in the order of their numbers. Of the ten volumes, which were published in the life-time of the editor, the first six, the eighth, and the thirteenth, appeared in the year 1639, the seventh and the eleventh ten years after, viz. in 1649; the ninth, the tenth, and the twelfth volumes, which completed the work, were printed under the care and direction of doctors Blondel and Le Maine, and did not appear until the year 1672. Though the editor spared neither labour nor expence in his endeavours to give perfection to the work, and has arranged his materials so that any of the treatises, by either writer, may

be turned to with facility; yet in the opinion of Freind, and Mack, to which Haller also accedes, the works of Hippocrates, as here exhibited, are more imperfect than in some earlier editions.

Chartier also edited "Ludovici Dureti Scholia ad Jacobi Hallerii Librum, de Morbis internis," Parisiis, 1611, 4to. "Bartholomæi Perdulcis, Univerfa Medicina," ibidem, 1630, 4to. His son John, who was created doctor in medicine in 1634, published, translated from the Greek, "Palladii de Febribus, concisa Synopsis," 1646, 4to., and in 1651, "La Science du Plomb sacra des Sages, ou de l'Antimoine, ou sont decrites ses rares et particulieres vertus, puiffances, et qualitez," 4to. This work gave great offence; the faculty of medicine at Paris, with Guy Patin at their head, being particularly hostile to antimonial medicines. To ridicule their foolish prejudices, Chartier placed at the head of his book the figure of an owl, with the following lines:

"Le hibou fuit la clarte vivifique
Et bien qu'il ait lunettes et flambeaux,
Il ne peut voir les secret les plus beaux
De l'antimoine, et du vin emetique."

John Chartier was also professor in surgery, and physician in ordinary to the king, in which honour he was succeeded by his younger brother Philip, who was created doctor in medicine in the year 1650. Haller Bib. Med. Eloy Dict. Hist.

CHARTIER, in *Geography*, a township of America, in the county of Washington and state of Pennsylvania.

CHARTIER, St. a town of France, in the department of the Indre, and district of La Châtre; $1\frac{3}{4}$ league N. of it.

CHARTIER'S CREEK. See CANONSBAY and MORGANZA.

CHARTIS *reddendis*, a writ which lay against him that had charters of feoffment intrusted to his keeping, and refused to deliver them to the owner. Reg. Orig. 159.

CHARTOPHYLACIUM, a place where records were kept.

CHARTOPHYLAX, an officer in the church of Constantinople, intrusted with the custody of the archives.

The word is formed from *χαρτα*, and *φυλακτω*, *custodio*; and signifies *charter-keeper*.

Codin calls the *grand chartophylax* the judge of all causes, and the right arm of the patriarch. He adds, that he was the depositary or keeper of all the *charters* relating to the ecclesiastical rights; and that he presided over matrimonial causes, and was judge of all the clergy. He drew up all sentences and decisions of the patriarch, who signed and sealed them: he presided in the grand council of the patriarch: he took cognizance of all matters and causes ecclesiastical and civil, whether among the clergy, the monks, or the people.

He took place of all the bishops, though himself only a deacon; and, on occasion, discharged the functions of the priests: he had twelve notaries under him.

The chartophylax was much the same at Constantinople with the *chartulary* at Rome.

There were, in reality, two officers who bore this title; the one for the court, the other for the patriarch; the first was called also *registra*tor, and the latter *scriniarius*: though the two are usually confounded together. Leunclavius, and others, confounded *chartophylax* with *chartulary*.

CHARTRAIN, in *Geography*, a small county of France, so called before the revolution, in the environs of Chartres, its capital.

CHARTRE, LA, a town of France, in the department of the Sarthe, and chief place of a canton in the district of St. Calais; two leagues E.N.E. of Chateau-du-Loir. The place

place contains 1551 and the canton 10,152 inhabitants: the territory includes 135 kilometres and 9 communes.

CHARTRES, a city of France, and principal place of a district in the department of the Eure and Loire, one of the most ancient towns of the country, and before the revolution, the see of a bishop, suffragan of Paris. Its cathedral is esteemed one of the most beautiful churches in the kingdom. It is situated on the Eure, over which is a bridge, constructed by the celebrated Vauban. Its principal trade is in corn. The place contains 14,409, the north canton 16,783, and the south canton 16,321 inhabitants: the territory includes 467½ kilometres and 35 communes. N. lat. 28° 46' 49". E. long. 1° 28' 55".

CHARTRES, a fort built by the French on the eastern side of the Mississippi, three miles northerly of La Prairie du Rocher, or the Rock-Meadows, and 12 miles northerly of St. Genevieve, on the western side of that river. It became untenable on account of the constant washings of the high floods of the Mississippi, and was abandoned in 1772. South of the fort is a village which was very inconsiderable in 1778; above this is another village, settled by 170 warriors of the Piorias and Mitchigamias tribes of Illinois Indians, who are idle and debauched.

CHARTREUSE, a celebrated monastery of Carthusians; so called from the name of a steep rocky place, in a frightful desert, five leagues from Grenoble in France; where St. Bruno retired from the world, and first instituted the order of *Carthusians*, which see.

The name has since passed to all houses of Carthusians; and that near Grenoble is now distinguished by the name of the *Great Chartreuse*.

That of London, corruptly called *Charter-house*, was before the suppression of monasteries by Henry VIII. a priory belonging to that order, and from the powers by which it was first erected into an hospital, it was denominated "The Hospital of king James." On occasion of a dreadful plague which filled all the common burial grounds with the dead, Walter de Manny, a Flemish nobleman, purchased in 1349, of the master and brethren of St. Bartholomew's Hospital in Smithfield, 13 acres and a rod of land, denominated "The Spital Croft," and appropriated the same, after it had been inclosed and consecrated, as a common cemetery for the accommodation of such deceased persons as could not have place in their respective parish grounds. A chapel was also erected in the said cemetery by the right honourable proprietor, in which many liberal oblations were made for several successive years. In 1371, Manny founded in this place a Carthusian monastery; and the revenues of this convent amounted, at the time of its suppression in 1538, to 642*l.* 4½*d.* per annum, which was conferred upon Sir Thomas Audley, speaker of the House of Commons, and from him descended to Thomas, earl of Suffolk, who disposed of it to Thomas Sutton, esq. by the name of "Howard-house," commonly called the "Charter-house," consisting of divers courts, a wilderness, orchards, walks, and gardens, &c. for which he paid the sum of 13,000*l.* in 1611. By letters patent obtained in this year, the hospital was established, and confirmed by parliament, in 1628.

The charge of the establishment for the admission of pensioners and scholars, together with the original purchase-money, amounted to 20,000*l.* Besides this sum, Sutton endowed his hospital, called "Sutton's Hospital," with 15 manors, and other lands, to the amount of 4493*l.* 19*s.* 10½*d.* per annum. After considerable losses, which this hospital sustained in 1623, 1624, and 1649, Sir Richard Sutton, one of the founder's executors, improved the estate belonging to the foundation so much, that in the year 1673, it amounted

to 5391*l.* 13*s.* 8*d.* yearly. It has since amounted to about 12,000*l.* This establishment is to consist of decayed gentlemen, soldiers, and merchants; eighty of whom have a plentiful maintenance of diet, lodging, and instead of apparel, a gown once in two years, and 14*l.* per annum, physic, &c. living together in a collegiate manner: and of scholars, or youths, forty of whom are taught, and supplied with necessaries; and such of them as are fit for the university sent thither, with an exhibition of 40*l.* per ann. for the first four years, and 60*l.* for the four last, on condition of constant residence, viz. eight months in the year; the rest are put to trades, with a premium of 40*l.* each. As a farther encouragement to the scholars brought up in this foundation, there are several ecclesiastical preferments in the patronage of the governors, who, according to the constitutions of the hospital, are to confer them upon those that were educated in this school.

For the superintendency of this hospital there are sixteen governors, generally of the prime quality; vacancies being supplied by the election of the remaining governors. The ordinary officers are, a master, preacher, regifter, treasurer, school-master, &c.

CHARTREUX, religious of the order of St. Bruno, called also *CARTHUSIANS*.

CHARTREUX, *poudre des*. See *KERMES mineral*.

CHARTULARY, *Chartularius*, a title given to an ancient officer in the Latin church, who had the care of charters and papers relating to public affairs.

The chartulary presided in ecclesiastical judgments, in lieu of the pope.

In the Greek church, the chartulary was called *chartophylax*; but his office was there much more considerable; and some even distinguish the *chartulary* from the *CHARTOPHYLAX* in the Greek church.

CHARUS, in *Ancient Geography*, a river of Asia, in that part of the Colchide which was to the right of the Phasis. Strabo says, that the town of Sebastopolis or Dioscuria, was situated near this river.

CHARWELL, in *Geography*, a river of England, which runs into the Thames, at Oxford.

CHARYBDIS, a supposed whirlpool in the strait of Messina, between the coast of Calabria and that of Sicily, and thought in ancient times to be very dangerous to navigators. According to the fables of the poets, Scylla (which see) and Charybdis were two sea-monsters, whose dreadful jaws were continually distended to swallow unhappy mariners; the one situated on the right, and the other on the left extremity of the strait of Messina, where Sicily fronts Italy. Thus Virgil describes them:

"Dextrum Scylla latus, lævum implacata Charybdis
Obsidet, atque imo barathri ter gurgite vastos
Sorbet in abruptum fluctus, rursusque sub auras
Erigit alternos, et sidera verberat unda:
At Scyllam cæcis cohibet spelunca latebris
Ora exertantem, et naves in faxa trahentem.
Prima hominis facies et pulchro pectore virgo
Pube tenus; postrema immani corpore pritis
Delphinum caudas utero commissa luperum."

Æn. lib. iii.

"Far on the right her dogs foul Scylla hides;
Charybdis roaring on the left presides,
And in her greedy whirlpool sucks the tides.
Then spouts them from below; with fury driv'n
The waves mount up, and wash the face of heav'n.
But Scylla from her den, with open jaws,
The sinking vessel in her eddy draws,

Then

Then dashes on the rocks : a human face,
And virgin bosom, hide her tail's disgrace ;
Her parts obscene below the waves descend,
With dogs inclos'd, and in a dolphin end." Dryden.

Charybdis is situated within the strait, in that part of the sea which lies between a projection of land named "Punta Secca," and another projection on which stands the tower called "Lanterna," or the light-house ; a light being placed at its top to guide vessels which may enter the harbour by night. The ancient and modern authors who have written concerning Charybdis, have all (Spallanzani excepted) supposed it to be a whirlpool. Homer is the first writer who has represented Charybdis as a monster which three times in a day drinks up the water, and three times emits it forth.

" — δια Χάρυβδιν ἀναβροῖσθαι μέλαν ὕδωρ,
Τρεῖς μὲν γὰρ τ' ἀνίστην ἐπ' ἡμέλῃ, τρεῖς δ' ἀναβροῖσθαι
Διόνει." Hom. *Od.* xii.

Beneath Charybdis holds her boisterous reign
'Midst roaring whirlpools, and absorbs the main :
Thrice in her gulphs the boiling seas subside,
Thrice in dire thunders she refunds the tide. Pope.

The description of Virgil, above cited, differs from that of Homer only in placing a deep gulph below. Strabo, Ildorus, Tzetzes, Hefychius, Didymus, Eustathius, &c. concur in the same opinion. The Count de Buffon adopts the idea of Homer in full confidence, and places Charybdis among the most celebrated whirlpools of the sea. "Charybdis," says he, "absorbs and rejects the water three times in 24 hours." Strabo tells us, (*lib.* vi.) that the fragments of ships swallowed up in this whirlpool are carried by the current to the shore of Tauromenium (the present Taormina) 30 miles distant from Charybdis. In confirmation of this tradition, an amusing though tragical anecdote is related of one Colas, a Messinean diver, who had acquired, from his being able to remain a long time under water, the surname of "Pescé" the fish. It is reported, that Frederic, king of Sicily, who came to Messina on purpose to see him, tried his abilities by throwing a golden cup into Charybdis, which, if he brought up, was to be the reward of his resolution and dexterity. The hardy diver, after having twice astonished the spectators by remaining for a long time under water, plunged into it a third time and appeared no more : but, some days after, his body was found on the coast near Taormina. Spallanzani determined to investigate, by his own observation, the truth of the opinion which had been entertained with respect to Charybdis.

It is distant from the shore of Messina about 750 feet, and is called by the people of the country "Calofaro," from *καλός* and *φάρος*, i. e. "the beautiful tower," from the light-house erected near it for the guidance of vessels. The phenomenon of the Calofaro is observable when the current is descending ; for when the current sets in from the north, the pilots call it the "descending rema," or current ; and when it runs from the south, the "ascending rema." The current ascends or descends at the rising or setting of the moon, and continues for 6 hours. In the interval between each ascent or descent there is a calm which lasts at least a quarter of an hour, but not longer than an hour. Afterwards at the rising or setting of the moon, the current enters from the north, making various angles of incidence with the shore, and at length reaches the Calofaro. This delay sometimes continues 2 hours. Sometimes it immediately falls into the Calofaro, and then experience has taught that

it is a certain token of bad weather. Spallanzani, apprised by the pilots that there was no danger in visiting the Calofaro, approached it in a bark managed by some expert mariners, who assured him of his safety. When he observed Charybdis from the shore, it appeared like a group of tumultuous waters, which became more excessive and more agitated in his nearer access to it : but upon being carried to the edge he was convinced that what he saw was by no means a vortex or whirlpool. Hydrologists teach us, that by a whirlpool in a running water we are to understand that circular course which it takes in certain circumstances ; and that this course or revolution generates in the middle a hollow inverted cone, of a greater or less depth, the internal sides of which have a spiral motion. But nothing of this kind was perceived in the Calofaro. Its revolving motion was circumscribed within a circle of at most 100 feet in diameter, within which limits there was no incurvation of any kind, nor vertiginous motion, but an incessant undulation of agitated waters, which fell, beat, and dashed against each other. Yet these irregular motions were so far placid that nothing was to be feared in passing over the spot ; though his little bark rocked very much from the continual agitation ; so that the mariners were obliged constantly to make use of their oars to prevent its being driven out of the Calofaro. Substances thrown into the stream that were heavier than the water, sunk and were no more seen ; those which were lighter remained on the surface, but were seen driven out of the revolving circle by the agitation of the water. Spallanzani, thus convinced that there was no gulph under the Calofaro, because in that case there would have been a whirlpool, which would have carried down into it the floating substances, sounded the bottom with a plummet, and found that its greatest depth did not exceed 500 feet. From these facts he concluded, that at the time of his observation, there was no whirlpool in Charybdis ; though it might have been different when the sea was tempestuous. In order to satisfy himself concerning this circumstance, he questioned the pilots who had frequently seen Charybdis in its greatest fury, and obtained from them the following account : When the current and the wind are contrary to each other, and both in their greatest violence, especially when the south wind blows, the swelling and dashing of the waves within the Calofaro are much more impetuous and extensive. It then contains three or four small whirlpools, or even more, according to the degree of its extent and violence. If at this time small vessels are driven into the Calofaro by the current or the wind, they are seen to whirl around, rock, and plunge ; but are never drawn into the vortex. They merely sink when filled with water by the waves beating over them. When vessels of a larger size are forced into it, whatever wind they have they cannot extricate themselves ; their sails are useless ; and after having been for some time tossed about by the waves, if they are not assisted by the pilots of the country, who know how to bring them out of the course of the current, they are furiously driven upon the neighbouring shore of the Lanterna, where they are wrecked, and the greater part of their crew perish in the waves. Spallanzani having evinced the erroneousness of the opinion with respect to Charybdis, that has been transmitted from Homer to the present time, further observes, that Homer was not exact with regard to the situation of Charybdis. The ancient poet, probably misled by the account which he had received from others, and not having had an opportunity of observing it himself, places Charybdis near Scylla : the distance from one of these rocks to the other being an arrow's flight, which does not at all accord with the present situation

of Scylla. Although within the present century the strait of Messina has become narrower, yet we know from various and unquestionable testimonies that, long before this event, Charybdis was situated where it is at present, on the side of Sicily, a little beyond Messina. Our ingenious writer proceeds to inquire what foundation there is for the proverbial saying,

“Incidit in Scyllam, cupiens vitare Charybdis:” i. e. he who endeavours to avoid Charybdis, dashes upon Scylla; which proverb was applied by the ancients to those who, while they sought to shun one evil, fell into a worse. The Messinese pilots informed him, that this misfortune, though not always, yet frequently happens, unless proper measures are taken in time to prevent it. If a ship be extricated from the fury of Charybdis, and carried by a strong southerly wind along the strait, towards the northern entrance, it will pass out safely; but should it meet with a wind in a nearly opposite direction, it will become the sport of both these winds, and, unable to advance or recede, be driven in a middle course between their two directions, that is, full upon the rock of Scylla, if it be not immediately assisted by the pilots. They added, that in these hurricanes a land wind frequently rises which descends from a narrow pass in Calabria, and increases the force with which the ship is impelled towards the rock. If it be asked, how it happens that Scylla and Charybdis are now less dangerous than they were in former times, as Scylla still remains such as it was in the time of Homer, and Charybdis must at present be more perilous because the strait of Messina is become narrower; the answer is, that the difference arises from the improvement of the art of navigation which, formerly in its infancy, dared not lanch into the open sea, but only ventured to creep along the shore; but time, study, and experience, have rendered her more mature, better informed, and more courageous; so that she can now pass the widest seas, brave the most violent tempests, and laugh at the fears of her childhood. See Spallanzani's Travels in the Two Sicilies, vol. iv. Thucydides (lib. xi.), and some other approved historians, use the term Charybdis to signify the whole strait betwixt Sicily and Calabria.

CHARYBDIS, a place of Syria, between Antioch and Apamæa. Strabo says, that the river Orontes is lost in this place, and that it rises again to view about 40 stadia below it.

CHARYBDIS is also a word used by Dr. Plott to express certain openings which he supposes in the bottom of the sea, by which its waters are received and conveyed by a subterranean circulation to the origin of fountains and springs. The *fluxus moschonicus*, or *maafstrom* on the coast of Norway, is supposed to be owing to some such subterranean indraught; and it is advanced also, that the Mediterranean sea could not be emptied of the vast quantities of waters which it receives, but must overflow the land of Egypt, unless swallowed by some such *charybdis*, which is either in some part of the basin of that sea, or near the mouth of it; in which case, it may be the occasion of that strong under-current, described by all those who have treated of this sea. An immense *charybdis*, placed near the strait's mouth, may be hid under the immensity of waters there; but as it would absorb the deep waters continually, and that in large quantities, it would necessarily cause such an under-current there. See VAPOUR.

CHARYBDIS, in *Mythology*, was a female robber, who, according to the fable, stole the oxen of Hercules, for which she was struck with a thunder-belt by Jupiter, and turned into a whirlpool dangerous to strangers.

CHASE, in *Agriculture*, is a word sometimes employed

to denote a row or rank of thorns, &c. Thus, in the planting of quicksets, a single chase signifies a single row; and a double chase a row planted below the first, not immediately underneath the upper plants, but under the middle of intermediate spaces or vacant parts.

CHASE, or *Chace*, in *Law*, is used for a driving of cattle to or from any place; as to a distress, a fortlet, &c.

CHASE, or *Chace*, in a general sense, denotes a great extent of woody ground lying open, and privileged for wild beasts and wild fowl; the beasts of the chase comprehending not only the buck, doe, fox, martin, and roe, but, in a common and legal sense, all the beasts of the forest. Co. Litt. 233. A chase differs from a park in not being inclosed, and also in this particular, that a man may have a chase in another person's ground, as well as in his own; it being indeed the liberty of keeping beasts of chase or royal game therein, protected even from the owner of the land, with a power of hunting them there. Bl. Comm. vol. ii. 38. But if a man have a chase within a forest, and he kill or hunt any stag, or red deer, or other beasts of the forest, he is finable. 1 Jones's Rep. 278. A chase is of a middle kind, between a forest and a park; being usually less than a forest, and not possessed of so many privileges; but wanting, v. gr. courts of attachment, swainmote, and justice-seat. Yet it is of a large extent, and stocked both with a greater diversity of wild beasts, or game, and more keepers, than a park. Crompton observes, that a forest cannot be in the hands of a subject, but it forthwith loses its name, and becomes a chase; in regard all those courts lose their nature when they come into the hands of a subject; and that none but the king can make a lord chief justice in the eyre of the forest.

By the common law, no person is at liberty to take or kill any beasts of chase, but such as hath an ancient chase or park; unless they be also beasts of prey.

Yet the same author adds, that a forest may be granted by the king to a subject, in so ample a manner, as that there may be courts equivalent to a court of attachment, swainmote, and justice-seat. It is not lawful to make a chase, park, or warren, without licence from the king under the broad seal. See FOREST, GAME, and PARK.

CHASE, *beasts of*. See BEASTS.

CHASE, or *Chace*, *wild goose*, a term used to express a sort of racing on horseback, used formerly, which resembled the flying of wild geese, those birds generally going in a train one after another, not in confused flocks as other fowls do. In this sort of race, which is never used except in *matches*, the two horses, after running twelve score yards, had liberty, which horse soever could get the leading, to ride what ground the jockey pleased, the hindmost horse being bound to follow him within a certain distance agreed on by articles, or else to be whipped in by the tryers or judges who rode by; and whichever horse could distance the other, according to the interval settled when the match was made, won the race. If the horse which at the beginning was behind, can get before that which first led, then he is likewise bound to follow, till he can either get before, or else the match be lost or won. This sort of racing was not long in common use, for it was found inhuman and destructive to good horses, when two such horses were matched together. For in this case neither was able to distance the other, until they were both ready to sink under their riders, and often two very good horses were both spoiled, and the wagers forced to be drawn at last. The mischief of this sort of racing soon introduced the method now in use, of running only a certain quantity of ground, and determining the plate or wager, by the coming in first at the post. It is well known that this

this chase still preserves its name in a common proverb, and "that many people follow" it, "without knowing" that they do so.

CHASE, in *Sea-Language*, signifies a vessel pursued by another, apprehended or known to be an enemy. Hence, to *chase* is to pursue a ship; which is called also *giving chase*.

A vessel that chases another ought to have the advantage of sailing; because, if the ship that is chased were as good a sailer as the chaser, she could never come up with her, if they manœuvred equally and at the same time. It is therefore useless to chase a ship, with respect to which you have not the superiority in sailing, unless it be found that she does not know how to take the benefit of her equality. In order to ascertain whether or not your ship sails quicker than your adversary, you must get in the same track, under the same sails, and keep the same course with the vessel you wish to chase, and let her exactly with a compass. If you sail best, the chase will soon be drawn a point more ast; but if she has the advantage, you will in a short time bring her a point farther forward: if you sail equally, she will remain in the point you set her at first.

In chasing at sea, the following rules are to be observed, as the ship that is chased is either to windward or leeward of the chaser. When the chaser is to leeward of the vessel he means to pursue, he ought to veer on the same tack as the enemy, till he brings her to bear exactly perpendicular to his course, if he has not already passed that point: then tack, and continue the second board till he brings the chase again perpendicular to the direction on which he is standing by the wind, and he must then heave about again; always continuing the same manœuvre, by tacking every time he brings the chase perpendicular to his course on either board. In this manner, the chaser will, by the superiority only of his sailing, join the other by the shortest method. You continue on the same tack as the enemy, when first seen, in order to lose no time; because you will always bring the ship you are in chase of right on your beam, when you have a superiority of sailing, whatever may be the tack she is on, provided you are careful not to pass that point; but, if perchance you should, you must get on the other tack with all possible dispatch. The chaser heaves about as soon as the vessel he is in pursuit of is on his beam; because she is, at this time, at the shortest possible distance, if he chases on the same tack, and steers the same course with the vessel chased. If the chaser runs on a different tack from the vessel chased, he is still to tack when the latter is on his beam, because the distance is the least possible between them on the different boards they hold. This mode is preferable to all others; it not only being the shortest, but because you force the chase to fly from you close upon a wind, pressing her more and more from the leeward, by never passing the point at which the distance between the two vessels, in plying to windward, is the shortest possible. The weather ship, which flies, will always be joined by the chaser, since it is granted she does not sail so well as the pursuing vessel. It is therefore her advantage constantly to keep one course, without losing time to heave about, as tacking cannot be so favourable to her as to her adversary, whose sailing is superior. If the chaser should mistakenly stand on a long way, and tack in the wake of the chase, the best thing she can do is to heave in stays, and pass to windward of him on the other tack, unless you suppose your vessel would have a large superiority. If the chaser persists in tacking in the wake of the other ship, the chase will be very much prolonged.

When the ship you wish to chase is to leeward, or when you are to windward of her, keep the ship away, to

cut her off; and, steering continually on that course, you come at last together at the point where the courses run by the two vessels intersect each other. This will be exactly executed by the chasing ship, if, in the course she has chosen, she constantly keeps chase in the same degree of the compass as at the beginning of the pursuit. This principle applies equally to all the courses which the retreating ship steers; for overtaking can only be obtained by keeping in a straight line, which is the shortest possible that can be drawn between any two points. If you take another course than that which keeps you in the same point of bearing you were in with respect to the vessel pursued, at the beginning of the chase, you would fail, by being either too far a-head or too far a-stern; that is to say, if the chaser keeps his wind too close, he will be too much a-head, and consequently prolong the chase; and, if he keeps too much away, he will be too far a-stern. These are the only two considerations to be regarded for the performance of this manœuvre; considerations which are easily observed, and corrected with an azimuth compass; for when you see that, at the end of a certain time, you bring the chase more ast than the first point of bearing, it is evident you keep your wind too much: if, on the contrary, you draw her forward, it is a proof that you keep too much away. These errors are easily corrected, by steering, for the first case, so as to see that the chase is always kept exactly on the same degree of the compass; and, for the second, you keep your wind a little more, till you see that you rest in the same point of bearing with respect to one another. Then, it is evident you chase by the shortest and most certain method, since you reach the chase, in running on a straight line.

The vessel that is to leeward, and chased, ought to run in the course that will carry her most immediately from the chaser. Some vessels have greater advantage in going large than others; some with the wind right ast; and others again are to be found which go best close-hauled. Attention should therefore be paid to the known qualities of a ship, in order to take the most advantageous and most convenient directions capable of effecting a retreat. It is however almost certain, that if the chase does not sail at least at an equal rate with the chaser, whatever manœuvre she may practise, she will at length be overtaken by a skilful chaser adhering to principles. If the chase be found right a head, and so the chaser be put to a stern-chase, then the best sailer shall carry it, if there be sea-room and day-light. Being come up close with the chase, endeavour to cross her fore-foot; and by that means you will both hinder her way, and avoid the fury of her ordnance (except those in her chase), and use your own, if required, to more advantage; and that as well your chase pieces, at your first getting up within reach, as your broad-side and quarter-pieces, as you pass thwart her hawse, and scour her decks from stem to stern. If she makes away from you, ply your guns, as many as possible, at her sails, yards, masts, and general tackling; and, being near, spare not your case-shot, or cross-bar-shot, to make the greater damage.

CHASE, *stern*, is when the chaser follows the chased a-stern, directly upon the same point of the compass.

To *lie in a ship's fore-foot in a chase*, is to sail, and meet with her by the nearest distance, and so to cross her in her way, or to come across her fore-foot.

A ship is said to have a *good chase*, when she is so built forward on, or a-stern, that she can carry many guns to shoot forwards, or backwards; according to which, she is said to have a *good forward*, or *good stern-chase*.

CHASE-guns, are such whose ports are either in the head called *bow-chases* (and then they are used in chasing of others); or

or in the stern, called *stern-chafes*, which are only useful when they are pursued or chased by any other ship.

CHASE of a gun. See CANNON.

CHASE *astragal*, *fillets*, and *girdle*. See CANNON.

CHASE-LAND, in *Agriculture*, is such sort of waste land as was formerly in the state of chase. There are still large tracts of this sort of land in different parts of the kingdom, though much within these few years has been cleared and brought into a state of cultivation. It has been observed by the author of the Middlesex Agricultural Report, in speaking of a tract of this sort of land, in the vicinity of London, that has lately been attempted to be brought into a state of improvement, that it abounded with trees and rushes, which rendered it necessary for the cultivators to dig up the soil and stock out the roots, before any of the ordinary operations of husbandry could take place. These were works which not only required, he says, much labour to effect, but also a very large expenditure of money, for which there was no immediate prospect of return. Oats was the only article which found a ready sale. The very unusual and extraordinary supply of stack-wood and bawns, so far exceeded the demands for these articles, that the price fell far below the woodman's labour. Inexperienced farmers became alarmed at these circumstances, and in consequence set themselves about trying confined, partial, and penurious, experiments, certainly very ill-calculated to succeed on a raw crude soil, which had from the earliest ages been shut up by a thick foliage in an excess of damp, excluded from the benign influence of the solar rays, and every other power of evaporation. It is added, that the wood in the first instance, being only cleared away from small patches of land at a time, such cleared ground was necessarily still left surrounded on all sides by woods, which by the redundancy of damp they occasioned, continued the disorder under which the soil naturally laboured. Again, the stocking up the roots, and digging the soil, as before-mentioned, would unavoidably bury a great part of the surface mould, which was by much the best, and in its stead turn up a worthless clay, a perfect enemy to the whole vegetable world: or at least it would mix so much bad soil with the small portion of good, as to produce together a new surface, certainly much inferior to the one destroyed by this operation. It ought not therefore, he thinks, to excite surprise, that, "under all these disadvantages, the soil should, as it were suddenly and reluctantly, yield back again even so much as the seed sown. In fact, it could not otherwise happen till such time as the woods being more generally cleared, the superabundant water drained off, and the excessive damps evaporated, the soil should obtain a proper degree of dryness. Nor even then could great returns be expected, without the application of some stimulating ingredient, as turf-ashes, lime, marl, &c. to correct the natural acidity and crudeness of the soil. But in order to make it permanently productive, manure should have been dealt with a liberal hand.

At length, however, the fire-wood being grubbed, and marketed in less quantities, increased its price; and by the money it produced opened the way for a more extended clearing of the soil. The half-yard wood, which was originally given as a recompence to the labourer for clearing the ground, now yielded to the proprietor seven shillings a stack; the spikes twenty-four shillings; the bawns, when drawn to town, from sixteen to twenty-four shillings per hundred; and the sprav, being made up into what they called pimps, several shillings profit.

The account between the proprietor and the labourer therefore now stood thus, viz.

	Labourer.			Sold by the Proprietor for		
	£.	s.	d.	£.	s.	d.
To one stack of half-yard wood, 14 feet long, 3 feet high, and 3 feet wide	0	4	0	0	16	0
Ditto yard wood ditto	-	0	2	0	16	0
To 100 spikes	-	0	1	0	6	0
To 100 bawns	-	0	2	0	8	0
Roots, and collier's ware, per stack, the same measure as the half-yard wood	0	8	0	0	12	0
Ditto, rough roots	-	0	7	0	11	0
Pimps per hundred	-	0	1	0	6	0
Together	£1	6	0	£3	15	0

On this it is well remarked that "this rise in the value of the above articles plainly evinced, that, though under a parsimonious management the soil refused to repay the toils and expence of husbandry on the produce of grain, it would, at least for a short time, yield, in the value of fire-wood, sufficient to answer the demands of the crown for rent. This circumstance no doubt was the means of its being cleared from wood. But unfortunately, the occupiers not knowing how to cultivate this kind of soil to advantage, and without being apprehensive of incurring a considerable loss by any mistake in the management of it, let it lie in a state of waste for several years; and it would probably have continued so till this time had not the more spirited and well-directed exertions of a few enterprising and intelligent individuals shown the way to success." And it is stated as a matter of some doubt, "whether the best mode of improving such a soil as that of this chase, was then known in this part of England; but it is certain that it was not practised. It is also clear to demonstration, that unless a well-digested system be pursued, the profit must be precarious, and the success of the undertaking uncertain.

It is added, that "if the parties concerned in the cultivation of it had set out upon a liberal and judicious plan, in the first instance, and began by felling the timber in the proper season, and disposing of it at the best market; next pared the old sward, and stocked out all the roots; and, as soon as they were dry burn the roots, bushes, and sward, into ashes; then ploughed these ashes in with a very thin furrow (in order to avoid bringing up to the surface the wretched sub-soil); after this, spreading lime, and harrowing it in; had, he says, this method been adopted by the first cultivators of the chase, he thinks he may venture to assert, that he should not now have heard complaints against the soil, or that it would be called fullen and unproductive. At least, it would have grown tares and perhaps cole, which should have been eaten by stock on the land which produced them. This should have been annually repeated, and the land plentifully supplied with manure brought from town, (if nigh such) and the farm-yard, until the soil had acquired a sufficient degree of richness to be laid down to permanent grass."

The land of this chase is, he says, in its nature too stubborn to answer in a course of aration, particularly as it is so nigh the metropolis, and where the expence of horse-keep and men's labour are so high that they would consume all the produce of such land. It should therefore be only pared, burnt, ploughed, drained, limed, and manured, and then laid down clean and in good heart, to permanent grass. Indeed, wherever there is a clean skin of good plants already, it will be sufficient that it be well drained and manured, in which case the grasses will be sure to improve, and in a few years become good meadow."

These

These remarks shew the vast importance of beginning upon a good plan in the cultivation and management of this sort of waste land, as it is only in this way that advantage can be gained, or encouragement held out to the cultivation of such ground.

CHASIDÆANS, or **ASIDÆANS**, in *Ancient Geography*, so called on account of their great zeal for the law, and their voluntary engagement to observe it more rigidly than other men, were a valiant people of Judæa, who, after the settlement of the Jewish church on the return of the Jews from the Babylonish captivity, superadded to the law the constitutions and traditions of the elders, and other rigorous observances, to which, by way of supererogation, they voluntarily devoted themselves; and who, from the superior degree of holiness to which they aspired, were called *Chasidim*, i. e. the Pious. These persons were distinguished for their valour, and joined Mattathias and his companions when they fled from Jerusalem to the mountains and deserts of Judæa, in order to avoid the persecution of Antiochus. The Chasidæans reckoned it one of the chief points of that piety which they professed, to fight zealously for their religion, and the defence of the temple and its worship, which had been profaned by the Heathens. They concurred with Mattathias in his efforts for purging the land of the idolatry which the persecutors had imposed upon it, and re-establishing the true worship of God.

CHASING, a method of working, or enriching, gold, silver, &c. properly called enashing.

CHASIRA, in *Ancient Geography*, a town of Asia in Armenia Minor, according to Ptolemy.

CHASLEU. See **CISLEU**.

CHASLUHIM, in *Ancient Geography*. See **CASLUHIM**.

CHASM, *Χασμ*. See **GROTTO** and **HIATUS**.

CHASME, or **CHASMOS**, among *Ancient Physicians*, denotes oscitation or gaping. Hippocrates informs us that long respiration is a cure for continual oscitation.

CHASPHON, **CHASPHORA**, or **CHASBONA**, in *Ancient Geography*, a town of Palestine, in the country of Galaad, according to the book of Macchabees and Josephus. It was taken by Judas Macchabæus.

CHASSAIR, or **CASAIR**, in *Geography*, a town of Africa, in the kingdom of Morocco, about 6 leagues from mount Atlas, near which are mines of lead and antimony, which the inhabitants dispose of at Fez.

CHASSE, in *Military Language*, a charge of powder roughly bruised, which is put at the bottom of a cartouche, the better to force and throw out the materials with which it is filled.

CHASSE-COQUINS. See **BANDOLEER**.

CHASSE-CRAPAUD, in *Ornithology*, the European goat-fucker, *caprimulgus Europæus*, is described under this name by Salerne.

CHASSELAY, in *Geography*, a town of France, in the department of the Rhone and Loire, and district of Campde-Lyon; 2 leagues N. of Lyons.

CHASSENEUIL, a town of France, in the department Charente, and district of Angoulême; 11 miles N.E. of La Rochefoucault.

CHASSENEUX, **BARTHOLOMEW DE**, in *Biography*, an eminent lawyer, was born at Ipi l'Evêque, near Autun, in 1480; and after finishing his studies with a view to the law in Italy, was made master of requests to Charles d'Amboise, governor of the Milanese, who employed him at the court of Rome. In 1531, he was appointed counsellor of the parliament at Paris, and in the following year president of the parliament of Provence. He occupied this post

in 1540, when this body issued its sanguinary decree against the Vaudois of Merindol and Cabrières. These people, whose general character appears under another article, incurred, for deviating in their sentiments, worship, and practice from the prescriptions of the church of Rome, the charge of being pestilential heretics, and it was determined to extirpate them by fire and sword. Chasseneux, it is thought, did not in his judgment approve these severities, though he was officially obliged to sign the parliamentary decree. He contributed, however, by a variety of humane artifices to delay the execution of it, whilst he lived; and his death, in 1541, has been ascribed to those who wished to see the commencement of the bloody persecution. The works of Chasseneux are, "A Latin Commentary on the Customs of Burgundy, and of almost all France," fol. printed five times during his life, and more than fifteen times since; the last edition being that of president Bonhier, at Paris, 1717, 4to; "Catalogus Gloriæ Mundi," Lyons, 1529, fol. "Consilia," Lyons, 1531, fol. "Les Epitaphes des Rois de France, jusqu'à François I. en vers, avec leur Effigies," and the same in Latin. *Nouv. Dict. Hist.*

CHASSENSAL, in *Geography*, a river of France, which runs into the Ardeche, not far from its source.

CHASSER L'ENNEMI, in *Military Language*. This phrase is of the same import as the word *depositer*, to drive an enemy before you, forcing him to quit a post that he occupies.

CHASSERADES, in *Geography*, a town of France, in the department of the Lozère, and district of Mende; 8 miles N. of Villefort.

CHASSEURS. See **CAVALRY**.

CHASSIERS, in *Geography*, a town of France, in the department of the Ardeche; 10 miles W. of Viviers.

CHASSIRON, *Tower of*, a light-house on the north point of the island of Oleron, near the coast of France, which has two fires by which it is distinguished from the tower of Cordovan.

CHASSIS DE GALERIE, in *Military Language*. These are small beams, or posts of different heights, which the miners make use of for supporting the earth, in proportion as they advance in the gallery. These support other pieces of timber laid transversely upon them, which hinder the tumbling down of the earth; and this is what is called *chapeau du mineur*, or the miner's hat.

CHASTE-TREE, in *Botany and Gardening*. See **VITEX**.

CHASTELAIN, **CLAUDE**, in *Biography*, was born at Paris in 1639; and occupied the office of canon in the cathedral of his native city. With a view of studying the usages peculiar to each church, he travelled through France, Italy, and Germany, and acquired an extensive acquaintance with liturgies and religious rites and ceremonies. Accordingly Harley, archbishop of Paris, placed him at the head of a commission for preparing formularies for the use of his diocese, and he was also employed by other bishops in correcting and altering their breviaries and church books. He likewise composed the offices for several religious orders. The "Hagiological Dictionary," which he published, was inserted by Menage in his etymologies of the French tongue; and he bears this testimony to his profound and various knowledge; viz. "Castellanum sæculum suum non intellexit;"—His own age did not comprehend his merit; and an intelligent person, who visited Rome 17 times, affirmed that Chastelain shewed him more curiosities, and taught him more facts than he had gained any knowledge of in all his other visits. In 1705, Chastelain published his "Roman Martyrology," translated into French, &c. 4to.; contain-

ing only the two first months of the year. In 1709, he published "An Universal Martyrology," upon the same plan. The Bollandists who wrote the lives of the saints, were thus led to seek his acquaintance, and they dedicated to him one volume of their work. He died in 1712, leaving among various other works in MS. a journal of his own life. Moreri.

CHASTELET, GABRIELLE EMILIE DE BRETEUIL, marchioness of, was born in 1706; and became celebrated both for the beauty of her person, and the culture of her mind. In the course of her education, which was of a superior kind, she acquainted herself with the best ancient and modern authors; but her attention was more particularly directed to mathematics and natural philosophy. She began her literary career, with an institute of the philosophy of Leibnitz, under the title of "Institutions de Physique," 8vo.; but she afterwards transferred her respect from the reveries of the German philosopher to the discoveries and reasonings of Newton. Accordingly, she translated the Principia, and added a commentary; which were published after her death under the superintendence of the celebrated Clairaut. She died in 1749, at the palace of Luneville. Although she was a mathematician and philosopher, she was far from being a recluse; for she conversed with persons of her own rank with such a degree of freedom and ease, and partook so much of their pleasures, that even the ladies who had the honour of associating with her had no reason to suspect that she was the commentator of Newton. Her memory was singularly retentive, her eloquence ready and impressive, her taste for poetry correct and lively, and she manifested that indifference to popular applause, which is the usual characteristic of a great mind. But notwithstanding these various mental qualities and attainments, it is generally admitted, that she had no pretensions to the character of chastity. *Nouv. Dict. Hist.*

CHASTELET, in *Geography*, a town of Germany, in the circle of Westphalia, and bishopric of Liege, situate on the fourth side of the Sambre; 30 miles S.W. of Brussels, and 50 W.S.W. of Liege.

CHASTELLAN, a town of Savoy; $8\frac{1}{2}$ miles N.E. of Chambéry.

CHASTELLUX, *Le Chevalier de*, in *Biography*, brigadier des armées du roi at the time of the revolution, was born 1734, and received in the French Academy in 1775. He had early in life a strong passion for poetry and music. His professional employment, as a military officer, has never impeded the successful cultivation of those talents. Many of his comedies, written for private theatres, and heard with transport, would have been sure of success if represented on a public stage, had he had courage sufficient to make the experiment. But his "Essay on the Union of Poetry and Music" is the chief production which entitles him to a place here as a musical writer. This little book, which first appeared in 1765, is but a pamphlet of about 90 or 100 pages 12mo. Yet next to Rousseau's "Lettre sur la Musique Française," it is the best piece of musical criticism in the French language. It called the attention of persons of taste to Italian poetry and music, which the abbé Arnaud and M. Suard had attempted before; but we think with less knowledge of the subject and more party-spirit. M. De Chastellux luckily produced his tract before the Gluck and Piccini factions had birth, and seems to write from feeling and zeal for the musical drama, apart from all contention for victory over writers of opposite opinions. He has many ideas concerning ancient as well as modern music, which were new, at least in France, when his tract appeared, and which have been since adopted by subsequent musical writers, and rendered com-

mon: such as symmetry of air, not only in the number of bars, but in the general cast of each bar, which is a rule of much the same tendency as Rousseau's "Unity of Melody." In speaking of ancient music, the author thinks, though inferior to the modern, that the great effects of its modes were produced by their being severally confined to particular keys and measures. If a whole nation were to hear a particular melody in a particular key only on occasions of religious ceremonies, and another was confined to military purposes, their effects would be greatly heightened. If, for instance, in the midst of a tumult, a band of good musicians was to play a religious air in its usual key, it would excite piety and respect in the most turbulent. And if, during a religious ceremony, a military air was unexpectedly to be performed in its original key, there can be little doubt but that the people would immediately fly to arms. The effect of the ancient Greek music must greatly have depended on its appropriation; as in China, from time immemorial, particular musical airs have been confined to particular purposes. This is only applicable to instrumental music; but for vocal, the author wishes poets to become musicians, and musicians poets, otherwise they have different interests, and mutually injure and degrade each other. On this subject, he says most truly, that the lyric poet should never forget that he is writing for music; that he should sacrifice wit and point to sentiment and effect. Though there is a constant jealousy between poetry and music, he says it is impossible to deny that music is the principal object in an opera. Metastasio, whose dramas were justly admired and respected as poetry, never was jealous of the applause which composers and singers acquired, or thought it was at his own expence. The French perhaps do wisely in allowing few airs in their operas, and those, short, easy, and simple; having no singers capable of performing *bravura*, and still less airs in a grand style of *cantabile*: but why Italy, and all Europe who have Italians, or singers of the Italian school, capable of performing in *all* styles, should conform to the present plan of French operas, and banish good singing from their lyric theatres, or be accused of ignorance of the true style of dramatic music, we know not. That a people just emerging from barbarism in music of all kinds, should arrogantly dictate to nations long polished, refined, and accustomed to perfection, gives but too just grounds for imagining, that presumption, though confined to individuals in some countries, is, in others, a national vice.

The chevalier Chastellux seems the first writer in the French language (after Rousseau) who truly comprehended the merit of Italian vocal music and performance, and felt the merit of Metastasio. He seems to have a correct idea of dramatic poetry, and words to be set to such music as will display the abilities of a composer as well as singer. He says very truly, that to obviate, or at least to soften, the radical evil of mixing song with declamation, the poet, in going from speech to song, can only render the contrast and unnatural mixture bearable, by increase of interest or passion, which seems to call for a different expression. He should avoid the introduction of airs, in cold and uninteresting situations; or in the midst of a dialogue, before the characters are sufficiently animated; and by this means avoid the being too lavish of those airs which should be retained for occasions of passion, and the termination of scenes.

CHASTISEMENTS, or CORRECTIONS, in the *Manege*, are the severe and rigorous effects of the aids; for when the aids are given with severity, they become punishments. See *CORRECTION*.

CHASTITY, a virtue deified by the Romans. On the reverse of a medal of Faustina the younger, it is represented sitting,

sitting, and dressed in the habit of a Roman matron, holding a sceptre in her hand, with two doves at her feet. They called her, says Mr. Spence, the goddess "Pudicitia," and exhibited her in the form of a Roman matron, with her veil, in the modest attitude of pulling it over part of her face. Juvenal speaks of her personally, and humorously observes, "that he believes she was once upon our earth in the reign of Saturn, but that she quitted it when Jupiter began to have a beard." At Rome there were two of this name, viz. "Pudicitia Patricia," and "Pudicitia Plebeia."

The Roman law justifies homicide in defence of the chastity either of one's self or relations (Ff. 48. 8. 1.); and according to Selden (De Leg. Heb. lib. iv. cap. 3.) the law in the Jewish republic had the same latitude. The English law also justifies a woman in killing one who attempts to ravish her. Bac. Elem. 34. 1 Hawk. P. C. 71. And the father or husband may justify killing a man, who attempts a rape upon his wife or daughter: and the forcible attempt of a more detestable crime may be equally resisted by the death of the unnatural aggressor. Blackst. Comm. vol. iv. p. 181.

In China, at the death of the sovereign, all his women are removed to a separate building, called by a term, which divested of its metaphor, implies the "Palace of Chastity," where they are doomed to reside during the remainder of their lives.

CHASUARII, or CHATTUARII, in *Ancient Geography*, a people of Germany, who formed part of the Chatti. They are mentioned by Tacitus, Strabo, and Ptolemy.

CHASZAVENICA, a place which had a Roman garrison, under the orders of the commandant of Armenia, mentioned in the Not. Imp.; but its situation is not ascertained.

CHAT, CAPE, in *Geography*, a cape on the south coast of the river St. Lawrence. N. lat. $49^{\circ} 10'$. W. long. 66° .

CHAT, Cat, in *Gunnery*, a piece of iron with one, two, or three very sharp prongs or claws, which, when it has three of them, are arranged in a triangular form or shape. This piece of iron is fixed to a shaft or handle. It is used for searching and examining a piece of ordnance. By being introduced into the bore, it shews or discovers whether it is honey-combed, damaged, or otherwise defective.

There is another sort of chat, that differs a little from this. It consists of two branches of iron fixed to one end of a piece of the same metal, which have each of them two steel prongs or claws. One of these branches has a hinge with a spring so fixed, that when the chat is put into the bore, the smallest cavity releases the spring, and the defect is immediately discovered. This invention does credit to the inventor. Founders who do not like it, call the common *chat* the *diable*, or the devil, and the one with two branches *la malice du diable*, the malice of the devil.

CHAT. Also a sort of tower, that anciently was made use of in France for carrying soldiers at the besieging of places.

CHAT, in *Zoology*. See CAT and FELIS *catus*.

CHAT-bizaam of Vosmaer, &c. See VIVERRA *tigrina*.

CHAT *cervier*, the lynx. See FELIS *lynx*.

CHAT d'Espagne of Ridinger, and Chat de Constantinople. See VIVERRA *genetta*.

CHAT-huant, in *Ornithology*, the brown owl, STRIX *fridula*, Linn. Chat-huant is also the common name of owls in general.

CHAT *manoul*, in *Zoology*. See FELIS *manul*.

CHAT-pard. See PARDUS.

CHAT *rochier*, in *Ichthyology*, the name given by Broussonet and others to the greater cat-fish. See SQUALUS *felk-laris*, Linn.

CHATA, in *Geography*, a town of America, in the Tennessee government; 22 miles S.S.W. of Knoxville.

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CHATABOUCHEE, or CHATABUTHE. See CHATAUCHE.

CHATA-HATCHI, or HATCHI, a river of America, the largest which falls into St. Role's bay in West Florida. It is also called Pea River, and runs from N.E. entering the bay by several mouths, but so shoal, that they can only be passed by a small boat or canoe. About 25 leagues up this river, Mr. Hutchins found a small settlement of Cousiac Indians. The soil and timber on its banks very much resemble those of Escambia.

CHATAIGNERAYE, LA, a town of France, in the department of Vendée, and chief place of a canton in the district of Fontenay-le-Comte; 15 leagues S.E. of Nantes, and 34 N. of Fontenay-le-Comte. The place contains 1045 and the canton 15,006 inhabitants; the territory includes 350 kilometres and 21 communes.

CHATAISKA, a river of Siberia, which runs into the Enisei, near Turuchansk.—Also, a town of Siberia, on the east side of the Enisei, 156 miles N. of Turuchansk.

CHATANGA, a river of Russia, which runs into the Frozen sea; extending itself by the addition of many rivers into a large gulf at its mouth. N. lat. $74^{\circ} 40'$.

CHATAS, a name given to one sort of barks employed on the river Chagre in America, those of the other sort are called bongos. See CHAGRE.

CHATAUCHE, or CHATABOUCHE, in *Geography*, a river of America, which rises in the Apalachian mountains, on the borders of the Tennessee government, traverses the state of Georgia, and uniting with the Flint in N. lat. 31° , forms the *Apalachicola*, which see. It is about 30 rods wide, very rapid, and full of shoals. The soil on its banks is light and sandy, and the clay of a bright red colour. The lower creeks are settled in dispersed clans and villages from the head to the mouth of this river. Their huts and cabins resemble, by the colour of the clay, clusters of new-burned brick-kilns. The distance from this river to the Talapose river is about 70 miles, by the war-path, which crosses at the falls, just above the town of the Tuckabatche.

CHATAUGHQUE, a lake of America, in the county of Ontario and state of New York, about 18 miles long and 3 broad. It is connected with Alleghany river by the river Conewango, which runs a S.S.E. course. This lake serves to form an easy communication between lake Erie and the Ohio: there being water sufficient for boats from fort Franklin in the Alleghany, to the N.W. corner of this lake; and from thence there is a postage of nine miles to Chataughque harbour in lake Erie over ground capable of being made a good waggon road. This communication was once used by the French.

CHA-TCHEOU, or QUA-TCHEOU, a town of Asia, in the country of Thibet; 160 miles S.S.E. of Hami. N. lat. $40^{\circ} 22'$. E. long. $95^{\circ} 19'$.

CHATE, in *Botany*, Alp. See CUCUMIS *chate*.

CHATEAU, CASTLE, in *Military Language*, a place fortified either by nature or art, in a town or city, or in a district or tract of country, the passage through which it is wished to defend. A castle, unless it be naturally strong and peculiarly situated, cannot at present make much resistance. Castles, however, are still preserved in certain places, as serving like citadels to furnish retreats for prolonging capitulations, or overawing towns in cases of popular sedition.

CHATEAU ARNOUX, in *Geography*, a town of France, in the department of the Lower Alps, and district of Sisteron; 7 miles S. of Sisteron.

CHATEAUBELAIR BAY, a bay on the west coast of the island of St. Vincent in the West Indies. N. lat. $13^{\circ} 14'$. W. long. $61^{\circ} 17'$.

CHATEAU-BOURG, a town of France, in the department of the Ille and Vilaine, and chief place of a canton in the district of Vitré; $2\frac{1}{2}$ leagues W. of Vitré. The place contains 1242 and the canton 7255 inhabitants; the territory includes $102\frac{1}{2}$ kilometres and 10 communes.

CHATEAU-BRIANT, a town of France, in the department of the Lower Loire, and principal place of a district; 11 leagues N. of Nantes, and 9 S.S.E. of Rennes. N. lat. $47^{\circ} 44'$. E. long. $1^{\circ} 29'$. The place contains 3049 and the canton 7068 inhabitants; the territory comprehends $157\frac{1}{2}$ kilometres and 4 communes.

CHATEAUBRUN, JOHN BAPTIST VIEILLE DE, in *Biography*, was born at Angoulême in 1686, and became steward of the household to the duke of Orleans, member of the French Academy, and a writer of tragedy. His first publication in 1714, was a piece entitled "Mahomet II." His best work, written soon after, was "Les Troyennes," which was not acted for 40 years, and the reason he alleged for delaying the exhibition of it, was the fear of giving offence to the devout prince, his master. He also wrote the tragedies of "Philoctetes" and "Alyanax," which, though feeble in poetry, abound with sentiment, and are conducted with skill. He was admitted into the academy in 1753, and died in 1755. His taste was formed by the study of the Greek and Latin poets. His private character was that of a true philosopher, mild, virtuous, tolerant, and disinterested. *Nouv. Dict. Hist.*

CHATEAU-CAMBRESIS, in *Geography*. See **CHATEAU-CAMBRESIS**.

CHATEAU-CHALONS, a town of France, in the department of Jura, and district of Poligny; 2 leagues N. of Lons-le-Sannier.

CHATEAU-CHINON, a town of France, in the department of the Nièvre, and principal place of a district, situate near the source of the Yonne. It has a considerable trade in cloth, leather, wood, and wool; 11 leagues E. of Nevers, and $5\frac{1}{2}$ W.N.W. of Autun. N. lat. $47^{\circ} 3'$. E. long. $3^{\circ} 49'$. The place contains 3156, and the canton 12,837 inhabitants; the territory includes 395 kilometres, and 14 communes.

CHATEAU-CORNET, a fortress of the island of Guernsey.

CHATEAU-DAUPHIN, a strong fortress of Piedmont, in the marquisate of Saluzzo, ceded to the duke of Savoy by the treaty of Utrecht. It was taken by the combined armies of France and Spain in 1744; 15 miles W. of Saluzzo, and 30 S.S.W. of Turin. N. lat. $44^{\circ} 33'$. E. long. $6^{\circ} 58'$.

CHATEAU-DUN, a town of France, in the department of the Eure and Loire, and principal place of a district; 25 miles S. of Chartres. N. lat. $48^{\circ} 4'$. E. long. $1^{\circ} 15'$. The place contains 6146, and the canton 13,467 inhabitants; the territory includes $302\frac{1}{2}$ kilometres, and 19 communes.

CHATEAU-FORT, a town of France, in the department of the Seine and Oise; 1 league N.E. of Chevreuse.

CHATEAU-GAY, a town of France, in the department of the Puy-de-Dôme; 1 league S.W. of Riom.

CHATEAU-GERARD, a town of France, in the department of the Yonne, and district of Tonnerre; 14 miles S.S.E. of Tonnerre.

CHATEAU-GIRONS, a town of France, in the department of the Ille and Vilaine, and chief place of a canton, in the district of Rennes; $2\frac{1}{2}$ leagues S.E. of it. The place contains 1413, and the canton 11,761 inhabitants; the territory includes $157\frac{1}{2}$ kilometres, and 10 communes.

CHATEAU-GOMBERT, a town of France, in the

department of the mouths of the Rhone, and district of Marseilles; 4 miles N.E. of Marseilles.

CHATEAU-GONTHIER, a town of France, in the department of Mayenne, and principal place of a district, seated on the Mayenne. It has a manufacture of linen and woollen. The place contains 4656, and the canton 17,776 inhabitants: the territory includes 250 kilometres, and 17 communes. It is distant 5 leagues S. from Laval, and 5 W. from Sable. N. lat. $47^{\circ} 57'$. W. long. $0^{\circ} 49'$.

CHATEAU D'IF, a fortress and three small islands near the coast of France, in the Mediterranean; about 3 miles W.S.W. of Marseilles.

CHATEAU-JOUX, a fortress of France, in the department of the Doubs, near Pontarlier.

CHATEAU-LONDON, a town of France, in the department of the Seine and Marne, and chief place of a canton in the district of Fontainebleau; $2\frac{1}{2}$ leagues S. of Nemours. The place contains 1960, and the canton 8493 inhabitants; the territory comprehends $292\frac{1}{2}$ kilometres, and 16 communes.

CHATEAU-LAUDREN, a town of France, in the department of the North coasts, and district of St. Brieuc; $2\frac{1}{2}$ leagues N.W. of St. Brieuc. The place contains 869, and the canton 13,085 inhabitants: the territory includes $132\frac{1}{2}$ kilometres, and 9 communes.

CHATEAU-LIN, a town of France, in the department of Finisterre, and principal place of a district. The place contains 3172, and the canton 13,583 inhabitants: the territory includes $297\frac{1}{2}$ kilometres, and 11 communes. This town has a considerable trade in slates for tiling houses; and in its vicinity are a medicinal spring, and some mines of copper and iron. It is four leagues N. of Quimper. N. lat. $48^{\circ} 11'$. W. long. $4^{\circ} 11'$.

CHATEAU-DU-LOIR, a town of France, in the department of Sarthe, and chief place of a canton, in the district of St. Calais. The place contains 2652, and the canton 13,082 inhabitants; the territory includes $187\frac{1}{2}$ kilometres, and 14 communes. A considerable quantity of claret-wine is manufactured in the vicinity of this town. It is distant 7 leagues N.N.W. from Tours, and 7 S.S.E. from Le Mans. N. lat. $47^{\circ} 42'$. E. long. $0^{\circ} 20'$.

CHATEAU-LOMBARD, a fortress of Asiatic Lombardy, in the province of Caramania.

CHATEAU-EN-MARCHE, a town of France, in the department of the Lower Seine; 2 leagues N. of Montvilliers.

CHATEAU-MEILLANT, a town of France, in the department of the Cher, and chief place of a canton, in the district of St. Amand, having an ancient castle, which is said to have been built by Julius Cæsar. The place contains 2238, and the canton 9101 inhabitants: the territory comprehends 325 kilometres, and 11 communes. It is $10\frac{1}{2}$ leagues S. of Bourges. N. lat. $46^{\circ} 34'$. E. long. $2^{\circ} 6'$.

CHATEAUNEUF, L'ABBÉ DE, in *Biography*, author of an agreeable little book on the music of the ancients, entitled "Dialogue sur la Musique des Anciens," published anonymously in 1725, but seemingly written about 1705, during the heat of the controversy between the exclusive admirers of the ancient and modern literature, and not long after "The Battle of the Books." The interlocutors are composed of *Enragés* on both sides, and the author seems to have assumed the office of *Moderator*.

CHATEAU-NEUF, in *Geography*, a town of France, in the department of the Higher Alps; 10 miles S. of Serres.—Also, a town of France, in the department of the Charente, and chief place of a canton, in the district of Cognac: 10 miles W.S.W. of Angoulême. The place contains

contains 2184, and the canton 9981 inhabitants: the territory includes 165 kilometres, and 18 communes.—Also, a town of France, in the department of the Cher, and chief place of a canton, in the district of St. Amand. The place contains 1719, and the canton 6499 inhabitants: the territory includes 230 kilometres and 12 communes.—Also, a town of France, in the department of the Côte d'Or, 17 miles S.W. of Dijon.—Also, a town of France, in the department of the Eure and Loire, and chief place of a canton, in the district of Dreux: the place contains 1271, and the canton 10,744 inhabitants: the territory includes 272½ kilometres, and 29 communes.—Also, a town of France, in the department of the Ile and Vilaine, and chief place of a canton, in the district of St. Malo; 7 miles S. of it. The place contains 539, and the canton 9629 inhabitants: the territory includes 127½ kilometres, and 7 communes.—Also, a town of France, in the department of Loiret, and chief place of a canton, in the district of Orleans; 12 miles E. of it. The place contains 3127, and the canton 7444 inhabitants: the territory comprehends 267½ kilometres, and 10 communes.—Also, a town of France, in the department of the Mayne and Loire; 13 miles N. of Angers. The place contains 916, and the canton 9985 inhabitants: the territory includes 265 kilometres, and 15 communes.—Also, a town of France, in the department of the Saone and Loire; 3 leagues E.S.E. of Marcigny.—Also, a town of France, in the department of the Upper Vienne, and chief place of a canton, in the district of Limoges; 17 miles S.E. of it. The place contains 1136, and the canton 9039 inhabitants: the territory includes 267½ kilometres, and 10 communes.—Also, a town of France, in the department of the Var, and district of Grasse; 3 miles N.E. of Grasse.

CHATEAUNEUF du Faon, a town of France, in the department of Finisterre, and chief place of a canton, in the district of Chateaulin; 16 miles N.E. of Quimper. The place contains 2163, and the canton 13,596 inhabitants: the territory includes 330 kilometres, and 11 communes.

CHATEAUNEUF de Galaure, a town of France, in the department of the Drôme; 13 miles N. of Romans.

CHATEAUNEUF de Mazene, a town of France, in the department of the Drôme; nine miles east of Montelimart.

CHATEAUNEUF du Pape, a town of France, in the department of the Mouths of the Rhône; 3 leagues N. of Avignon.

CHATEAUNEUF de Randon, a town of France, in the department of the Lozere, and chief place of a canton in the district of Mende; 4 leagues N.E. of it.

CHATEAUNEUF de Rhône, a town of France, on the E. side of the Rhône, opposite Viviers.

CHATEAUNEUF-au-Val de Bargis, a town of France in the department of the Nièvre; 10 miles N.E. of La Charité.

CHATEAU D'OLERON, a town of France in the department of the Lower Charente, and chief place of a canton in the district of Marannes. The place contains 2116 and the canton 5151 inhabitants; the territory includes 102½ kilometres, and 3 communes.

CHATEAU-PONSAC, a town of France, in the department of the Upper Vienne, and chief place of a canton in the district of Bellac; 18 miles N. of Limoges. The place contains 3900 and the canton 10,297 inhabitants; the territory includes 185 kilometres and 7 communes.

CHATEAU-PORCIEN, a town of France, in the department of the Ardennes, and chief place of a canton, in the district of Rethel: 2 leagues W. of it. The place con-

tains 1972 and the canton 8695 inhabitants; the territory includes 230 kilometres and 17 communes.

CHATEAU-REGNAULT, a town of France, in the department of the Indre and Loire, and chief place of a canton in the district of Tours; 5 leagues N.E. of Tours. The place contains 2518 and the canton 2534 inhabitants; the territory comprehends 297½ kilometres, and 17 communes.

CHATEAU-RENARD, a town of France, in the department of the Loiret, and chief place of a canton in the district of Montargis; 4½ leagues E. of it. The place contains 2088 and the canton 9454 inhabitants; the territory includes 250 kilometres, and 10 communes.—Also, a town of France, in the department of the Mouths of the Rhone, and chief place of a canton in the district of Tarascon; 9 miles N.E. of Tarascon, and celebrated for its excellent white wine.—Also, a town of France, in the department of the Ardennes; 10 miles N.W. of Sedan.

CHATEAU-ROUX, a town of France, in the department of the Higher Alps; 5 miles N. of Embrun.—Also, a town of France, in the department of the Indre, and principal place of a district; seated on the Indre in a fruitful country, and having a large woollen manufacture. The place contains 8148 and the canton 14,960 inhabitants; the territory includes 362½ kilometres, and 11 communes. N. lat. 46° 49'. E. long. 1° 35'.

CHATEAU-SALINS, a town of France in the department of the Meurth, and principal place of a district, deriving its name from its extensive salt-works; 5 leagues N.E. of Nancy. N. lat. 48° 49'. E. long. 6° 24'.

CHATEAU-THIERRY, a town of France, and principal place of a district, in the department of the Aisne, seated on the Marne, and having in its vicinity a medicinal spring. The place contains 4160 and the canton 12,918 inhabitants; the territory includes 187½ kilometres and 21 communes. N. lat. 49° 3'. E. long. 3° 18'.

CHATEAU-LA-VALLIERE, a town of France, in the department of the Indre and Loire, and chief place of a canton in the district of Chinon; 5 leagues N. of Langeais. The place contains 686 and the canton 10,992 inhabitants; the territory comprehends 240 kilometres, and 16 communes.

CHATEAU-VILLAIN, a town of France, in the department of the Upper Marne, and district of Chaumont; 5½ leagues W.N.W. of Langres.—Also, a town of France, in the department of the Isère; 16 miles E. of Vienne.

CHATEEN, a town of Little Bucharia.

CHATEL, or **CHATE**, a town of France, in the department of the Ardennes; 5 miles S.E. of Grandpré.

CHATEL, a town of France, in the department of the Vosges, and chief place of a canton in the district of Epinal. The place contains 1165 and the canton 9178 inhabitants; the territory includes 257½ kilometres, and 28 communes.

CHATEL-CENSOY, a town of France, in the department of the Yonne, and chief place of a canton, in the district of Avalon; 4 leagues W. of it.

CHATEL-GUION, a village of France, in the department of Puy-de-Dôme, celebrated for its mineral water; one league N. of Riom.

CHATEL-DE-NEUVE, a town of France, in the department of the Allier, and district of Moulins; 10 miles S. of Moulins.

CHATELARD, a town of France, in the department of Mont Blanc, and chief place of a canton in the district of

Chambéry. The place contains 1000 and the canton 10,412 inhabitants; the territory includes 237½ kilometres, and 13 communes.

CHATELDON, a town of France, in the department of Puy-de-Dôme, and chief place of a canton in the district of Thiers; 6 leagues E.N.E. of Riom. The place contains 1587 and the canton 6558 inhabitants; the territory comprehends 157½ kilometres, and 6 communes.

CHATELET, was anciently a small chateau or fortress, and the officer who commanded in it was called *châtelain*.

The word is a diminutive of *chateau*, formed from *castrum*, a diminutive of *castrum*; or from *castellatum*, a diminutive of *castellum*, *castle*. The term in later times has been used at certain courts of justice established in several cities of France: the *grand châtelet* in Paris, v. gr. was the place where the presidial, or ordinary court of justice of the prévôt of Paris was kept; consisting of a presidial, a civil chamber, a criminal chamber, and a chamber of policy. The term signified the same at Montpellier, Orleans, &c.

The *little châtelet* at Paris was an ancient fort which served as a prison.

CHATELET, LE, in *Geography*, a town of France, in the department of the Seine and Marne, and chief place of a canton, in the district of Melun; 2 leagues E. of Melun. The place contains 1004 and the canton 8970 inhabitants; the territory includes 237½ kilometres, and 16 communes.

CHATELLERAULT, a town of France, in the department of the Vienne, and principal place of a district, seated on the Vienne; and principally employed in the manufacture of clocks and cutlery. The place contains 8426, and the canton 12,728 inhabitants; the territory includes 192½ kilometres and 8 communes.

CHA'TELLET, a town of France, in the department of the Cher, and chief place of a canton, in the district of St. Amand; 2 leagues N.N.E. of Chateau-Meillant. The place contains 1107, and the canton 5202 inhabitants; the territory comprehends 180 kilometres, and 8 communes.

CHATELLUX, a town of France, in the department of the Creuse, and chief place of a canton, in the district of Bouffac; 4 leagues S.W. of Bouffac. The place contains 776 and the canton 8536 inhabitants; the territory includes 187½ kilometres, and 12 communes.

CHATELLUX-LE-MARCHIEUX, a town of France, in the department of the Creuse, and district of Bourgenais; 5 miles N.E. of it.

CHATENAY, a town of France, in the department of Paris; 2 leagues S. of Paris.

CHATENOIS, a town of France, in the department of the Vosges, and chief place of a canton in the district of Neufchâteau; 2 leagues S. of it. The place contains 1379 and the canton 9839 inhabitants; the territory includes 175 kilometres, and 26 communes.—Also, a town of France, in the department of the Lower Rhine; one league W. of Schelstatt.

CHATHAM, in *Geography*, a town of Kent, England, is celebrated for its naval arsenal; and is joined to the ancient city of Rochester. This town has been mostly built since the reign of queen Elizabeth. The houses united with those of Rochester, and the village of Stroud, make one long street, of more than two miles in length, through which the high road passes from London to Dover. Many of the houses extend along the banks of the river: and, like most sea-ports, the streets are narrow, disagreeable, and ill built.

The victualling-office, some officers' houses in the dock-yard, two breweries, and a few private houses, are however commodious and handsome. At the east end of the town is the parish workhouse, which was built on a large and extensive plan in 1725; but the principal objects of this place, and from which it has obtained its present population and importance, are the docks, victualling-offices, and other naval establishments. Among these is a foundation called *the Chest of Chatham*, which was instituted in 1558, when the seamen in the service of queen Elizabeth agreed to allow a portion of each man's pay for the relief of their fellow-sailors, who had been wounded in the battle with the Spanish armada. The same custom has been continued to the present time, and many wounded sailors have derived temporary relief and comfort from this fund. See **CHEST**. Here are two docks respectively denominated the *Old Dock*, and the *Royal Naval Dock*. The former, with its connected wharf, storehouses, &c. are the places of deposit for royal stores and ordnance. The guns belonging to the royal shipping are collected and ranged on this wharf in long tiers, and large pyramids of cannon-balls, shells, &c. are accumulated here to be ready for service. In a continued range of storehouses are deposited the carriages for the guns, and almost every other article of naval stores. In one apartment is a small armoury furnished with muskets, pistols, cutlasses, pikes, pole axes, and other warlike instruments, classed and arranged in regular order. The whole of this department is under the management of a storekeeper, who has a good house, a clerk of the survey, and clerk of the cheque, who have each handsome salaries, and separate offices. Beside these, here are two extra clerks and some inferior officers, labourers, &c. *The Royal Naval Dock-Yard* connects with the former, and ranges along the eastern bank of the river for nearly one mile in extent. The increase of the navy during the reign of Elizabeth occasioned these docks to be enlarged, and in the subsequent reigns of James and Charles I. they were considerably extended; within the last fifty years, they have been greatly enlarged and improved; and within the fortified walls are now concentrated almost every requisite for the fitting out, repairing, &c. of a fleet. The storehouses, shops, and most of the buildings are extremely spacious and commodious; whilst those belonging to the commissioner and other principal officers are provided with every comfortable and elegant accommodation. One of the storehouses is six hundred and sixty feet long; and the sail-loft, where sails are made, is two hundred and nine feet in length. A new rope-house measures 1140 feet in length; in this the cables are manufactured, some of which are one hundred and twenty fathoms long, and twenty-two inches round. Some of the masts made here are one hundred and thirty-six feet in length, and thirty-six inches in diameter. Here are two spacious basins of water, where the timber for masts, &c. is kept continually floating till wanted for use. The smith's shop contains twenty-one forges, which are almost constantly in use, in making anchors, &c. Some of these weigh nearly five tons each. In this yard are four spacious docks for docking and repairing vessels belonging to the royal navy; in these there are six slips or launches, on which ships are constantly building. Among the large vessels that have issued from this yard are the *Victory* of 110 guns, the new *Royal George* of 100 guns, finished in 1788; this was the first ship of that rate ever launched from a slip; the *Royal Charlotte* of 100 guns was launched here in 1790, and the *Ville de Paris* of 110 guns, with some others of larger dimensions, have been finished

ed here since that period. The whole of this yard, except on the side of the river, is guarded and environed by a high thick wall; it is entered through a large handsome gateway, which is flanked by two towers. In time of war every stranger is precluded access within the walls, unless he has a satisfactory passport.

The business of this yard is transacted by a commissioner, who has three clerks under him; a clerk of the cheque, storekeeper, master-shipwright or builder, clerk of the survey, and two master-attendants, master shipwrights' assistants, master caulker, clerk of the rope-yard, master ropemaker, a boatswain, purveyor, surgeon, and several other inferior officers. To provide greater security to this national arsenal, two acts of parliament were obtained in the reign of queen Anne for vesting certain lands and tenements in trustees, for the purpose of fortifying and giving additional security to this dock; among others, a large quantity of contiguous land, with many houses, was accordingly purchased for the crown; but nothing further was done till 1758, anno 31 George II. when the French having threatened to invade this country, it was deemed necessary to put these acts in force relating to the dock-yards. Another act was however passed that year for purchasing more lands, &c. and extensive lines of fortifications were immediately formed round the land side of this dock, with ramparts, palisades, and a deep broad ditch. These extended from the river above the old dock, to the same again below the dock at Gillingham, about one mile in length. Large and commodious barracks were also erected within the lines sufficient to accommodate five regiments of soldiers, and a battalion of artillery, which have been constantly quartered here; these fortifications have been progressively augmented and repaired; a new redoubt has been made, and other collateral works have been added. Another act was passed in 1782, for vesting other lands on the south side of the town in the crown.

At the entrance of Chatham from Rochester, is the *Vic-tualling Office*, containing a cooperage, pickling, baking, cutting, slaughtering, and store, houses. A new wharf has been added to it, and additional buildings have been erected for the convenience and service of this department of the navy.

In digging for the fortifications round the dock, various Roman coins, pateræ, &c. were found. The present church was erected in 1783, and is constructed mostly with brick. Chatham and the contiguous hamlets are extremely populous. Here is a large market on Saturdays; and two annual fairs of three days each. Chatham is 30 miles E. from London; it contains 1729 houses and 10505 inhabitants. Haisted's History of Kent, 12 vols. 8vo. 1798, vol. iv.

CHATHAM, a maritime township of America, in the county of Barnstable and state of Massachusetts, seated on the exterior extremity of the elbow of Cape Cod, conveniently for the fishery, in which the inhabitants have usually about 40 vessels employed. It has 1140 inhabitants, and lies 95 miles S.E. of Boston. See *Cape Cod*.—Also, a township in Grafton county, New Hampshire; incorporated in 1767 and 1790, containing 58 inhabitants.—Also, a flourishing township in Middlesex county, Connecticut, on the eastern bank of Connecticut river and opposite Middleton city; it was a part of the township of Middleton till the year 1767.—Also, a township in Essex county, New Jersey, seated on Passaic river; 13 miles W. of Elizabeth town, and nearly at the same distance from Newark.—Also, a township of Columbia county, New York. By the state census in 1796, 380 of its inhabitants were electors.—

Also, a county in Hillsborough district, North Carolina, about the center of the state. It contains 9221 inhabitants, of whom 1632 are slaves; the chief town is Pittsburgh. The court house is a few miles W. of Raleigh, on a branch of Cape Fear river.—Also, a town of South Carolina in the Cheraws district, situate in Chesterfield county on the west side of Great Pee Dee river. Its situation, in a highly cultivated country and at the head of a navigable river, promises to render it a place of great importance.—Also, a county in the lower district of Georgia, lying in the north east corner of the state, having the Atlantic ocean on the east, and Savannah river in the north-west. It contains 10,769 inhabitants including 8201 slaves. The chief town is Savannah.—Also, a large bay called Punjo bay, on the west side of the south end of the promontory of East Florida. It receives North and Delaware rivers.

CHATHAM *island*, a small island in the Indian ocean, within the harbour of the island of Andaman on which is situated the settlement of Port Cornwallis: the utmost length of this small island does not exceed two miles, and its breadth is little more than half a mile; the southern extremity terminates in a narrow neck of land, fordable at low water to the main.

CHATIGAN, a town of Asia, in the kingdom of Bengal, on the most easterly branch of the river Ganges; which is now a mean place, although it was the first in which the Portuguese established a settlement. It has a few cotton manufactures, and furnishes excellent timber. The inhabitants are so suspicious of each other, that they always go armed with a sword, pistol, and blunderbuss. It is subject to the Great Mogul. N. lat. 23°. E. long. 91° 10'.

CHATILLON, a large town of France, in the department of the Côte-d'Or, and principal place of a district, built on both sides of the Seine, and having iron forges in its vicinity. The place contains 3700, and the canton 14,287, inhabitants: the territory comprehends 450 kilometres and 29 communes; 38 miles N.N.W. of Dijon.—Also, a town of France, in the department of the Drôme, and chief place of a canton in the district of Die; 3½ leagues N.W. of Lyons. The place contains 1380, and the canton 6533, inhabitants: the territory includes 355 kilometres and 10 communes.—Also, a town of France, in the department of the Indre, and chief place of a canton in the district of Châteauroux; 3 miles S.W. of it. The place contains 2609, and the canton 8139, inhabitants: the territory comprehends 247½ kilometres and 10 communes.—Also, a town of France, in the department of the Marne, and chief place of a canton in the district of Reims; 9 miles W.N.W. of Epernay. The place contains 1002, and the canton 7702 inhabitants: the territory includes 165 kilometres and 21 communes.—Also, a town of France, in the department of the Seine; 1½ league S.S.W. of Paris.—Also, a town of Savoy, in the department of Lemane, and district of Geneva; 3 miles S.S.E. of St. Julian.—Also, a town of Piedmont, in the duchy of Aosta, seated on the Doria Baltea; 9 miles S.E. of Aosta.

CHATILLON-en-Bazois, a town of France, in the department of the Nièvre, and chief place of a canton in the district of Château-Chinon; 8 miles N.W. of Moulins. The place contains 663, and the canton 9138, inhabitants: the territory includes 332½ kilometres and 16 communes.

CHATILLON-sur-Chalaronne, a town of France, in the department of the Ain, and chief place of a canton in the district of Trevoux. The place contains 3119, and the canton 10,876, inhabitants: the territory includes 187½ kilometres and 15 communes.

CHATILLON-sous-le-Côtes, a town of France, in the department

ment of the Meuse, and district of Verdun; 6 miles E. of Verdun.

CHATILLON-*sur-Courtine*, a town of France, in the department of Jura, and district of Lons-le-Saulnier; $2\frac{1}{2}$ leagues E. of it.

CHATILLON-*les-Dombes*, a town of France, in the department of the Ain; 4 leagues S.W. of Bourg-en-Bresse. N. lat. $46^{\circ} 7'$. E. long. $4^{\circ} 51'$.

CHATILLON *sur Loing*, a town of France, in the department of Loiret, and chief place of a canton in the district of Montargis; 4 leagues S. of it. The place contains 1996, and the canton 8489, inhabitants: the territory comprehends $332\frac{1}{2}$ kilometres and 13 communes.

CHATILLON-*sur-Loire*, a town in the same department with the last, and chief place of a canton in the district of Gien; 3 leagues S.E. of it. The place contains 1980, and the canton 6585, inhabitants: the territory includes $227\frac{1}{2}$ kilometres and 6 communes.

CHATILLON-*de-Michailles*, a town of France, in the department of the Ain, and chief place of a canton in the district of Nantua; $2\frac{1}{2}$ leagues E. of it. The place contains 1270, and the canton 8171, inhabitants: the territory includes $157\frac{1}{2}$ kilometres and 16 communes.

CHATILLON-*sur-Saône*, a town of France, in the department of the Vosges; 3 leagues S.S.E. of La Marche.

CHATILLON-*sur-Sevre*, a town of France, in the department of the Deux Sevres, and chief place of a canton in the district of Thouars; 7 leagues W. of it. The place contains 512, and the canton 6842, inhabitants: the territory includes $317\frac{1}{2}$ kilometres and 13 communes.

CHATILLON-*en-Vendelais*, a town of France, in the department of the Ille and Vilaine, and district of Vitre; 2 leagues N. of Vitre.

CHATIMENS MILITAIRES, *military punishments*. These, generally speaking, consist in the execution of sentences pronounced by courts-martial on military delinquents. But, in our service, military punishment more particularly means the inflicting of a certain number of lashes upon a reduced non-commissioned officer or on a private man. Military punishments have been different in different ages, and in different countries, as they are at present. The Romans had some institutions respecting them; which, though they are truly admirable, have not been adopted by any of the moderns. The Turks never inflict them but in the night. A janizary condemned to death is delivered up into the hands of civil justice, after having his name struck out of the register of the corps, who pretend to be exempt from the ignominy of punishment. Those in our service are simple, and in general very summary, particularly with regard to officers. In some foreign services it is customary to send officers, found guilty of certain offences, from their regiments to garrisoned towns for certain periods, during which they lost all the advantages of promotion. Hence the phrase *être envoyé en garnison*, to be sent into garrison, implies a species of military chastisement.

A judicious application of punishments contributes much to the preservation of discipline, a punctual obedience of order, and the success of military operations, both in garrison and in the field.

CHATONNAY, in *Geography*, a town of France, in the department of the Iſere, and district of Vienne; 5 leagues E. of it.

CHATRACHARTA, in *Ancient Geography*, a town of Asia, in Bactriana, near the Oxus, according to Ptolemy.—Also, a town of Asia, placed by Ptolemy in Assyria.

CHATRAÏ, a people of India, placed by Ptolemy on this side of the Ganges.

CHATRAMIS, a country of Arabia Felix, over against Persia.

CHATRAMMITÆ, a people of Arabia Felix, on the borders of the Erythraean sea. Ptol.

CHATRE, LA, in *Geography*, a town of France, and principal place of a district in the department of the Indre; which has a woollen manufacture, and carries on a large trade in cattle. The place contains 2463 and the canton 14,425 inhabitants: the territory includes $462\frac{1}{2}$ kilometres and 21 communes; 6 leagues S.S.E. from Chateauroux. N. lat. $46^{\circ} 35'$. E. long. $1^{\circ} 53'$.

CHATS, in *Agriculture*, a term employed in some districts to signify the keys of the ash, sycamore, and some other trees.

CHATS, *Lake*, in *Geography*, a lake of Lower Canada, on the north side of the river Utawas, between the Grand Calumet and the lake Des Chaudieres. At the extremity of the latter is the "Portage des Chats," over which the canoes and lading are carried with great difficulty 274 paces. The river is here barred by a ridge of black rocks, rising in pinnacles, and covered with wood, which, from the small quantity of soil that nourishes it, is low and stunted. The river makes its way over these rocks, in numerous channels, falling 15 feet and upwards. From hence two trips are made through a serpentine channel, formed by the rocks, for several miles, when the current slackens, and is accordingly called the "Lake des Chats."

CHATSWORTH, a town of America, in the state of Virginia; 4 miles S.E. of Richmond.

CHATTÆ, in *Ancient Geography*, a people of Germany. Ptol.

CHATTENIA, a country of Arabia Felix, near the Erythraean sea, attributed by Steph. Byz. to the Gerræans.

CHATELS, *Catalis*, *Catalla*, in *Law*, a Norman term which primarily signified only beasts of husbandry, or (as we still call them) *cattle*; but in its secondary sense comprehended all moveable goods. In the grand Coutumier of Normandy, (c. 87.) a chattel is described as a mere moveable, but at the same time it is set in opposition to a fief, or feud; so that not only goods, but whatever was not a feud, were accounted chattels.

Spelman defines *chattels* to be *bona quæcunque mobilia & immobilia; propriè tamen ea bonorum pars, quæ in animalibus consistat, à quorum capitibus res ipsæ, alias capita, alias capitalia dicte sunt.*

In the modern sense of the word, chattels are all sorts of goods moveable or immoveable, except such as are in nature of freehold, or parcel thereof: and they are either *personal* or *real*.

CHATELS *personal*, are such as do either belong immediately to the person of a man, as his horse, sword, &c. or such things as being injuriously withheld from him, a man has no way to recover but by personal action: or, strictly speaking, they are things *moveable*, which the owner may carry with him from one place to another; such as animals, household furniture, money, jewels, corn, garments, and every thing that is capable of being removed.

Chattels personal are, immediately upon the death of the testator, in the actual possession of the executors; whereas *chattels real* are not in his possession till he hath made an entry, or recovered them. An owner of chattels is said to be possessed of them; but a person is said to be *seised* of a freehold. See PROPERTY.

CHATELS *real*, are either such as do not appertain immediately to the person, but to some other thing, by way of dependence; or such as necessarily issue out of some immoveable thing to a person; as a lease, or rent for years.

Sir Edward Coke observes (1 Inst. 118.) that chattels real are such as concern, or favour of, the realty: as terms for years of land, wardships in chivalry, (while the military tenures subsisted), the next presentation to a church, estates by statute-merchant, statute-staple, elegit, or the like. These are called *real* chattels, as being interests issuing out of, or annexed to, real estates; of which they have one quality, viz. immobility, which denominates them *real*; but want the other, viz. a sufficient, legal, indeterminate duration, and it is this want that constitutes them *chattels*. The utmost period for which they can last is fixed and determinate, either for such a space of time certain, or till such a particular sum of money be raised out of such a particular income: so that, in the eye of the law, they are not equal to the lowest estate of freehold, a lease for another's life. Their tenants were considered upon feudal principles, as merely bailiffs or farmers; and the tenant of the freehold might at any time have destroyed their interest, till the reign of Henry VIII. (See *ESTATE for years*.) A freehold, which alone is a real estate, and seems to answer to the fief in Normandy, is conveyed by corporal investiture and livery of seisin; which gives the tenant so strong a hold of the land, that it never after can be wrested from him during his life, but by his own act of voluntary transfer or of forfeiture; or else by the happening of some future contingency, as in estates "*per autre vie*," and certain determinable freeholds. (See *ESTATES for life*, and *FREEHOLD*.) And even these, being of an uncertain duration, may by possibility last for the owner's life; for the law will not presuppose the contingency to happen before it actually does, and till then the estate is to all intents and purposes a life-estate, and therefore a freehold interest. On the other hand, a chattel interest in lands, which the Normans put in opposition to fief, and we to freehold, is conveyed by no seisin or corporal investiture, but the possession is gained by the mere entry of the tenant himself; and it will certainly expire at a time prefixed and determined, if not sooner. Thus, a lease for years must necessarily fail at the end and completion of the term; the next presentation to a church is satisfied and gone the instant it comes into possession, that is, by the first avoidance and presentation to the living; the conditional estates by statute and elegit, are determined as soon as the debt is paid; and so guardianships in chivalry expired of course the moment that the heir came of age. And if there be any other chattel real, it will be found to correspond with the rest in this essential quality, that its duration is limited to a time certain, beyond which it cannot subsist. Blackst. Com. Book II.

CHATTER *les pieces*, in *Gunnery*, to search pieces, or to probe and examine pieces of ordnance with a *chat*, in order to discover whether there are any defects on the inside of it, or within the bore.

CHATTERER, in *Ornithology*; the Bohemian or Waxen chatterer, *AMPELIS garrulus* of Linnæus. This bird is about eight inches in length. It is distinguished by having the hind part of the head crested, and the secondary quill-feathers tipped with red horny appendages. This is an inhabitant of Europe, America, and the north of Asia.

CHATTERPOUR, in *Geography*, a town of Hindoostan, in the country of Allahabad; 212 miles S.S.E. from Agra, 150 miles S.W. from Allahabad, 237 from Banares, 747 N.E. from Bombay, 803 N.W. from Calcutta by Moorshedabad, and 608 by Bi-boom, 623 N.N.E. from Hyderabad, 172 S.W. from Lucknow, 975 N. from Madras. N. lat. 25°. E. long. 80°.

CHATTERTON, THOMAS, in *Biography*, a youth of very extraordinary genius, was born after the death of

his father, at Bristol, on the 20th of November, 1752. The life of this young man was short but eventful: it began and terminated in indigence and misfortune. His mother, by the loss of a husband, was left in poverty, and the son, owing to the same unfortunate event, was deprived of that attention which might have conducted his early years through all the difficulties that circumstances, and an untoward disposition opposed to the attainment of knowledge. He could not be persuaded to learn his letters, till he *fell in love*, as Mrs. Chatterton expressed herself, with the illuminated capitals of a musical manuscript in French; she afterwards taught him to read from an old black-lettered bible. When he was about eight years old he was admitted into a charity school, where he might learn the elements of reading, writing, and common arithmetic. The first years of his residence at this seminary passed without notice, and with scarcely any effort on his part. When he was about ten years of age, he acquired a taste for reading, which became from that period a kind of ruling passion, and out of the trifle allowed him by his mother for pocket-money, he began to hire books from a circulating library. His disposition as well as his taste differed much from what was observable in other children. He was grave, pensive, and not unfrequently of a melancholy cast. At times he seemed lost in contemplation, and for days together scarcely spoke to any one. His intimates in the school were few, and those of the most serious cast. Before he was 12 years old, he drew up a catalogue of the books which he had read, and which amounted to more than 70; soon after this, it is certain that he had composed some verses, and he now began to exhibit that ardour of mind by which he was afterwards so strongly characterised. At fifteen he was bound apprentice to a scrivener at Bristol, in which situation his leisure allowed him ample time to follow his literary pursuits. He had not continued in this course of life for more than a year, before he began to attract public notice, by the publication of an article in the Bristol Journal.

In the church of St. Mary Redcliffe, Bristol, which was founded or re-built by W. Canynge, an eminent merchant, during the reign of Edward IV. there is a room containing several large chests, in one of which, called Canynge's coffer, were deposited some title-deeds; these, about the year 1727, were wanted, and an order was given to break open the chest. The deeds were taken, but the other manuscripts were left exposed as of no value. Many of them were carried away, but Chatterton's father, who was nephew to the sexton, removed several baskets full of parchments, which he put to no better use than that of covering copy-books and bibles for the school over which he presided. Young Chatterton, soon after the commencement of his apprenticeship, was struck with one of these parchments converted into a thread paper; he soon got possession of all that were left of the hoard, and from this period, at least, he seems to have formed the design of converting them into a system of literary forgery. Upon the opening of the new bridge at Bristol, an article appeared in Farley's Bristol Journal, in 1768, entitled, "A Description of the Fryar's first passing over the Old Bridge, taken from an Ancient Manuscript." This was traced to Chatterton, who, after much equivocation, avowed that it came from the old chest. He next caused a rumour to be propagated, that certain ancient pieces of poetry had been obtained from the same place, the authors of which were Thomas Canynge, and the friend of Sir Thomas Rowley, a priest. The report gained credit, and he was applied to by some respectable inhabitants of Bristol, whom he presented, without any kind of reward, with various poetical pieces, under the name of Rowley.

In 1769 he wrote to the Hon. Horace Walpole, offering to furnish him with accounts of several eminent painters, who had flourished in early times at Bristol, inclosing in the same packet, two specimens of the old poems, with a relation of their discovery. By the poets Maſon and Gray, to whom they were ſhewn, theſe were inſtantly pronounced to be forgeries, and were, after a conſiderable lapſe of time, returned.

Chatterton, prior to this, had commenced a correſpondence with the Town and Country Magazine, and had inſerted in that work various articles relative to antiquity, of extracts from the pretended Rowley, and of pieces entitled "Saxon Poems, written in the Style of Oſſian." He alſo became a writer of Satire, particularly of the poetical kind, in which he did not ſpare even thoſe who had been his friends. His character began now to be developed, and it did not appear in the moſt favourable light. The confidence which he felt in his own powers rendered him proud and impatient of controul. Whatever plan he adopted he entered upon with an almoſt unexampled earneſtneſs. Poetical enthuſiaſm was never more ſtrongly exhibited than in Chatterton. He fancied he could write with effect only at particular ſeaſons, and the full of the moon was the time when he imagined his genius was in perfection; at this period, as if the immediate preſence of that luminary added to the inſpiration, he frequently devoted a conſiderable portion of the night to compoſition.

London was become the firſt object of his views, the only proper place, as he thought, for the diſplay of his talents: yet he knew not how to free himſelf from his indentures. At length, having avowed himſelf an unbeliever in the Chriſtian religion, he threatened to put an end to his life, on Eaſter day, 1770; his maſter, on learning this fact, immediately diſmiſſed him from his ſervice. Chatterton now ſet out for the metropolis, and in an answer to ſome inquiries from a friend, was given an expoſition of his plans. "My firſt attempt," ſaid he, "ſhall be in a literary way: the promiſes I have received are ſufficient to diſpel doubt; but ſhould I, contrary to my expectation, find myſelf deceived; I will, in that caſe, turn methodiſt preacher. Credulity is as potent a deity as ever, and a new ſect may be eaſily deviſed. But if that ſhould fail me, my laſt and final reſource is a piſtol." From a young man of 17, who could deliberately avow ſuch ſentiments, much moral worth was not rationally to be expected. A contempt for the truths of revealed religion is almoſt always ſucceeded by a laxity of principle very inauſpicious to real and progreſſive improvement. Upon his arrival in London he engaged in many projects with the bookſellers; a hiſtory of England, and another of the metropolis; eſſays in a magazine, and in the newspapers, and ſongs for places of public entertainment were among his projected plans.

He was particularly attached to party politics, and connected himſelf with what was deemed the popular ſide of the queſtion: he was introduced to the Lord Mayor Beckford, who received him kindly, but from whom, it appears, Chatterton was not able to get any remuneration for his exertions in the cauſe which his heart eſpouſed. Stung with diſappointment, he obſerved, *that he muſt be a poor author who could not write on both ſides*. Upon this maxim he acted; but proſperity was not the attendant upon his dereliſion of principle. For ſome time indeed he indulged the moſt ſanguine hopes of attaining to diſtinction, and even affluence, by the exertions of his pen; and, to his honour be it ſpoken, no circumſtance, with theſe proſpects in anticipation, gave him more pleaſure than the hope of being

able to aſſiſt his widowed mother and beloved ſiſters in their need. From his firſt earnings, ſcanty as they were in comparison of what he had fancied they would prove, he devoted a part for preſents to his relations at Briſtol. Within a very ſhort time after he had boaſted of his proſpects with regard to the future, he experienced ſome change in his expectations. The reverse was ſudden, and the dream of hope was ſpeedily converted into the anguiſh of deſpair. The particular cauſe of this depreſſion of ſpirits has never been exactly aſcertained. He perhaps perceived that he had nothing to hope from the patronage of the great; and he felt, that a ſubſiſtence depending on bookſellers muſt be ſcanty, and hardly earned. He had anticipated celebrity and affluence; he had a taſte for diſſipation, and public amuſements ſeemed neceſſary as food to his exiſtence: ill prepared, therefore, was he for regular and habitual indolence. His pride was mortified, and he was diſgulted with the labours of a literary life. He determined to quit the ſcene of his diſappointment, and made an ineffectual attempt to be ſent out a ſurgeon's mate to the coaſt of Africa; his laſt hope was blaſted; and from this time he fell into a ſtate of extreme indigence, which cannot be accounted for but on the preſumption that he preferred death to the moderate exerciſe of thoſe talents with which he was endowed. He was reduced to the want of neceſſary food; yet his pride even at that period was too great to allow him to accept of a dinner from the perſon with whom he lodged, the day before his death. In theſe deſperate circumſtances, his mind reverted to what he had been accuſtomed to regard as his laſt reſource: on the 24th of Auguſt 1770 he ſwallowed a quantity of arſenic in water, which proved fatal to him in a few hours. He was interred in the burying-ground belonging to the work houſe in Shoe Lane. Thus terminated the life of the unfortunate Chatterton, before he had completed eighteen years. What muſt increaſe our regret for this raſh ſtep, is the circumſtance, that Dr. Fry of Oxford went to Briſtol within two or three days of the unhappy cataſtrophe, in order to ſearch into the hiſtory of Rowley and Chatterton, and to patroniſe the latter if he appeared to deſerve and ſtand in need of aſſiſtance—when alas! all the intelligence he could procure was, that Chatterton had, within a few days, deſtroyed himſelf.

The authenticity of the poems aſcribed to Rowley was at firſt defended by perſons of conſiderable rank in the antiquarian literary world: but the advocates for this opinion have long ſince been ſilenced, and Chatterton is almoſt univerſally admitted to be the author; and the meaſure of his reputation, as an author and a poet, is taken from them. They conſiſt of pieces of all the principal claſſes of poetical compoſition; tragedies, lyric and heroic poems, paſtorals, epiſtles, ballads, &c. &c. Many of them abound in ſublimity and beauty, and diſplay wonderful powers of imagination and facility of compoſition. They are however very unequal in merit; yet, after all their defects, they muſt ever be regarded as very extraordinary productions for a mere lad of 15 or 16 years of age. The other writings of Chatterton diſplay many excellencies, but they are inferior to theſe.

The perſon of Chatterton, like his genius, was premature. He had a manlineſs and dignity beyond his years; and there was about him ſomething remarkably prepoſſeſſing. He had an uncommon ardour in the purſuit of knowledge, and a great facility in the attainment of it. His ruling paſſion, that which governed his whole conduct, was the deſire of literary diſtinction. This paſſion intruded itſelf in his letters, and in his converſation it ſeemed to abſorb all his attention. It was his favourite maxim, that "man is equal

to any thing, and that every thing might be achieved by diligence and abstinence." His ambition was evident to all who knew him, from his earliest youth. His melancholy was extreme on some occasions, and then he was ever eager to argue in favour of suicide. The natural gloominess of his disposition was probably increased by the principles of scepticism which he had unfortunately imbibed; and to these may be attributed his death. He has been charged with licentious conduct, and with indulging strong resentments against those who had offended him. His faults have been probably exaggerated; at any rate, they are much exceeded by the good qualities that have been fairly attributed to him. His temperance was exemplary: he was a lover of truth from the earliest dawn of reason; but the most amiable feature in his character was his generous attachment to his mother and relations. Every favourite project for his advancement in life was accompanied with promises and encouragement to them. In this respect his whole conduct is deserving the imitation of those in more fortunate circumstances, and under the influence of better principles than this unfortunate young man cherished. *Biog. Brit.*

CHATUGA, in *Geography*, a town of America, in the Tennessee government; 3 miles S.W. of Tellico.

CHATUS, in *Middle Age Writers*, a kind of gold coin.

CHATUS was also called, by some French writers, *maillles aubats*.

Du-Cange makes it a question, whether the *chatus* was the same coin as the *chapotenses*, and supposes that the latter might be formed from *chati Pictavenses*; in French, *chats de Poitou*.

CHATZAN, in *Geography*, a town of Asia, in the Moultan country, W. of the Indus; 90 miles W. of Moul-tan. N. lat. 31° S'. E. long. 69° $45'$.

CHAVABEDA, a principality of Arabia Deserta, whose chief towns are Chavabeda, Tangia, Merah, and Megiarah. This principality, and also that of Argia, are in all respects unknown to us, except in the Arabian tables.

CHAVAINES, a town of France, in the department of the Maine and Loire; 4 leagues S. of Angers.

CHAVANAY, a town of France, in the department of the Rhone; 7 leagues S. of Lyons.

CHAVANGES, a town of France, in the department of the Aube, and chief place of a canton, in the district of Arcis-sur-Aube; 6 leagues S. of Arcis. The place contains 974, and the canton 3871 inhabitants: the territory includes $152\frac{1}{2}$ kilometres, and 14 communes.

CHAVANNE, a town of France, in the department of the Ain, and district of Bourg; 8 miles W. N.W. of it.

CHAVARIGHTS, a sect of Mahometans, who deny that God ever sent a prophet that was infallible; and who had a commission to give a law to mankind: they pretend likewise that if such an office should ever become necessary, it would not be confined to a single family, but that every man of probity and virtue would be capable of that honour.

CHAUBI, in *Ancient Geography*, a people of Lower Germany, placed by Strabo near the ocean, between the Bructeri and Sicambri.

CHAUCER, GEOFFREY, in *Biography*, the earliest English classic poet, was born, it is generally supposed, in the year 1328. Of his parentage and early youth little is known, except that he was born and brought up in London. It should seem, from circumstances discovered by his biographers, that he was exposed to the inconveniences of a narrow fortune, but that he received all the instruction which the metropolis could then afford. It is admitted that he studied in both the English universities, first at Cambridge, then at

Oxford, and probably at Paris also. It is evident, from his various writings, that he acquired a large acquaintance with the scholastic learning of the age. To him the Greek classics were inaccessible; but he successfully studied the Latin, French, and Italian. Virgil was his favourite author. The adventures of romance and the songs of the minstrels Chaucer listened to with avidity. Tales of chivalry, of enterprise, and heroic adventure, had a double interest with him, because he knew that, when he went forth into the world, the men of whom he read, a race now extinct, would be the objects of his observation and intercourse. The whole world was then romantic, scenic, and sublime. This was the age of reformers and robbers. Pilgrimages and crusades invited the consent of the pious. Chaucer had also a particular turn for subjects of humour. At college he contracted a friendship with Gower and Strode, two young Oxonians of great learning and talents, and upon his return from the continent, whither he went for improvement, by travels through France and the Low Countries, he is supposed to have studied the law at the Temple. He was, for a short time, a soldier as well as a lawyer, but he quitted each of these professions after a short trial, and his final destination was the court, where he first obtained the post of *valetus*, or yeoman to Edward III. He had already distinguished himself as a poet, a quality that was likely to recommend him to a prince who was the patron of letters. Chaucer was a courtier in the best sense of the word, not depending upon ministers, but associating with princes; he seems, however, to have placed the chief hopes of his fortune on the friendship of John of Gaunt, duke of Lancaster; with whose family he formed an intimate connection, though not of the most creditable kind. The duke entertained as governors to his children, Catherine, the widow of sir Hugh Swynford. This lady was also the favourite mistress of John of Gaunt, by whom he had several children. She had a sister, to whom the duke and duchess were also attached, who recommended her to Chaucer for a wife. He married her in 1360, and from that time he speedily advanced at court. He received the gift of a house almost contiguous to the royal palace at Woodstock; and he was gratified with an annuity from the Exchequer of twenty marks, which sum was doubled on his being appointed gentleman of the king's privy-chamber. In 1372, he was sent, with other persons, as a commissioner to Genoa, on a matter of public concern; and it is affirmed by Froissart, that Chaucer was the principal in the unsuccessful attempt to negotiate a marriage for Richard, prince of Wales, with a daughter of the French king. He was made comptroller of the customs, and various other lucrative employments were conferred upon him, which enabled him to live in a dignified style. It was the custom of that age for the great public officers to keep their own accounts, and Chaucer was enjoined to perform the duties of his office with his own hand. He was rarely absent from business; for one and one only written leave of absence to him for a month is formally recorded upon the patent rolls. Of himself, he says, that he had no opportunity for the pleasures of study, "till he had made an end of all his reckonings," and the business of the day was concluded. He did not, however, renounce the pursuits of literature, for several of his poems were written during the period of his prosperity and attendance upon the court. Still he regarded the duke of Lancaster as his peculiar patron, whose political schemes he felt himself bound to promote. The duke having espoused the cause of Wickliffe, Chaucer employed his pen in exposing the vices and ignorance of the clergy. On the succession of Richard to the crown, the duke of Lancaster

for a time obtained a chief share in the administration of affairs; and a renewal of some of the grants to Chaucer was among the arrangements in this reign; but he seems to have been deprived of his most lucrative office as comptroller of the customs. His affairs soon fell into disorder, and he was obliged to have recourse to the sovereign's protection against his creditors.

In a few years the duke, his patron, became unpopular, both in and out of the court, by his adherence to the followers of Wickliffe, who were considered as the authors and abettors of the commotions that disturbed the kingdom. London itself was divided into two parties, one favouring the reformation, the other adhering to the established clergy. Chaucer sided with the former, and thereby rendered himself obnoxious to the officers sent to suppress the disturbances, and he would have been apprehended had he not escaped first to Hainault, and thence to Zealand, where he lived in concealment till his distresses forced him back to London. He was, however, immediately seized and sent to prison, where he was treated with the greatest severity. As in exile he was nearly destitute of all the necessities of life, so in prison he experienced the savage triumph of his enemies, and was probably the witness of many barbarous executions. The terms upon which he was liberated from confinement, after five years of oppression and difficulty, were such as no honourable man ought to have complied with. For the sake of pardon he disclosed all he knew of the designs of the party whose cause he had formerly defended; thus did Chaucer obtain his liberty, accompanied with a heavy load of merited obloquy. Upon his restoration to liberty Chaucer was appointed clerk of the works, a situation which he occupied only a very short time: he was in truth reduced to such a state of penury, that he sold his pensions and retired to Woodstock. Here he calmly employed himself in revising and correcting his various writings, and of applying to practical purposes those stores of philosophy which study and reflection had enabled him to accumulate. In this retreat, after he was sixty years of age, he planned and composed his *Canterbury Tales*, which have been deemed one of the most extraordinary specimens of active genius and various talent that England has produced. The two last years of his life he spent at Donnington castle. The return of the duke of Lancaster to court, and his marriage with Catharine Swynford, his old mistress, were favourable circumstances to Chaucer, who obtained a renewal of his annuity, and a grant of a pipe of wine annually, from the customs of the port of London. Chaucer lived to see his sovereign deposed, and the son of his patron John of Gaunt usurp the government. In addition to his former grants, were conferred upon him 40 marks per ann. during life: but it is to the praise of Chaucer, that as he was too old to oppose the pretensions of the usurper, or to contribute to redress the wrongs which he deplored, yet all the benefits of the new king, and all his connections with, and obligations to, the father of that monarch, could not extort from him a line of congratulation. Soon after the commencement of the new reign, his own affairs required him to visit the metropolis, but he was too old to bear the fatigues attendant upon the journey. He died in a house that he had hired at Westminster, October the 25th, 1400, at the age of seventy-two. His remains were interred in Westminster-abbey.

From this sketch Chaucer appears to have been a man of the world as well as a scholar, and to the variety of the scenes in which he engaged, is to be ascribed the varied character of his writings. As a courtier, a traveller, and a man of pleasure, he acquired an air of gallantry, and

a talent for rich and elegant description, which distinguished him from all other writers of that period: at the same time a fund of serious reading, joined to the impressions which the scenes of adversity had made upon his mind, rendered him well calculated to sustain the part of the moralist and philosopher. His works are numerous: his fame ranks high as an original poet, and his industry is no less conspicuous as a translator and imitator from the French and Italian writers. He enriched his native language by new forms of diction and versification; but there is nothing in which he excels his contemporaries more than in possessing that true poetical character of which they were almost wholly void. In many of his tales are to be found fine figures and splendid imagery displayed in glowing and elegant language. The most considerable and celebrated work of this poet is his "*Canterbury Tales*," which are a set of stories connected by the fiction of their being told by a company met at an inn in Southwark, for the purpose of a pilgrimage to the shrine of St. Thomas-a-Becket, at Canterbury. These tales are various in their subject; heroic, and romantic; satirical, humorous, and moral; and the prologue by which they are introduced, is one of the most curious memorials of the age. It contains a description of all the personages forming the company, among whom are individuals of the most remarkable characters both male and female, of which society is composed. These are delineated with a strength and precision that can scarcely be surpassed, and form a group highly interesting to the observer of human nature; in short, they exhibit a review of the private life of the fourteenth century. The *Canterbury Tales* have been handsomely published by Mr. Tyrwhitt in five volumes 8vo., but the editions of Chaucer's other works do no credit to the lovers of ancient English poetry. Biog. Brit. Godwin's *Life of Chaucer*.

CHAU-CHEW, in *Geography*, one of the 10 jurisdictions into which the province of Quang tong or Canton, in China is divided, and also a city of that jurisdiction.

CHAU-CHOO-FOO, or CHAO-TCHEOU-FOU, the second city of the province of Canton, in China, situate at the confluence of the river Pe-kiang, with another considerable stream proceeding from the N.W. The environs of this city are pleasant and romantic. The plains are sown with rice and tobacco, and the rising grounds are planted with cotton and the sesanqua. The pastures are covered with numberless flocks, and the coasts teem with fish. The boats which ply from one part of the city to another, are chiefly managed by females, who are generally young and neatly dressed, with an evident intention of attracting the attention of passengers. At this city the concurrence of two navigable rivers occasions a concourse of male strangers. The frail females in the boats had not combined this double occupation, after having quitted their parents, or on being abandoned by them on account of their misconduct; but the parents themselves, taking no other interest in the chastity of their daughters than as it might contribute to an advantageous disposal of them to wealthy husbands, feel little reluctance, when no such prospect offers, to devote them to one employment with a view to the profits of another. The distinction which this city has acquired is owing to a celebrated monastery of the Bonzes which lies in its vicinity. Its situation is singularly delightful: from the middle of a mountain called Nan-hoa, where it stands, there is a charming prospect of a desert, stretching out into an immense plain, which is bordered with hills, on the summits of which fruit trees are planted in regular order, intermixed here and there with groves, the foliage of which is always green. The country about the town belongs to the monastery, the origin

origin of which is traced back 8 or 900 years. The Bonzes pretend that its founder practised the most edifying austerity, an example, however, which they do not chuse to follow, as they abandon themselves to every kind of debauchery. The people who formerly visited this place as pilgrims, complain much of their theft and robberies; but these abuses have been corrected, and the devotees of the province may now visit the place in safety. The air of this city, however delightful its situation, is insalubrious; and contagious distempers, generally prevailing here from the middle of October to the beginning of December, sweep off every year a great number of inhabitants. This city has under its jurisdiction 6 other cities of the third class; near one of which grows a kind of black reed, of which various instruments are made that cannot be distinguished from those that are made of real ebony. Emb. to China, vol. ii. Grosier's Descript. of China, vol. i.

CHAUCI, CAUCI, or CAUCHI, in *Ancient Geography*, a people of Germany, whose territory commenced with the Frisii, occupied part of the sea-coast, and had behind it the Chamavi, Angrivarii, Dulgibini, &c. according to Tacitus. This author, as well as Ptolemy and Pliny, distinguished them into great and small. Strabo says, that Drusus Germanicus was the first of the Romans who, crossing the sea, penetrated into their territory, after having gained a naval victory over the Ansbarii, and subjugated the Frisii. Tacitus says, that Tiberius subdued these two nations. They rebelled against the Romans under the empire of Claudius; but were defeated by Gabinius, who hence obtained the appellation of "Caucian," according to Suetonius. Tacitus says, that they routed their neighbours, the Ansbarians, under the empire of Nero, and during the troubles of Vitellius's reign, they united with the Batavi and Frisii, and spread themselves over the empire; but they were again restored to favour. They remained in tranquillity till the reign of Aurelius, when they invaded the territory of the Batavi, but Didius Julian stopped their progress.

CHAUD-MEDLEY, in *Law*, according to its proper etymology, denotes an affray that happens in the heat of blood or passion. See *CHANCE-Medley*.

CHAUDEBURG, a village of France in the department of the Moselle, near Thionville, celebrated for its medicinal waters.

CHAUDS-AIGUES, a town of France in the department of the Cantal, and chief place of a canton in the district of St. Flour, deriving its name from its medicinal spring, and trading chiefly in skins and glue; 12 miles S. of St. Flour. The place contains 2040, and the canton 8158 inhabitants; the territory comprehends 340 kilometres and 14 communes.

CHAUDIERE, a river of Canada, which rises in Lincoln and Hancock counties in the district of Maine, and joins the river St. Lawrence, about 7 miles above Quebec. The fall in this river is not half that of Montmorency, or about 120 feet high; but it is no less than 250 feet broad. However the scenery round this cataract is in every respect much superior to that in the neighbourhood of Montmorency. The banks of La Chaudiere are covered with trees of the largest growth, and amidst the piles of broken rocks which lie scattered about the place, you have some of the wildest and most romantic views imaginable. As to the fall itself, its grandeur varies with the season; when the river is full, a body of water rushes over the rocks in a manner that astonishes the observer; but in dry weather, and, indeed, during the greater part of the summer, the quantity of water is inconsiderable. The carrying place from boatable waters in

the Chaudiere to similar waters in the Kennabec, is not more than five miles.

There are several portages on the north side of the river Utawas in Lower Canada, called Portages de Chaudiere; at the first portage of this name, the body of water falls 25 feet, over cragged excavated rocks, in a wild and romantic manner. At a small distance below, is the river Rideau on the left, falling over a perpendicular rock near 40 feet high, in one sheet, assuming the appearance of a curtain; from which circumstance it derives its name. To this extent the lands have been surveyed, and are very fit for culture. Many loyalists are settled upon the river Rideau, and have thriving plantations. Some American families, preferring the British territory, have also established themselves along a river on the opposite side, where the soil is excellent; and it is apprehended, that at no very distant period, the lands will become settled from this vicinity as far as Montreal. Over this portage, which is 643 paces long, the canoe with its whole lading is carried. The rock is so steep and difficult of access that it requires 12 men to take the canoe out of the water; it is then carried by 6 men, two at each end on the same side, and two under the opposite gunwale in the middle. From hence to the next is but a short distance, in which they make two trips over the second Portage de Chaudiere, which is 700 paces, to carry the loading alone. From hence to the next and last Chaudiere, or Portage des Chenes, is about six miles, with a very strong current, where the goods are carried 740 paces, the canoe being towed up by the line, when the water is not very high. The next remove is to the Lac des Chaudieres, computed to be 30 miles in length; but though it is called a lake, it has a strong draught downwards, and its breadth is from 2 to 4 miles. At the end of this is the Portage des Chats. See CHATS.

CHAUDIERES, or CHAUDIERES de Magasins, are vessels made use of in military magazines, to boil pitch in for various purposes. They are necessary in all places and particularly during sieges.

CHAUDRON, in *Geography*, a town of France in the department of the Maine and Loire; 15 miles S.W. of Angers.

CHAVES, a town of Portugal, in the province of Trallos-Montes, near the confines of Spain, defended by a castle, walls, and bastions, seated on the Tamega, and founded by the emperor Trajan: several traces of its ancient magnificence still remain; 12 leagues W. of Braganza. N. lat. 41° 42'. W. long. 6° 31'.

CHAUFFAGE MILITAIRE, in *Military Language*, is an allowance of fire-wood regulated by particular orders or ordinances to officers and soldiers whether they are in barracks or not, during the continuance of cold weather.

CHAUFFAILES, in *Geography*, a town of France in the department of the Saône and Loire, and chief place of a canton in the district of Charolles, 4 leagues E. of Marseigne; the place contains 2155, and the canton 7292 inhabitants; the territory includes 142½ kilometres and 9 communes.

CHAUFFE. A spot where the wood is collected and burnt in a foundry. The chauffe is three feet below the furnace, over every part of the inside of which the flames spread, and by their intense heat dissolve the metal.

CHAUFFE-WAX. See CHAFFE-WAX.

CHAU-KING, CHAO-KING, or CHAO-KEUING, in *Geography*, one of the 10 capital jurisdictions into which the province of Quang-tong, or Canton in China is divided; and also the chief city of the jurisdiction, and the residence of the viceroy. See CHEO-KEUING.

CHAUKUNDA, a town of Africa, near the river Gambia, in the kingdom of Jemurrow.

CHAUL, a town of Hindooſtan on the coaſt of Malabar, with a good port, and defended by a citadel, taken in 1507 by the Portuguese; 6 leagues S. of Bombay.

CHAULIEU, WILLIAM ANFOYE DE, *Abbé*, in *Biography*, a favourite French poet, was born at his father's ſeat at Fontenay, in 1639, and became by means of his natural genius, excellent education, and lively diſpoſition, the delight of elegant ſociety, and the eſteemed friend of the great duke of Vendome, and of his brother the grand prior of Malta. Entruſted with the management of their concerns, he was recompens'd by ſeveral valuable benefices; which, added to the lordſhip of Fontenay, enabled him to gratify his inclination by purſuing a life of pleaſure. His apartments at the temple in Paris were the reſort of learned friends, who were charmed by his amiable qualities and lively converſation. The poetry in which he excelled was a mixture of the voluptuous and ſentimental, blending with the gaiety of Anacreon, the philoſophical good-humour of Horace. Chapelle was his model, whom he imitated in the eaſy negligence of his verſe and the occaſional uſe of double rhymes; and as a poet he deſerves to be ranked with the careleſs men of genius, rather than with the maſters of the art. Notwithſtanding ſeveral fits of the gout, this lively Epicurean lived to his 81ſt year; dying at Paris in 1720. The moſt eſteemed of the ſeveral editions of his works are that of Amſterdam in 1733, and that of Paris, in 1744, each compris'd in 2 vols. 8vo. *Nouv. Diſt. Hiſt.*

CHAULIODONTA, from *χαλκον*, *I put forth*, and *οδον*, *tooth*, among *Ancient Naturaliſts*, is applied to thoſe animals, the teeth of which grow to a great length out of their mouths, as the boar and the elephant.

CHAULMES, in *Geography*, a town of France, in the department of the Seine and Marne, and diſtrict of Melun; $7\frac{1}{2}$ leagues S.S.E. of Paris.

CHAULNES, the DUKE DE, in *Biography*, a peer of France, diſtinguiſhed as an aſtronomer and mathematician, was born at Paris in 1714, and manifeſted, in early life, a ſtrong propenſity for the ſtudy of the ſciences. In the tumult of armies and camps he cultivated mathematics, aſtronomy, mechanics, &c. In 1743 he was named honorary member of the academy; and, at the meetings of this illuſtrious body, which he regularly attended, he produced various conſtructions and corrections of inſtruments in aſtronomy and dioptrics, and particularly of achromatic teleſcopes. The reſult of theſe reſearches was a new parallaſtic machine of an improved kind, and the mode of applying the micrometer to teleſcopes, and of accurately meaſuring the parts of that inſtrument. While he was proſecuting ſimilar ſpeculations and experiments for the improvement of ſcience, his career was terminated by death in 1769. The *Memoirs of the Academy of Sciences* contain a variety of his communications. In the volume for 1755, we have obſervations on ſome experiments in the 4th part of the 2d book of Newton's *Optics*: in that for 1765, obſervations on the platform for dividing mathematical inſtruments; alſo a determination of the diſtance of Arcturus from the ſun's limb at the ſummer ſolſtice; and obſervations on ſome means of perfecting aſtronomical inſtruments: in that of 1767, obſervations on ſome experiments relating to dioptrics: in 1768, the art of dividing mathematical inſtruments: in 1769, obſervations on the tranſit of Venus in that year; and a new method of dividing mathematical and aſtronomical inſtruments.

CHAULNES, in *Geography*, a town of France, in the de-

partment of the Somme, and chief place of a canton in the diſtrict of Péronne; 7 miles S. of it. The place contains 1243, and the canton 10,002 inhabitants. The territory includes 160 kilometres and 23 communes.

CHAUM, in *Ancient Geography*, a mountain of Peloponneſus, in the Argolide, in which, according to Pauſanias, was the ſource of the river Eraſinus.

CHAUMERGY, in *Geography*, a town of France, in the department of the Jura, and chief place of a canton in the diſtrict of Dôle; 3 leagues W. of Poligny. The place contains 396, and the canton 4891 inhabitants: the territory includes $87\frac{1}{2}$ kilometres and 17 communes.

CHAUMETTE, ANTHONY, in *Biography*, a ſurgeon of eminence, was born at Puy, a town on the banks of the Loire, in France, in the early part of the 16th century. In his preface to his *Enchyridion Chirurgicum*, he informs us, he was firſt ſent to Montpellier, where he ſtudied medicine under Rondeletius, and that he went thence to Paris, and having completed his education in anatomy and ſurgery under Sylvius, he returned to his native country, where he appears to have been in great requeſt. In 1560 he publiſhed an abridged practice of phyſic, to which he added a treatiſe on the lues venerea; in which he ſtrongly recommends the uſe of mercurial frictions, which had ſucceeded, he tells us, when all other methods and medicines had failed. This gained to his work ſuch popularity, that in the ſpace of about thirty years from its firſt appearance at Paris, editions of it appeared in almoſt every country in Europe. The title of the work is, "*Enchyridion Chirurgicum, externorum morborum remedia, tum univerſalia, tum particularia breviffima complectens. Quibus morbi venerei curandi methodus probatiſſima accedit.*" Pariſiis. Eloy. *Diſt. Hiſt. Bib. Cl.*

CHAUMONT, in *Geography*, a town of France, in the department of the Ardennes, and chief place of a canton, in the diſtrict of Rethel; 9 miles N.N.W. of it. The place contains 965, and the canton 8217 inhabitants: the territory includes $202\frac{1}{2}$ kilometres and 21 communes.

CHAUMONT, a town of France, and principal place of a diſtrict in the department of the Upper Marne, ſeated on a mountain near the river Marne. It has a manufacture of coarſe woollen cloth, and conſiderable trade in deer and goat's ſkins. N. lat. $48^{\circ} 7'$. E. long. $5^{\circ} 2'$.

CHAUMONT, a town of France, in the department of the Oife, and chief place of a canton in the diſtrict of Beauvais; 13 miles S.S.W. of it. It derives its name from an artificial mountain, on which was erected a fortreſs, which ſerved as a boulevard of France when the Engliſh poſſeſſed Normandy. The place contains 1088, and the canton 12,717 inhabitants: the territory comprehends 275 kilometres and 39 communes. N. lat. $49^{\circ} 15'$. E. long. $1^{\circ} 47'$.

CHAUMONT, a town of Savoy, in the Genevois, near the frontiers of France; 6 miles N.E. of Seiffel.

CHAUMONT, a town of France, in the department of the Forêts and diſtrict of Neufchateau; 6 miles S. of Barlogne.

CHAUMONT-sur-Tharonne, a town of France, in the department of the Loire and Cher, and chief place of a canton, in the diſtrict of Romorantin; 17 miles E. of Blois. The place contains 1140 and the canton 5404 inhabitants: the territory includes $412\frac{1}{2}$ kilometres and 7 communes.

CHAUMPERT. See CHAMPART.

CHAUMUSSAY, in *Geography*, a town of France, in the department of the Indre and Loire; 12 miles S. of Loches.

CHAUMUZY, a town of France, in the department of the Marne, and diſtrict of Reims; 8 miles S.W. of Reims.

CHAUNAY,

CHAUNAY, a town of France, in the department of the Vienne, and district of Civray; 2 leagues N.W. of it.

CHAUNCEY, Sir HENRY, in *Biography*, a topographical writer, was born of an ancient family of Hertfordshire, in that county, and educated at Caius College, Cambridge. In 1649 he entered the Middle Temple, pursued the study and practice of the law, was knighted by Charles II. in 1681, and in 1688 was appointed a Welsh judge. He died in 1700. His "Historical Antiquities of Hertfordshire," though burdened with pedantic discussions, and depreciated by meanly-executed engravings, is a work in good estimation. Biog. Brit.

CHAUNI, *χαῦνοι*, in *Ancient Geography*, a people of Greece, in Thesprotia.

CHAUNTOR, CHAUNTER. See CHANTOR.

CHAUNTRY, or CHANTRY, was anciently a church, or chapel, endowed with lands, or other yearly revenue, for the maintenance of one or more priests, daily saying or singing masses for the souls of the donors, and such others as they appointed. These *chauntries* were dissolved by 1 Ed. VI. cap. 14.

Hence, *chauntry-rents*, are rents paid to the crown by the tenants, or purchasers of *chauntry-lands*.

CHAUNY, in *Geography*, a town of France, in the department of the Aisne, and chief place of a canton in the district of Laon, seated on the Oise. The place contains 3500, and the canton 14,939 inhabitants: the territory includes 155 kilometres and 20 communes. N. lat. 49° 37'. E. long. 3° 7'.

CHAUP, LA, a town of France, in the department of the Dôme; 5½ leagues E. of Le Buis.

CHAURANA, in *Ancient Geography*, a town of Scythia, placed by Ptolemy on the other side of the Imaus.

CHAURIAT, in *Geography*, a town of France, in the department of the Puy-de Dôme; 4 miles N.W. of Billom.

CHAURINA, in *Ancient Geography*, a town of Asia, in Asia. Ptol.

CHAURUS, or CHORUS, among the Romans, the north-west-wind, or that which blew between the wind called *fronius* and the north.

CHAUS, or SHAUS, in *Geography*, the most easterly and extensive province of Fez; in general mountainous, stony, and unfruitful; but in some parts fertile, and capable of feeding numerous herds of cattle.

CHAUS, in *Ancient Geography*, a river of Asia, towards Persia, and near the town of Erizza, according to Livy.

CHAUSSE, MICHAEL ANGELO DE LA, in *Biography*, an able antiquary of Paris, went to Rome at an early age, and fixed in that capital. His "Musæum Romanum," published at Rome in 1696, fol. and in 1746, 2 vols. fol. contains a large collection of engravings of inedited antiques, and it is inserted in Grævius's collection of Roman antiquities. He published also "A Collection of Antique Gems," Rome, 1707, 4to. with Italian explanations; and "Picture Antiquæ Cryptarum Romanarum et Sepulchri Nasonum," 1738, fol. All his works display erudition and sagacity, and are esteemed by those who are led to study the subjects which they comprehend. Nouv. Dict. Hist.

CHAUSSE *trape*, in *Conchology*, the French name of the Linnæan *Murex tribulus*.

CHAUSSE *trapes*, or *Caltrops*, in *Military Language*, are what we call *crocus-feet*. They are iron instruments with four or more spikes, each of them made in such a manner, that whatsoever way any one of them may fall, it will always lie with one of those spikes uppermost. They are well calculated for

defending breaches and passes. For when thrown up and down in them, they are very troublesome to the foot that mount the breaches, or to the enemy's horse that would pass along some narrow places or streets. There are three sorts of them, viz. *small ones*, with spikes about three inches long; *middling ones*, with spikes four inches long; and *great ones*, with spikes four inches in length.

CHAUSSÉ *trop-haut*, in the *Manège*. A white-footed horse is said to be such, when the white marks run too high upon the legs.

CHAUSSEE, or *Rés de chaussée*, an old term for the level of the field, or of the plain ground.

CHAUSSIN, in *Geography*, a town of France, in the department of the Jura, and chief place of a canton in the district of Dôle; 3 leagues S. of it. The place contains 1103, and the canton 7461 inhabitants: the territory includes 150 kilometres and 23 communes.

CHAUTLAN, a town of North America, in the country of Mexico, and province of Chiapa; the inhabitants of which carry on a considerable trade in cocoa, pottery, salt, and dates.

CHAUVEAU, FRANCIS, in *Biography*, was born at Paris in 1613; and, as his father lost his fortune by gaming, he was constrained, after a liberal education, to apply the knowledge of the arts, which he had acquired as a polite accomplishment, to his own support and that of his destitute mother. He was instructed in the art of design by Laurent la Hire, and began with the use of the graver, but soon quitted it for the point, which was better suited to his taste, and the celerity of his execution. He commenced the exercise of the profession which he had assumed at the early age of 15 or 16; and his first essays were copies of the performances of his master; but such was the fertility of his invention, that he soon abandoned this servile labour, and sketched out his own thoughts on paper, as fast as they occurred, and executed his designs in etching with aqua fortis, which he wrought with as much rapidity as force and spirit; he seldom corrected or expunged any part of them afterwards, so that his works are often faulty, and unequal to each other. His house became the resort of some of the first wits of the time; and about the year 1630, they were accustomed to assemble there in order to converse on various subjects. These meetings gave occasion to the establishment of the French Academy. Chauveau was admitted into the Royal Academy of Painting and Sculpture in 1663; and in 1664 he was employed by the king to engrave the series of plates of the Carousal; displaying in the attitudes of his men and horses an admirable variety and animation. By this work he obtained a pension for life. Many of his designs for the romances of the day were executed by way of amusement after supper; the stories were read to him by his children, and fixing upon some of the most striking subjects, he traced his designs upon the plate, and so far completed them as to make them fit for the aqua fortis next morning. The number of his works is almost incredible; some say they amounted to 3000; others say that he engraved 4000 with his own hand, and mostly from his own designs, and that more than 1400 were engraved by other artists after his designs. His small plates, says Mr. Strutt, are executed in a style much resembling that of Le Clerc, founded upon that of Callot. In his large prints, he approaches near to that coarse, dark style, which was adopted by his tutor, La Hire. He furnished drawings not only to painters and engravers, but to chasers, embroiderers, and various other artists. He excelled in painting to such a degree, that Le Brun admired his pictures, and bought several of them. He engraved from Le Brun and many other masters. Among the sets of prints, executed from his own compositions;

compositions, are those for the "Bible History," the "History of Greece," the "Metamorphosis of Benserade," the "Jerusalem of Tasso," the "Fables of La Fontaine," "Alaric," or "Rome conquered," and several romances. Among the prints, engraved from other masters, are "Christ with the Disciples at Emmaus," from Titian, a "Concert," from Dominichino, the "Life of St. Bruno," from Le Sueur, "Apollo and Daphne," from N. Poussin, "A Virgin and Child, with St. John and little Angels," finely etched and finished with much taste, and "Meleager presenting the Head of the Boar to Atalanta." This artist died at Paris in 1676. Moreri. Strutt.

CHAUVEAU, RENÉ, the youngest son of the preceding, was also an eminent artist, resembling his father in the vivacity of his imagination and facility of his execution. He was born at Paris in 1663, and being left an orphan, he was placed first with a carver in wood, and afterwards with Casiere, the sculptor, by whom he was employed in modelling trophies for the king. In this situation he attracted the notice and engaged the patronage of Colbert, and several succeeding comptrollers-general of the buildings; and at the age of 25 or 26 was reckoned the first of sculptors for models and sketches. After his marriage, a lodging was assigned to him at the Louvre, but on being deprived of it on some pretext, he was so much offended that he accepted an offer of going to Sweden in the service of Charles XII. under the protection of the baron Tessin. Here he continued seven years, and in his way to France, in 1700, he executed some works at Berlin. Several of the nobility of his country employed him in sculptures and decorations about their seats, and in various works for churches and chapels. Many of his compositions, exhibiting great taste and elegance, were engraved. From several of his employers he received munificent rewards; and particularly from the bishop of Metz, who kept him at work for eight years at his seat at Frescati. Being questioned twice in one day by his last employer, the marquis of Torci, what he expected for his day's work, he was so much piqued, that, without making any reply to a question so degrading, he set out immediately on foot for Paris. Fatigued and chagrined, together with vexation at a loss he sustained by bank-notes, occasioned an illness, which terminated in his death, in 1722. Moreri. Gen. Biog.

CHAUIGNY, in *Geography*, a town of France, in the department of Vienne, and chief place of a canton in the district of Montmorillon; seated on the Vienne, 4 leagues E. of Poitiers. The place contains 1608, and the canton 7347 inhabitants: the territory includes $217\frac{1}{2}$ kilometres and 11 communes.

CHAVUS, in *Ancient Geography*, a town in the interior of the Tauric Chersonesus, according to Strabo.

CHAUX, in *Geography*, a town of France, in the department of the Charente; 20 miles S.W. of Angoulême.

CHAUX DE FOND, a large and beautiful village of Switzerland, in the principality of Neuchatel, situate in a broad valley which reaches to Franche Comté, and connected with Lode, by a continued range of delightful cottages, that skirt both sides of the road, and are likewise scattered over the country. La Chaux de Fond and Lode, together with the districts belonging to them, are supposed to contain about 6000 inhabitants, distinguished for their genius, industry, and skill in the mechanical arts. They carry on an extensive traffic in lace, stockings, cutlery, and other articles of their own manufacture; and they particularly excel in watch-making, and every branch of clock-work. All sorts of workmen necessary for the completion of this business, such as painters, enamellers, engravers, and gilders, are found in these villages, where, upon an average, about

40,000 watches are yearly made. On these mountains every individual is sure of obtaining a comfortable maintenance; and as the people have a prospect of soon placing their children in a way of procuring a decent subsistence, they marry early. Not many years ago, the greater part of the valleys was almost one continued forest; but the powers of industry have changed the scene into flourishing villages and fertile pastures. Besides the natural effect of frequent and early marriages in contributing to the increase of population, every stranger, who brings a certificate of his good behaviour, is at liberty to settle, and follow any trade without the least restriction. Here no apprenticeship is necessary, nothing is contraband, and industry exerts itself untaxed. The origin of watch-making in these parts is traced to the year 1679, at which time one of the inhabitants brought a watch from London, when an ingenious artist employed to repair it, examined its mechanism, and after a whole year spent in inventing and finishing the necessary instruments, and six months more in the work itself, completed a watch after this model. Several inhabitants of Chaux de Fond and Lode are well skilled in other branches of mechanical science, besides those already mentioned, and have invented useful mathematical and astronomical instruments. Several automatical figures of a very singular and surprising construction may be enumerated among the inventions of this district, for which the curious are indebted to Jaquet Droz and his son: one of these played upon the harpsichord, another drew landscapes, and a third copied any word presented to it, and wrote down whatever was dictated by any of the company. The inhabitants apply their ingenuity to convert the streams and torrents, descending from mount Jura, to useful purposes. Accordingly in the midst of the subterraneous channels formed by these waters, they have erected mills, which they serve to put in motion; they have also constructed wheels, where it seemed scarcely practicable, invented new modes of scaffolding, and various other contrivances for the accomplishment of their object. The natives are very courteous to strangers, and, in general, well informed in various branches of knowledge; and as they spend their leisure hours in reading, many of the villages contain circulating libraries. The houses are plastered and white-washed; though small, they are commodious and well-built, and furnished with a degree of neatness, and even elegance, peculiarly striking in these sequestered mountains. We shall only add, that ease and plenty reign through these mountains to such a degree, as to exclude poverty and the distress attending it; and thus they afford a pleasing view of the valuable effects of industry under a mild and equitable government. Coxe's Switzerland, vol. ii.

CHAW-STICK, in *Botany*. See GOUANIA.

CHAYANTAS, in *Geography*, one of the jurisdictions belonging to the new viceroyalty of Buenos Ayres in South America, lying about 50 leagues N.W. from the city De la Plata, and extending in some parts about 40 leagues. This country is famous for its gold and silver mines. The former are not at present wrought, though the old subterraneous passages are still open; and the river Grande, which waters the province, has in its sand considerable quantities of gold dust, and grains of this metal. The silver mines are still wrought to great advantage. According to the statement of Helms, it has 2 gold mines, 3 of silver, 1 of copper, 1 of tin, and 1 of lead. The cattle of this province are barely sufficient for the inhabitants.

CHAYOTA, in *Botany*, Jacq. See SECCHIUM.

CHAZA, in *Ancient Geography*, a town of the interior of Africa, belonging to Ethiopia, near the Nile.

CHAZAUNI, CHAUZANÆI, or CHAUZANII, a people of Scythia, according to Ptolemy.

CHAZELET, in *Geography*, a town of France, in the department

department of the Indre, and district of Chateauroux; 7 miles S.S.W. of Argenton.

CHAZELLES, JOHN MATTHEW, in *Biography*, an eminent mathematician and engineer, was born at Lyons in 1657, and educated in the Jesuits' college of his native place, whence he removed to Paris in 1675. M. Du Hamel, secretary to the Royal Academy, introduced him to Cassini, and he was placed in the observatory, where he learned the practical part of astronomy. He afterwards assisted in forming the geographical planisphere, 27 feet in diameter, and in continuing the meridian line of France towards the south. After remaining five years with Cassini, he became tutor in mathematics to the duke of Montemart, who obtained for him the post of geography-professor to the galleys at Marseilles, and in this situation he made many plans of the sea coast; and he performed various other services as hydrographer and engineer, as well as in the astronomical department. He also made a voyage to the Levant, measured the pyramids of Egypt, and ascertained that the position of the four sides of the largest pyramid exactly faced the four cardinal points of the compass. Upon his return, he reported the particulars of his travels to the Academy of Sciences, and was admitted, in 1695, a member of their body. The memoirs of the academy previous to the year 1708, contain many of his communications. He died at Marseilles in 1710. *Eloge par Fontenelle. Gen. Biog.*

CHAZELLES sur-Lyon, in *Geography*, a town of France, in the department of the Loire, and chief place of a canton in the district of Montbrison; 7 leagues W.S.W. of Lyons. The place contains 2364, and the canton 13,441 inhabitants: the territory comprehends $232\frac{1}{2}$ kilometres and 21 communes.

CHAZENA, in *Ancient Geography*, a country of Asia in Mesopotamia, placed by Strabo in the vicinity of Adiabene.

CHAZINZARIANS, or **CHATZINZARIANS**, a sect in Armenia in the seventh century.

The word is formed of the Armenian *chazus*, *cross*. In the Greek text of Nicephorus, they are called *Chatzintzarians*, *Χατζιντζαριαν*.

They are also called *Staurolatrae*, which, in Greek, signifies the same as *Chazinzarrians* in Armenian, viz. *adorers of the cross*; they being charged with paying adoration to the cross alone.

In other respects they were Nestorians; and admitted two persons in Jesus Christ. Nicephorus, lib. xviii. cap. 54. ascribes other singularities to them, particularly their holding an annual feast, in memory of the dog of their false prophet Sergius, which they called *Artzibartzes*.

CHE, in *Geography*, a town of China, of the third rank, in the province of Ho-nan; 12 leagues W.N.W. of Se.

CHEADLE, a town of England, in the county of Stafford, situate in a country abounding with coal, and surrounded by copper and brass works. It has a weekly market on Friday; 15 miles N.E. of Stafford, and 146 N.N.W. of London.

CHEAPO, a river of America, which runs into the bay of Panama; 30 miles E. of Panama.

CHEAT, a river of America, which rises in Randolph county, Virginia, and after pursuing a N.N.W. course joins Monongahela river 3 or 4 miles within the Pennsylvania line. It is 200 yards wide at its mouth, and 100 at the Dunkards settlement, 50 miles higher, and is navigable for boats, except in dry seasons. There is a portage of 37 miles from this river to the Potowmack at the mouth of Savage river.

CHEATS, in *Law*, are deceitful practices in defrauding, or endeavouring to defraud, another of his known right by

some artful and dishonest device; as by playing with false cards or dice, by fraudulently obtaining the execution of deeds and trusts, by suppressing wills, by raising money under false pretences, &c.

If any one cheats with false cards or dice, or by false weights and measures, or by selling one commodity for another, an action on the case lies against him for damages, upon the contract which the law always implies, that every transaction is fair and honest. 10 Rep. 56. In contracts likewise for sales, it is constantly understood that the seller undertakes that the commodity is his own; and if it proves otherwise, an action on the case lies against him, to exact damages for this deceit. In contracts for provisions, it is always understood that they are wholesome; and if they be not, the same remedy may be had. Also if he that selleth any thing doth, upon the sale, warrant it to be good, the law annexes a tacit contract to this warranty, that if it be not so, he shall make compensation to the buyer: also it is an injury to good faith, for which an action on the case will lie to recover damages.

Any deceitful practice, whether in trade or otherwise, is punishable with fine, imprisonment, and pillory. 1 Hawk. L. C. 188. And by the statutes 33 Hen. VIII. cap. 1. and 30 Geo. II. cap. 24. if any man defraud another of any valuable chattels by any false token, counterfeit letter, or false pretences, or pawns or disposes of another's goods without the consent of the owner, he shall suffer such punishment by imprisonment, fine, pillory, transportation, whipping, or other corporal pains, as the court shall direct. And by 9 Anne, cap. 14. if any person cheats at play, and at one time wins more than 10*l.* or any valuable thing, he may be indicted thereupon, and shall forfeit five times the value to any person who shall sue for it; and (in case of cheating) shall be deemed infamous, and suffer such corporal punishment, as in case of wilful perjury. Blackst. Com. vol. iv. p. 158, and 173.

CHEBIB, or **TALLITZ**, in *Geography*, a mountain in Africa, in the province of Fez, on which are many towns.

CHEBRECHIN, a town of Poland, in the palatinate of Belskow; seated on the declivity of a hill. The walls are watered by the river Wierpi, which afterwards falls into the river Bog. The Jews in this place, are very rich. N. lat. 50° 25'. E. long. 23° 51'.

CHEBUCTO, a bay and harbour on the S.S.E. coast of Nova Scotia. Near the head of this bay on the western side, stands the city of Halifax, the capital of the province. N. lat. 44° 40'. W. long. 63° 31'.

CHECAYA, in *Turkish Affairs*, is the second officer of the janizaries; and synonymous with lieutenant, or the second in any office.

CHE-CHEOU, a town of China of the third rank, in the province of Hou-quang, seated on the river Yang-tse; 11 leagues E.N.E. of Fong.

CHECHMEBAND, a town of Persia, in the province of Segestan; 70 miles N.E. of Zareng.

CHECHMURAT, a town of Persia, in the province of Adirbeitzan; 200 miles N.E. of Tauris.

CHECK, in *Commerce*, a draft or bill on a banking-house, paid at sight to the bearer.

CHECK, a term in the *game of chess*, used when one party obliges the other either to move or guard his king.

CHECK-mate denotes a movement on the chess-board that kills the opposite men, or hinders them from moving.

CHECK-roll, a roll, or book, containing the names of such as are attendants, and in pay to the king, or other great persons; as their household servants. Stat. 19 Car. II. cap. 1.

It is otherwise called the *chequer-roll*, and seems to take

its etymology from the exchequer. 14 Hen. VIII. c. 13. See ROLL.

CHECK, *clerk of the*, in the king's household, has the *check* and controulment of the yeomen of the guard, and all the ushers belonging to the royal family; allowing their absence or defects in attendance, or diminishing their wages for the same, &c.—He also, by himself, or deputy, takes the view of those that are to watch in the court, and has the setting of the watch. 33 Hen. VIII. c. 12.

CHECK, *clerk of the*, in the king's dock-yards, is also the name of an officer, who keeps a muster or register of all the men employed aboard his majesty's ships and vessels, and of the artificers and others in the service of the navy, in the port to which he belongs.

CHECK, in *Falconry*, is where a hawk forsakes her proper game, to follow rooks, pies, or other birds that cross her in her flight.

CHECKER. See EXCHEQUER.

CHECKER-*course*, in *Brick-Making*. See BRICK.

CHECKY, in *Heraldry*, is where the shield, or a part thereof, as a bordure, &c. is chequered, or divided into checquers, or squares. Where there is but one row of squares, it is not properly called *checky*, but *countercompounded*.

Checky, according to Colombiere, is one of the most noble and ancient figures in all armory; and ought never to be given, but to persons who have distinguished themselves in war: for it represents a chess-board, which itself is a representation of a field of battle. The pawns and men, placed on both sides, represent the soldiers of the two armies; which move, attack, advance, or retire, according to the will of the two gamesters, who are the generals.

Checky is always composed of metal, and colour. Some authors, however, would have it ranked among the sorts of furs. When the whole escutcheon is chequered, it should ordinarily contain six ranges; there is no need of blazoning to express them; only it must be observed, to begin to blazon by the first square in chief on the dexter side. So that if that be *or*, and the next *gules*, the house, or family, is said to bear *checky, or, and gules*.

When the whole shield is not chequered, but only the chief, a bend, cross, or the like, the number of ranges should be expressed.

CHECO, KECIO, or TONG-TOW, in *Geography*, a town of Asia, and capital of the country of Tonquis, situate on the river Songkoi; 100 miles from its mouth.

CHE-CONG, a town of China, of the third rank, in the province of Se-tchuen; 10 miles S.E. of Tong-tchouen.

CHE/CY, a town of France, in the department of the Loiret, and chief place of a canton, in the district of Orleans. The place contains 1533, and the canton 10,087 inhabitants; the territory includes 305 kilometres, and 15 communes.

CHEDABUCTO, or MILFORD-HAVEN, a large and deep bay on the easternmost extremity of Nova Scotia, at the mouth of the gut of Canso. Opposite to its mouth is Isle Madame. Salmon river falls into this bay from the west, and is remarkable for its very great fishery. N. lat. 45° 25'. W. long. 61° 10'.

CHEDDER, a village of England, in the county of Somerset, about 7 miles N.W. of Wells; which though only a village deserves particular mention. This village is situated under the S.W. side of Mendip hill, and yet much elevated above the level of the moor, so that the contrast between the lofty brows of the hills on one side, and the fertile flats on the other, is singularly striking, and seems to render this village and its adjacent scenery peculiarly romantic. The chasm by which the cliffs of Chedder are

formed does not disclose itself until we approach a mill turned by a rapid brook that gushes out near the entrance and soon afterwards loses itself in the Ax. Proceeding along the side of this brook, we are suddenly struck by a gap, in the side of the mountain, of the extent of which we at first form an erroneous idea, because the rocks project one behind another so that they seem to prevent further progress. After many deceptions, it is at length discovered that this stupendous chasm extends quite through the S.W. ridge of Mendip, from top to bottom; the length being at least 2 miles, at the end of which it divides into two branches, so as to allow an easy ascent, in a winding direction, nearly from S.W. to N.E. to the top of the hill. In several points the cliffs rise perpendicularly to the height of 300 feet; some terminating in bold pinnacles, others in irregular fragments like shattered battlements of huge castles, and others inclining with a dreadful aspect on the observer passing under them; protecting yews growing in several of the fissures, form shady canopies; and long mantles of ivy covering some of the rocks, and contrasted against the craggy nakedness of others, heighten the picturesque effect of the scene. On the right hand, the cliffs are much steeper than on the left, and for the most part inaccessible; but, in general, the salient angles on one side correspond with the recipient ones on the other. Every circumstance indeed serves to impress a belief that the mountain must have been evidently rent asunder. The inclination of the strata, from one foot to three feet in thickness, is nearly to the S.W., their general direction being from N.W. to N.E.; this is the course of the hills, the height of which seems to increase northward, and particularly near the village of Loxton, where is a prodigious eminence called Crook's Peak. The rocks of Chedder are on a much grander and bolder scale than those of Dovedale, which resemble them; though they have not the advantage of a beautiful stream, like the Dove, dividing them. Stupendous as those are, there is a contiguous part of Mendip, which is some hundred feet higher, sloping from the top with a gradual descent, and commanding particularly to the W. and S. a most extensive prospect. The Chedder cliffs produce several of the rarer plants, particularly the *Dianthus cæsius*, (*Chedder pink*), *D. arenarius*, and *Thalictrum minus*. The first of these plants, the history of which is somewhat perplexed, is distinguished by the stems being mostly single-flowered, the scales of the calyx roundish and short; the petals notched and bearded; and the leaves rough on the margin: this elegant plant, it is said, has never yet been found except on the cliffs of Chedder, where it was first gathered by Mr. Brewer in the time of Ray. The flowers make their appearance in July, and very luxuriantly decorate the rocks. Mason's Observations relative to the Natural History of the Western Counties of England, made in 1794 and 1796.

Chedder is famous for its adjacent pastures and a large kind of cheese. In this place it is common for 3 or 4 dairies to join their milk in order to make one great cheese, which generally weighs from 150 to 200 pounds weight, and which is often sold at a very high price.

The goodness of Chedder cheese is chiefly owing to the land in which the cows feed, as the method of making it is the same with that which is pursued throughout Somersetshire, and the adjoining counties. Thus also the land in the north parts of Wiltshire has a surprising effect both on the butter and cheese.

CHEDUBA, or SANDIVA, an island in the bay of Bengal, near the coast of Ava, said to be about 45 miles long and 9 wide. Cheduba and Ramree, called by the Birmans, Magou

gou Kioun and Yamger Kioun, are extensive and highly cultivated islands, which, with Arracan and Sandow, form five distinct provinces, and comprehend the whole of the Asiatic empire. See ARRACAN.

A Portuguese, named Sebastian Gonzales, by a combination of successful events, made himself master of the island of Cheduba, which he maintained for some time as an independent principality; his rise was owing to a series of heinous crimes, and his rapid fall is to be ascribed to a similar cause. N. lat. $18^{\circ} 50'$. E. long. $93^{\circ} 45'$.

This fertile island, which belongs to the Birman government, yields abundance of rice, and is governed by a chekey, or lieutenant, who is subject to the maywoon of Arracan. The channel between this island and the main is annually navigated by large trading boats, but does not afford a safe passage for shipping.

CHEEGO HILLS, hills of Hindoostan near the south coast of the country of Gutch.

CHEEK, in *Anatomy*, that part of the face situated below the eyes on either side.

CHEEKS, *wounds of the*. See SUTURE and WOUND.

CHEEKS, a general name among *Mechanics*, for almost all those pieces of their machines and instruments that are double, opposite to, and perfectly alike to each other.

The *CHEEKS of a printing press*, are its two principal pieces: they are placed perpendicular, and parallel to each other; serving to sustain the three sommers, viz. the head, shelves, and winter, and to bear the spindle, and other parts of the machine.

The *CHEEKS of a turner's lathe*, are two long pieces of wood, between which are placed the *puppets*, which are either pointed, or otherwise, serving to support the work, and the mandrils of the workman. These two pieces are placed parallel to the horizon, separated from one another by the thickness of the tail of the puppets, and joined with tenons to two other pieces of wood, placed perpendicularly, called *the legs of the lathe*.

CHEEKS of the glazier's vice, are two pieces of iron joined parallel at top and bottom; in which are the axis, or spindles, little wheel, cushions, &c. whereof the machine is composed.

In the construction of gun-carriages, the term *cheeks* is used to denote the strong planks which form their sides. See CARRIAGE.

CHEEKS of a mortar, or BRACKETS, in *Artillery*, are made of strong planks of wood, bound with thick plates of iron, and are fixed to the bed by four bolts; they rise on each side of the mortar, and serve to keep it at what elevation is given to it by the help of strong bolts of iron which go through both cheeks, both under and behind the mortar, betwixt which are driven coins of wood; these bolts are called the bracket-bolts, and the bolts which are put one in each end of the bed, are the traverse-bolts, because with handspikes the mortar is by these traversed to the right or left.

CHEEKS, in Ship-Building, are two pieces of timber, fitted on each side of the masts, at the top, serving to strengthen the masts there, and to sustain the frame of the top and top-mast. The uppermost baul or piece of timber in the beak of a ship, is called the cheek. The knees which fasten the beak-head to the bow of the ship, are called cheeks; and the sides of any block, or the sides of a ship's carriage of a gun, are called cheeks.

CHEEKS, upper and lower, are those pieces of timber on each side of the trail-board.

CHEEN, in *Geography*, an ancient name of the kingdom of Pegu, as we learn from the Ayeen Akbery, (vol. iii. p. 7.) As this country borders upon Ava, where M. Gosselin, in his *Geography of the Greeks analysed*, places the

great promontory, the resemblance of names may seem, perhaps, to confirm his opinion, that Sinæ Metropolis was situated on this coast, or not so far east as the kingdom of Cochin-China, where M. D'Anville places it.

CHEESADAWD, a lake of North America, on the E. end of Slave lake, in the territory of the Hudson's bay company; about 35 miles long, and the same in breadth. N. lat. $63^{\circ} 15'$. W. long. 106° .

CHEESE, in *Rural Economy*, a well known kind of food prepared from milk by means of coagulation with rennet, and separated from the serum or whey, by pressure in vats for the purpose, being then dried for use. See DAIRYING.

The use of cheese seems to have been adopted more generally, and at a much earlier period than that of butter. Hippocrates, who was almost contemporary with Herodotus, speaking of the method practised by the ancient Scythians of shaking the milk of their mares in wooden vessels, says, that the heavy and thick part, which subsides, when the fat part rises to the surface, and the whey or serum remains in the middle, being kneaded and properly prepared, is, after it has been dried, known by the name of "hippace," which evidently denotes cheese made of mares' milk. It is not improbable, that the Scythians hastened the separation of the caseous part from the whey by warming the milk, or by the addition of some substance proper for that purpose. Hippocrates, in another place, expressly says, that the Scythians drink mares' milk and eat cheese made of it. Although the word butter does not occur in Aristotle, and his allusion to that substance has even been doubted, yet we find that he gives very proper information respecting milk and cheese which indicates careful observation; and in one place he ascribes to milk only two component parts, viz. the watery and the caseous; but elsewhere he mentions also a fat substance in milk, which, in certain circumstances, resembles oil. Ludolfus, in his History of Æthiopia, acquaints us, that the Habeshinians or Ethiopians made both butter and very good cheese: and the Roman writers, who give an account of the ancient Germans, and say that they lived principally on milk, disagree in one circumstance; viz. whilst many of them inform us, that they used cheese, others affirm that they were not even acquainted with the method of preparing it. Cæsar de Bell. Gall. iv. 1. vi. 22. Strabo, lib. iv. Pliny, however, says, (l. xi. c. 41.) that they did not make cheese, but butter, which they used as a most pleasant kind of food. But the oxygala of which he speaks was evidently a kind of cheese, the preparation of which has been described by Columella. (l. xii. 8.) In order to make it, sweet milk was commonly rendered sour, and the serum was always separated from it. Pliny also mentions, under the above name, a kind of cheese formed from the caseous parts which remained behind in the butter-milk, and which were separated from it by acids and boiling, and were mixed and prepared in various ways. It is not possible from any data that remain to determine whether Tacitus (De Mor. German. c. 23.) by "lac concretum," which, he says, was the most common food of the Germans, meant cheese, or butter. The term Βούτυρον, or Βούτυρον, compounded of Βού, or, and τυρον, cheese, seems to intimate, not only that cheese was known at a much earlier period than butter, but that the Grecian and Roman authors considered butter as a kind of cheese, because τυρον once signified any coagulated substance. See BUTTER.

Cheeses are of different qualities and forms, in different districts, and according to the methods in which they are made. Thus, the Cheshire cheeses are mostly thick, large, and of a fine sharp or piquant flavour, while those of Gloucestershire are mostly small, thin, and of a pleasant mild taste.

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The double Gloucester is a cheese that pleases almost every palate: the best of this kind (says Mr. Hazard of Stoney-Littleton) is made from new, or, (as it is called in that and the adjoining counties) "covered milk;" an inferior sort is made from what is called "half-covered milk;" though, when any of these cheeses turn out to be good, people are deceived, and often purchase them for the best "covered milk cheese;" but farmers who are honest have them stamped with a piece of wood in the shape of a heart, by which they may be distinguished.

It will be every farmer's interest (if he has a sufficient number of cows) to make a large cheese from one meal's milk; this, when brought in warm, will be easily changed or turned with the rennet; but if the morning or night's milk be to be mixed with that which is fresh from the cow, it will be a longer time before it turns, nor will it change sometimes without being heated over the fire, by which it often gets dust, or foot; nor should I forget smoak, (says this writer) which is sure to give the cheese a very disagreeable flavour.

When the milk is turned, the whey should be carefully strained from the curd, which curd should be broken small with the hands; and when it is equally broken, it must be put by little at a time into the vat, carefully breaking it as it is put in, which vat should be filled an inch or more above the brim, that when the whey is pressed out it may not shrink below the brim; if it does, the cheese will be worth very little. But first, before the curd is put in, a cheese-cloth, or strainer, should be laid at the bottom of the vat, and this should be so large, that when the vat is filled with the curd, the end of the cloth may turn again over the top of it; when this is done, it should be taken into the press, and there remain for the space of two hours, when it should be turned, and have a clean cloth put under it, and turned over as before; it must then be pressed again, and remain in the press six or eight hours, when it should again be turned, and rubbed on each side with salt, after which it must be pressed again for the space of twelve or fourteen hours more; when, if any of the edges project, they should be pared off; it may then be put on a dry board, where it should be regularly turned every day.

It is a good way to have three or four holes bored round the lower part of the vat, that the whey may drain so perfectly from the cheese as that not the least particle of it may remain.

The prevailing opinion of the people of Gloucestershire and the neighbouring counties is, that the cheeses will spoil if they are not scraped and washed when they are found to be mouldy; but I know this (says Mr. Hazard) to be erroneous, and that suffering the mould to remain mellows them, provided they are turned every day; or if they will have the mould off, it should be removed with a clean dry flannel, as the washing them is only a means of making the mould (which is a species of fungus rooted in the coat) grow again immediately.

Some people scald the curd, but this is a bad and mercenary practice; it robs the cheese of its fatness, and can only be done with a view to raise a greater quantity of whey butter, or to bring the cheeses forward for sale, by making them appear older than they really are.

As most people like to purchase high-coloured cheese, it may be right to mix a little *annatto* with the milk before it is turned; no cheese will look yellow without it; and though it does not in the least add to the goodness, it is perfectly innocent in its nature and effects.

Cheshire cheese is much admired, and yet no people take less pains with the rennet than the Cheshire farmers; but their cheeses are so large as often to exceed 100lbs. weight

each: to this, and also to the age to which they are kept, the richness of the land, and their keeping such a number of cows, as to make such a cheese, without adding a second meal's milk, their excellence may be attributed: indeed, they salt the curd (which may make a difference), and keep the cheeses in a damp place after they are made, and are very careful to turn them daily.

In other counties they likewise vary greatly in these different respects, as well as in some other. Besides the cheeses already mentioned, there are different sorts of cream-cheeses, as *thick* and *thin*, the former known under the name of Cottingham, and the latter under that of Stilton cheese.

The Stilton cheeses, called the Parmesan of England, are usually made in square vats, and weigh from six to twelve pounds each. Immediately after they are made, they should be put into square boxes made exactly to fit them, as they are so extremely rich, that, without this precaution, they would be apt to bulge out, and break asunder. In these boxes they should be daily turned, and kept two years before they are mellowed for sale. Some make them in a net, like a cabbage-net, so that they appear when made like an acorn; but these are never so good as the others, having a thicker coat, and wanting the rich flavour and mellowness of the others. The manufacture of these cheeses is not confined to Stilton and its neighbourhood; as many other persons in Huntingdonshire, and also Rutland and Northampton shires, make a similar sort, sell them for the same price, and give them the name of Stilton cheeses.

It is observed by Mr. Hazard that, though the farmers about Stilton are remarkable for the cleanliness of their dairies, they take very little pains with the rennet; for if they did, they would not have so many faulty and unsound cheeses. The inhabitants of other counties might make as good cheese as that of Stilton, if they would adhere to the same plan, which is this. They make a cheese every morning, and to this meal of new milk they add the cream taken from that which was milked the night before. This, and the age of their cheeses, it is said, are the only reasons why they are preferred to others, their land not being in any respect superior to that of other counties. Excellent cream cheeses are made in Lincolnshire, by adding the cream of one meal's milk to milk which comes immediately from the cow: these are pressed gently two or three times, turned for a few days, and then disposed of at the rate of 1s. per pound, to be eaten while new, with radishes, salad, &c.

There is also a sort of green or sage cheese. And we have a cheese brought from abroad under the title of Parmesan. The Parmesan cheese is so called, because Parma and Piacenza were once the countries in which the best was made, though now the district of Lodi is in the highest repute for this kind of cheese. The method of making it is described, from their own observation, by Mr. Benjamin Pryce, in the 7th volume of the Bath Society's papers, (see also Letters on Agriculture, vol. vii. and Repertory, vol. ii.) and by Mr. Arthur Young, in the 2d volume of his Travels in France. These cheeses, how much soever extolled, are made entirely of skimmed milk: that of the preceding evening, mixed with the morning's milk: the former having stood for 16 or 17 hours, and the latter about 6 hours. At 10 o'clock in the morning, $5\frac{1}{2}$ brents of milk, each brent being about 48 quarts, were put into a large copper, which turned on a crane, over a slow wood-fire, made about two feet below the surface of the ground. The milk was stirred from time to time; and about 11 o'clock, when just luke-warm, and considerably under a blood-heat, (about $81\frac{3}{4}$ of Fahrenheit, the atmosphere being at the same time 70 Fahrenheit, Young,) a ball of rennet, as big as a large walnut,

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walnut, was squeezed through a cloth into the milk, which was kept stirring. This rennet was said to have been purchased of a man at Lodi, famous for the composition; but it seemed to have principally consisted of the same part of the calf as we use in England for the same purpose, mixed up with salt and vinegar, (spices and salt, Young,) and also, as Mr. Pryce apprehends, with old cheese. The proportion of rennet, he conceives, was of much greater consequence than the rennet itself. By means of the crane, the copper was turned from over the fire, and let stand till a few minutes past 12; at which time the rennet had sufficiently operated. It was now stirred up, and left to stand a short time, for the whey to separate a little from the curd. At 1 o'clock, says Mr. Young, the cazaro, or dairy-man, (for this is not women's work in Italy) examined the coagulation, and finding it complete, he ordered his sotto cazaro to work it, which he did with a stick armed with cross-wires; this operation served instead of cutting and breaking the curd, in the manner it is done in England, free from the whey. When he has reduced it to such a fineness of grain as satisfies the cazaro, it is left to subside, till the curd being quite sunk, the whey is nearly clear on the surface. Part of the whey being taken out, the copper was again turned over a fire sufficiently brisk to give it a strongish heat, but below that of boiling; a quarter of an ounce of saffron was put in to give it a little colour; but not so unnaturally high as some cheeses in England are coloured; and it was well stirred from time to time, with a wood machine to keep it from burning; the cazaro examining it from time to time, between his fingers and thumb, to mark the moment when the right degree of firmness and solidity of grain was attained. The heat was $124\frac{1}{2}$ Fahrenheit; but it is often $131\frac{1}{2}$ Fahrenheit. When the small, and, as it were, granulated parts, felt rather firm, which was in about $1\frac{1}{2}$ hour, the copper was taken from the fire, and the curd left to fall to the bottom. As soon as a certain degree of subsidence had taken place, the cazaro emptied about $\frac{1}{4}$ ths of the whey, in order the better to command the curd. He then pours three or four gallons of cold water around the bottom of the cauldron, to cool it sufficiently for handling the curd; and then by a formal kind of operation, he slides a coarse cloth under the curd, and thus brings it up and places it in a tub to clear. When sufficiently drained, it was put into a hoop, and about half an hundred weight laid upon it for about an hour; after which the cloth was taken off, and the cheese placed on a shelf in the same hoop. At the end of two, or from that to three days, it is sprinkled all over with salt. The same process is repeated every second day, for about 40 to 45 days, (or 30 or 40 days, according to the seasons; 30 in summer and 40 in winter, Young) after which no further attention is required. Whilst salting, they generally place two cheeses one upon another; in which state they are said to take the salt better than singly. When these operations are completed, the cheeses are scraped clean, and after that rubbed and turned in the magazine every day, and rubbed with a little linseed oil on the coats, in order to preserve them from all sorts of insects. They are never sold till they attain the age of six months, and the price is 90 livres per 100 lb. of 28 oz.

The morning's butter-milk is then added to the whey, and heated; and a stronger acid used for a fresh coagulation, to make whey-cheese, called here "Mafchopino." Little ones are kept in wooden cases, in the smoke of the chimney.

In Scotland there is likewise a sort of cheese made from the milk of ewes, which is rich and of a sharp flavour. It is usually known under the title of *ewe cheese*.

Dunlop Cheese, so called from the parish of Dunlop, in Ayrshire, where it was first made, has been long known

and distinguished over Scotland, inasmuch that all the cheese made in the country around is known by that name, and gives a higher price and finds a readier market than any other. The practice of making *sweet milk cheese*, as it is called, was first introduced into the parish of Dunlop, by one Barbara Gilmour, whose great grandson is still living, and proprietor of the same farm. Having gone to Ireland to avoid the persecutions which people were then exposed to on account of religion, she is said to have brought the art with her; when she returned about the time of the revolution. Since that period this sort of cheese has been the great and almost only business of Dunlop. Sensible that their situation was more favourable for this than any other purpose, the people bestowed on it the greatest care, and turned it to the best advantage. They have inclosed all their ground, and have but a third or fourth of it in tillage, which is more owing to the custom of the country than the will of the farmer, (as throughout the whole of Ayrshire there can be no more land in each farm in that state than one third); and the rest in pasture, which is always a plentiful crop and of the first quality. They are very attentive to the breed of their cows, which are rather small than otherwise, and generally of their own rearing. They are fed in inclosures, and never brought under a roof, except for milking, from the beginning of May till the end of harvest: the quantity of milk they give is very great and of the finest quality.

The process for making the cheese is extremely simple. The cows are milked twice a day, at six in the morning, and at the same hour in the afternoon. At each of these hours the whole milk, while warm, is collected in a large vessel and thickened or yeasted; after it is consolidated into a curd, it is then cut in different directions, and the whey gently pressed out; the curd, after it has acquired sufficient consistency by the pressure of the hand, and by the application of weights over it, is next cut very small by an instrument for the purpose, and salted. For the further compresure of the cheese, various contrivances are used, the most common is a large hewn stone, probably a ton weight; this is fitted to a frame, and lifted up and let down by a screw. Others use levers of various constructions, and thus by the application of a few pounds weight they give any degree of pressure that may be deemed necessary.

Where farms have only a few cows and where it would not be worth while to make a cheese twice a day, two milkings or sometimes more are put together; this may be done two ways, 1st, the milk which has stood over is first creamed and then warmed to the temperature of the new milk, and the whole is coagulated together; the cream is afterwards added, and thoroughly mixed with the two milks. Each mode has been tried, but this is thought to be the most effective in making good cheese; or 2d, the curd of the first milk is reduced to the consistency proper for salting, and thus set aside till a second milking be brought to the same state; when the two are mixed together, and salted and finished in the usual way. It may be proper to observe, however, that there is no cheese so good as that made directly from new milk: it was this kind which was first known by the name of Dunlop cheese. The useless practice of colouring is not known, except by a very few, who make it in imitation of English cheese. From a dozen of good cows a farmer will make from a hundred and fifty to a hundred and sixty stones (provincial weight) of cheese, that is, something more than a ton and a half; this, in the markets of Edinburgh, Glasgow, and Paisley, will bring from 10 to 12 shillings per stone, or from seventy to eighty pounds sterling, for the produce of the season. From the whey after it is pressed out, the most delicious

butter in Scotland is produced. It is also the practice in other places, and particularly in Cheshire, to make butter of the cheese whey.

For the form of the instrument used for cutting the curd before salting, see *Plate Husbandry*.

In the preparation or making of cheese a variety of different circumstances are necessary to be considered by the dairy farmer, such as the season of the year and the mode of conducting the business of milking, the properties of the milk, the manner of giving the necessary colour, the method of preparing the rennet, the mode of breaking and gathering the curd, the management of the cheese in the press, the process of salting, and the treatment afterwards requisite in the cheese-room, as well as some others of less importance. All these, as well as many other points of management that are of consequence in the process of cheese-making, will be fully considered in speaking of the nature of Dairying. See DAIRYING.

It has been observed by Dr. Anderson, that "it is generally supposed that the goodness of cheese depends almost entirely upon its *richness*; by which is meant the proportion of oily matter, whether natural or adventitious, that it contains: nothing, however, is, he says, more certain, than that this is not the case. If, says he, the *sapor*, the pleasant relish to the taste, be adopted as the rule for ascertaining excellence, nothing can be more certain, than that this does not depend upon this circumstance. Parmesan cheese is, he observes, in general, deemed, in respect to *sapor*, among the best kinds of cheese that are made; but it contains no remarkable proportion of oily matter. To many palates, the small round Dutch cheeses are very pleasing to the taste; yet these are, he asserts, made entirely of skimmed milk. And if softness to the feel, and that kind of consistency which appears mellowed and butyaceous, be the rule for ascertaining the richness of cheese, neither will this, says he, be found to depend necessarily upon the proportion of oily matter that they contain. He has seen cheeses made of skimmed milk, that are exactly like the finest kind of cream cheese, which approaches to the taste and consistency of butter; and he has seen cheeses made entirely of cream, which had much less of that buttery taste and appearance than the other. In short, much more, he thinks, depends upon the skill and dexterity of the operator, than on the quality of the materials. Many cheeses are made in England of as rich milk as the Stilton cheeses, which seem not to contain nearly the same proportion of cream; and he had lately occasion to notice, that a great many cheeses are made of the same kind of milk with the Suffolk cheeses, which have nothing of that horny hardness and indigestible quality for which these are remarkable." It is further remarked, "that if the taste and consistence that the cheese acquires when acted upon by heat in the process of toasting, be assumed as a criterion for judging of its richness, neither will it be found that this depends upon the proportion of cream that enters into their composition. He has seen very indifferent cheese, that has been made of skimmed milk, which, when toasted, was richer to the taste, and more soft in consistence than Stilton cheese. And he has at this moment in his house a round Dutch skim-milk cheese, that, when toasted, appears richer and more pleasing to the palate of most persons who have tasted it, than very excellent North Wiltshire cheese, which is deemed among the best kinds that are made in this island. From these facts, and many other considerations, he is satisfied, that what we call the richness of cheese depends more upon the particular process adopted in the management, than upon the materials of which the cheese consists. The taste of Gloucester and that of Che-

shire cheeses are very different from each other, though the quality of the milk of which they are made varies very little. The same thing may be said of Stilton and Parmesan cheeses, though the vanity of man, desirous to conceal his own weakness, is, he says, for ever disposed to attribute these peculiarities to soil, or pasture, or other circumstances, that seem to throw the blame of want of success from off his own shoulders. And this he conceives to be the case in many other instances, as well as that of cheese.

It is observed, that any vegetable or mineral acid, put into milk, will produce a coagulation; with this difference, that the mineral acid affords less cheese or curd than the vegetable; and the various substances used to coagulate milk may perhaps act merely by virtue of the acid they contain. The coagulum which is afforded in all these cases contains a substance of the nature of gluten, which forms the cheese; and another of the nature of oils, which forms the butter. When cheese is prepared for the table, the butter is not separated, because it renders it milder, and more agreeable. The caustic alkalies dissolve cheese by the assistance of heat; but it is not held in solution by an alkali in milk. If one part of cheese newly separated, and not dried, be mixed with eight parts of water slightly acidulated by a mineral acid, and the mixture be boiled, the cheese will be dissolved, though it would not have been sensibly acted upon by a vegetable acid. This is the reason why the vegetable acids separate a much greater quantity of curd from the same quantity of milk than the mineral acids do. The cause why salts, gums, sugar, &c. coagulate milk may be deduced from the greater affinity of the water with these bodies than with the cheese. The earth of cheese is a phosphate of lime, according to Scheele. No substance has a stronger resemblance to cheese than the white of egg, boiled. Scheele thinks that the coagulation of white of egg, lymph, and cheese, is owing to the combination of caloric. Ammoniac dissolves cheese more effectually than fixed alkalies. If a few drops be poured into coagulated milk, it quickly causes the coagulum to disappear. Concentrated acids likewise dissolve it. Nitric acid disengages nitrogen. Chaptal's Elem. of Chem. vol. iii.

Cheese of every kind is liable to putrefaction; and, by reason of this quality, it approaches to the nature of animal substances. This opinion is confirmed by the consideration that the matter of which it is formed is, like animal substances, coagulated by acids, alcohol, and heat. It is also said to yield, in distillation, a volatile alkali; though this is a disputed fact. Upon the whole, we may conclude, that as milk contains a portion of animal matter, and as the milk of animals feeding wholly, or for a great part, on vegetables, partakes of their quality, cheese must be an aliment of an intermediate kind between vegetable and animal. However, cheese employed in diet is of very different kinds, partly owing to the state and quality of the milk that is employed, and also of the rennet, and partly to the various practices employed in preparing it, such as the different circumstances of the coagulation, the management of the coagulum or curd, the pressure given to it, the salting and drying of it, and the manner in which it is afterwards preserved. The calcous or coagulable part of milk contains a great, if not the greatest part of the nourishment which milk affords; and, therefore, taken by itself, must be considered as a very nourishing matter. When the coagulum has the whey separated from it, it then becomes a more nutritious substance than the milk from which it was taken, but probably of more difficult digestion. Cheese, in its dried state, made from milk previously deprived of its cream, may still be very nutritious, but it is of very difficult digestion, and fit only for the most robust persons; and even the difficulty of digestion may diminish

with the nourishment which it might otherwise have afforded. Cheese made of entire milk must be a still more nourishing substance, and, as Dr. Cullen conceives, of much easier digestion; and cheese made of entire milk, with a portion of cream taken from other milk added to it, will be still more nourishing, and hardly of less easy digestion, as the oily parts every where interposed between the parts of the gluten must render the adhesion of this less firm. As cheese is often made of cream alone, the qualities of this will be readily understood from what has been just now said. Cheese is often made of the milk of ewes or goats, and often of a portion of the two latter added to cows' milk. In all these cases, as the milk of ewes and goats contains a larger proportion both of the oily and caseous parts, so in proportion as these are employed, the cheese becomes more nutritious, but at the same time of more difficult digestion. As cheese is employed not only when recent and fresh, but also under various degrees of a certain corruption to which it is liable, it hence acquires new qualities; and, according to the degree of corruption, it becomes more acrid and stimulant, partly from the acrimony it has acquired by corruption, and partly by the great number of insects that are very constantly generated in it in that state. In this corrupted condition, cheese can hardly be taken in such quantity as to be considered as alimentary; and with regard to the mode or degree in which, as is commonly supposed, it becomes a condiment influencing the digestion of other food in the stomach, Dr. Cullen professes himself unable clearly to explain. Cheese is often eaten, after having been toasted; or when a portion of its oil is separated, whilst the other parts are united more closely together. Many persons are able to digest this food pretty well; but it is certainly not easily digested by weak stomachs; and for those who can be hurt by indigestion, or heated by a heavy supper, it is a very improper diet. Cullen's Mat. Med. vol. i. pt. 1. c. 2.

Cheese, when new, is found to load the stomach, by reason of its moisture and viscosity; and when too old, it heats and inflames it by its salts. The physicians advise it to be eaten in small quantities: hence that Latin verse,

“Caseus ille bonus, quem dat avara manus.”

Dr. Quincy says, it cannot be too old: it is certain, the more it abounds with salts, the more will it contribute to digestion, and the clearing of the stomach of other food. Indeed some condemn all use of cheese: sheltering themselves under that ancient maxim, “Caseus est nequam, quia concoquit omnia se quam.”

The Laplanders make a sort of cheese of the milk of their rein-deer, which is not only of great service to them as food, but on many other occasions. Scheffer's Hist. of Lapl.

CHEESE-board, a circular piece of board, about an inch, or an inch and a half in thickness, upon which the new-made cheeses are placed on the shelves of the cheese-room. Cheese-boards should be made of such sorts of wood as are the least liable to warp, and be planed smooth on both sides, being of sufficient thickness to resist the effects of heat as much as possible.

CHEESE-cloth, the cloth in which the cheese is placed in the press, in order to undergo the operation of squeezing out the whey.

CHEESE colouring, is the material employed to give colour to cheeses, in order to their being more saleable. It is a substance said to be obtained from the skin or pulp of the kernel of the bixa of South America, or of the shrub when cultivated in our gardens. See BIXA. Of the proportion of this matter from the red pulp which covers the seeds, the

following account is given by Mr. Miller. The contents of the fruit are taken out and thrown into a wooden vessel, where as much hot water is poured upon them as is necessary to suspend the red powder or pulp, and this is gradually washed off with the assistance of the hand, or of a spatula or spoon. When the seeds appear quite naked, they are taken out, and the wash is left to settle; after which the water is gently poured away, and the sediment put into shallow vessels to be dried by degrees in the shade. After acquiring a due consistence, it is made into balls or cakes, and set to dry in an airy place until it be perfectly firm. Some persons first pound the contents of the fruit with wooden pestles; then covering them with water, leave them to steep six days. This liquor being passed through a coarse sieve, and afterwards through three finer ones, is again put into the vat or wooden vessel, and left to ferment a week; it is then boiled until it be pretty thick, and when cool spread out to dry, and then made up into balls, which are usually wrapped up in leaves. And when of a good quality, it is of the colour of fire, bright within, soft to the touch, and capable of being dissolved in water. But the substance mostly made use of, and which is purchased from the druggists, is a preparation made by them, in which madder is probably a principal ingredient; it is of a brick colour, and a hard compact texture.

In regard to the method of using the soft or genuine sort, it is simply by dissolving such a quantity as is necessary, in a small portion of milk, allowing such particles as will not dissolve to settle to the bottom. The milk thus coloured is then poured off, and mixed with that which is to be made into cheese. But when the hard preparation is used, pieces of it are frequently under the necessity of being rubbed against a hard smooth even-faced pebble or other stone, being previously wetted with milk to forward the levigation, and to collect the particles as they are loosened. For this purpose a dish of milk is generally placed upon the cheese-ladder; and as the stone becomes loaded with levigated matter, the pieces are dipped in the milk from time to time, until the milk in the dish appears to be sufficiently coloured. The stone and the “colouring” being washed clean in the milk, it is stirred briskly about in the dish, and having stood a few minutes for the unsuspended particles of colouring to settle, is returned into the cheese cowl; pouring it off gently, so as to leave any sediment which may have fallen down in the bottom of the dish. The grounds are then rubbed on the bottom of the dish, and fresh milk added, until all the finer particles be suspended; and in this the skill in colouring principally consists. If any fragments have been broken off in the operation, they may remain at the bottom of the dish: hence the superiority of a hard, closely textured material, which will not break off or crumble in rubbing. The price of this material is usually about ten-pence an ounce; which will colour about twenty thin cheeses of from ten to twelve pounds each. The colouring therefore costs about a half-penny a cheese, or a little more.

CHEESE-cowl, the name of the milk cooler or vessel in which the curd is formed.

CHEESE-knife, a large sort of knife or spatula made use of in some dairies, for the purpose of cutting or breaking down the curd while in the cheese-tub, in order to its being placed in the vat to undergo pressure.

CHEESE-lep, the bag in which dairy women prepare and keep the rennet for making cheese. See RENNET.

CHEESE-press, an engine or press employed in cheese dairies, for the purpose of forcing the whey from the curd when in the cheese vat, by means of pressure. It is observed by the author of the “Rural Economy of Norfolk,” that in making cheese much depends on the construction and power

of the press, the excellency of which arises from its pressing level. If it have too much play so as to incline and become tottering or leaning one way or another, and do not fall perpendicularly upon the cheese-board, one side of the cheese will frequently be much thicker than the other; and, what is still worse, one side will be thoroughly pressed, while the other is left soft and spongy. The power of this machine may be given in different ways, as by the screw, the lever, or by a dead weight; and it ought always to be proportioned to the size and thickness of the cheese. The author just mentioned, found one that was constructed on these principles, highly useful and convenient, the power of which was a dead weight of stones contained in a cubical box moving in grooves, so as to keep its bottom horizontal; the medium weight, one hundred weight and two quarters, but regulated by the stones agreeably to the thickness of the cheese or cheeses to be pressed. In the vale of Gloucester, he says, the presses are mostly loaded with gravel in cubical boxes, raised by rollers; and made to fall horizontally on the cheeses. At Maberley they use, he observes, a double press; each division of it holding six or eight of these cheeses. A press of the most general kind is represented in *Plate VIII. fig. 1.* in which *a b* is the press, *c e* and *f g* levers moveable about the points *d e f g* by applying the hand at *e*; *s*, the stone or weight, and *h* the cheese to be pressed. And a press upon an improved plan may be seen at *fig. 2.* by which the pressure is given with greater ease and exactness.

CHEESE-rack, a sort of contrivance made for the purpose of receiving and containing such cheeses as have become sufficiently firm and coated. These racks may be constructed in different ways and forms, but Mr. Marshall thinks that the plate-rack form, with four or five tiers one above another, is the best for this purpose. If the cheeses intended to be placed in it be nearly of one size, the rack should be made of the same width at the top as the bottom; but if they be of different sizes, it ought to be made narrower at the top than at the bottom; and if they be of different thicknesses as well as of different diameters, the spaces for the respective cheeses should likewise be varied. A small rack may be slung with a rope and pulleys at each end of the cheese-room, so as to be drawn up and lowered down at pleasure; but a large one is difficult to sling, in a common room, in that manner; it ought therefore to stand on legs about two feet high, with a broad bare board projecting over the legs, so as to prevent vermin from climbing up into the racks: this kind saves much labour, he says, in turning and collecting the cheese into a small compass, and putting it out of the way of vermin.

CHEESE-Renning or *Rennet*, in *Botany*. See *GALIUM verum*.

CHEESE-Rennet or *Runnet*, in *Rural Economy*. See *RENNET*.

CHEESE-Room, a room appropriated for the reception of cheeses while they remain in the hands of the maker. Rooms of this kind are frequently fitted up with shelves; and in some an entire lining is put round the walls, with a stage or two in the middle, gangways being left wide enough to pass conveniently between them. In one dairy in North Wiltshire, Mr. Marshall says, he remarked an admirable arrangement of cheese-rooms. The shelf-room was immediately over the dairy-room, and the lofts over the shelf-room with trap-doors in each floor, to hand the cheeses through. This, he observes, is a plan which saves much awkward carriage, and which might be adopted with advantage in every way which will admit of it. These rooms should always be sufficiently roomy and situated conveniently for the dairy. See *DAIRY*.

CHEESE-Tongs, a sort of wooden frame placed occasion-

ally on the cheese-tub, on which the vat is set in order that the whey may drain from the curd, before it is put into the vat.

CHEESE-Tub, the tub in which the curd is broken and prepared for being made into cheese. Tubs of this kind are of different shapes, as round and oval; and of such capacities as are requisite for containing such quantities of milk as are intended to be converted to the purpose at one time by the dairy-woman.

CHEESE-Vat, is a sort of strong kind of wooden hoop with a bottom, which, as well as the sides, is perforated with holes through which the whey escapes during the time the cheese is pressing. The cheese-board is so formed as to pass within the hoop part of the vat, and receive the weight or power of the press. Dairies, Mr. Marshall observes, should be well furnished with vats of different sizes, as where three or four cheeses are made at each meal, a number of vats become actually necessary: and, if there be not some to spare they cannot be so well suited to the stock of curd which may be had; and keeping a little overplus curd from meal to meal may often, he thinks, save a whole cheese.

CHEEVANCE. See *CHEVISANCE*.

CHEF. See *CHEIF*.

CHEF, *chief*. In the *French Service*, this appellation is bestowed in all military ranks from the highest to the lowest on every individual charged or entrusted with a particular command or a particular inspection or superintendence, as well in time of peace as in that of war. Thus the general, who commands an army *en chef*, the officer who commands a corps of the army or a detachment *en chef* or in chief. And the oldest foldier of a barrack-room, tent, &c. as the corporal or lancepsado, who has the management of the provisions, is called *chef de chambre*.

CHEF d'escadre, an officer who commands any division of an army or of a fleet. The duty of a naval officer commanding a squadron at sea is similar to that of a brigadier general on shore. *Chefs d'escadre* sit on all general courts martial, and rank according to the dates of their commissions.

CHEF de files. The men, who form the first or front rank of a platoon, a division, a battalion, a company, &c.

CHEF du nom et armes. The chief of the name and arms. When an illustrious family had several branches, he who represented the oldest was distinguished by this appellation, even though the family and its branches were of sovereign rank. This distinction still exists in all nations that have nobles and gentlemen, and unquestionably originated from military services and celebrity acquired in arms.

CHEF, St., in *Geography*, a town of France, in the department of the Isere, and district of La-Tour-du-Pin; 2 leagues N.N.W. from it.

CHEF-d'œuvre. See *MASTER-piece*.

CHE-FANG, in *Geography*, a town of China of the third rank, in the province of Se-tchuen; 10 miles N.W. of Han.

CHEF-BOUTONNE, a town of France in the department of the Two Seves, and chief place of a canton, in the district of Melle; 8 miles S. of Melle. The place contains 1422 and the canton 8787 inhabitants; the territory includes 217½ kilometres and 17 communes.

CHEFATE-KAN, a town of Asiatic Turkey, in the province of Caramania; 100 miles E. of Cogni.

CHEFFES, a town of France, in the department of the Maine and Loire; 3 leagues N. of Angers.

CHEFONTAINES, CHRISTOPHER DE, (*Lat. A capite Fontium*), in *Biography*, a learned Franciscan, was born in the 16th century in the diocese of Laon in Brittany, entered in early

life among the Cordeliers, and having completed his studies at Paris, commenced preacher in his own country. In the exercise of this office he acquired reputation, and in 1562 became provincial of his order in Brittany. At Rome, whither he afterwards removed, he was guardian of his province, and teacher of divinity in the convent of Ara Coeli. In 1571 he was chosen general of his order, and as such conducted himself during 8 years with great zeal and prudence. Pope Gregory XIII. created him archbishop of Caesarea in 1579; and having remained in that diocese for 7 years, he took a journey to Flanders; and at Antwerp converted many heretics by his preaching, and confirmed others that were wavering. Under a charge of deviating from sound orthodoxy, he repaired to Rome in 1587, for the purpose of vindicating his character; and though his peculiar opinions were never formally examined, he was treated with respect by five successive popes. At length he died in a convent at Rome, in 1595, at the age of 63. Chefontaines, during a great part of his life was a hard student: he understood 6 languages besides his native Bas Breton, and was well acquainted with the theology and philosophy of his time. He reasoned strongly and wrote in a good style. One of his first works was a letter in French, afterwards translated into Latin, in defence of free will; but his most curious treatise was entitled "De necessaria Theologiae scholasticae Correctione;" in which he discusses the question whether the words "this is my body, this is my blood," were those by which our Saviour consecrated the bread and wine at his last supper. Having previously asserted in a sermon that the repetition of these words by the priest was insufficient for the consecration of the elements in the eucharist without benediction and prayer, he had incurred the charge of heterodoxy. His other works it is now needless to recite. Du Pin.

CHEGGIO, in *Botany*, a name given to a sort of lactescent plant, common in Cambaya. It is reported by authors, and by the people of the country, that those knobs and beards of this plant which grow facing the north, are a very noble medicine in the cure of apoplexies and other nervous disorders, but that those knots and beards of the same plant which look southward are poisonous. Redi proved some of this famous plant, and gave it several fair trials, but found the history of its nature and effects wholly false.

CHEGIASAR, in *Geography*, a town of Persia, in the Irak-Agemi; 100 miles W.S.W. of Amadan.

CHEGOMEGAN, a point of land about 60 miles in length, on the south side of lake Superior; about 100 miles W. of this cape a considerable river falls into the lake; upon its banks virgin-copper is found in great abundance.

CHEHAW, a town of America, in the state of Georgia; 165 miles W.S.W. of Augusta.

CHEILOCAE, in *Surgery*, literally signifies the lip-evil. It is a swelling of the lips, to which the inhabitants of northern countries, especially children, are said to be very subject; particularly those in England and Ireland, if we may credit Castellus.

CHEIRANTHUS, in *Botany*, (from the Arabic *keiri*, altered by Linnæus, without any evident propriety, into a name with a Greek form, *quasi* from *χερς*, a hand, and *ανθος*, a flower), Linn. Gen. 815. Schreb. 1091. Juss. 238. Vent. vol. iii. 103. Gært. 835. Class and order, *tetradynamia siliquosa*. Nat. ord. *Siliquosa*, Linn. *Crucifera*, Juss. Vent.

Gen. Ch. *Calyx* perianth four-leaved; leaflets ovate-oblong, concave, erect, parallel-converging, deciduous; two outer ones gibbous at the base. *Cor.* four petalled, cruciform; petals roundish, longer than the calyx; claws the length of the calyx. *Stam.* filaments six, awl-shaped, parallel,

the length of the calyx; two of them gibbous within, the leaflets of the calyx a little shorter; anthers erect, bifid at the base, acute, and reflexed at the tip; a nectariferous gland surrounds the base of the shorter stamen on each side. *Pist.* germ prismatic, tetragonous, the length of the stamens, marked on each side with a tubercle; style compressed; stigma oblong, two, three, or four-cleft, thickish, permanent. *Peric.* filique long, compressed, the two opposite angles obliterated, and marked with a small tooth, two-celled, two-valved, terminated by the style. *Seeds* several, pendulous, alternate, somewhat egg-shaped, flat.

Ess. Ch. Germ furnished on each side with a small glandular tooth. Calyx closed; two of its leaflets gibbous at the base. Seeds flat.

Obs. The little tooth on each side of the germ, in some species, becomes nearly evanescent, in others increases in size.

Sp. 1. *C. erysimoides*, Linn. Sp. Pl. 1. Mart. 1. Willd. 1. Jacq. Amst. tab. 74. (*C. sylvestris*, Lam.? *Leucoium luteum sylvestre angustifolium*, Bauh. Pin. 202. *L. sylvestre*, Clus. Hist. i. p. 299. Bauh. Hist. ii. p. 873. *Erysimum sylvestre*, Scop. Car. n. 630.) Wild wallflower. "Leaves lanceolate, toothed, naked; stem upright, quite simple; filiques four-cornered." Linn. Root biennial. Stem in the wild plant usually simple, from six inches to a foot high. Leaves linear or oblong-lanceolate, acute, generally quite entire, but sometimes furnished with one or two small teeth; petals emarginate; style none. A native of Germany, Switzerland, France, &c. 2. *C. Armeniacus*, Bot. Mag. Pl. 835. "Stem frutescent, divided; leaves aggregate, gash-toothed, broader upwards; filiques four cornered, terminated by the thickened two-lobed stigma." Nearly allied to the preceding, but differs in having a shrubby divided stem, leaves collected in a circle at the extremity of the branch, and more deeply toothed, and flowers in longer racemes. The peduncles of the flowers are horizontal, of the fruit assurgent. Flowers sweet-scented. Raised in 1805 by Mr. Lodiges of Hackney, from seeds gathered on mount Ararat. 3. *C. Helveticus*, Mur. Syst. Veg. p. 597. Mart. 2. Willd. 2. Jacq. Hort. tab. 9. (*C. boccone*, Allion. Ped. tab. 58. fig. 2. *C. hieracifolius*, β. Lam. 5. Hesperis. Hall. Helv. n. 450. *Leucoium minus angustifolium*, Bocc. Mas. tab. iii.) Swiss Wallflower. "Leaves lanceolate, toothed, naked; stem erect; filique four-cornered, acuminate with the style." Root biennial. Stem more shrubby than that of *C. erysimoides*, eighteen inches high, erect, somewhat angular. Leaves acute, thickish, usually somewhat rugged, nearly sessile, often quite entire, sometimes with a few teeth. Flowers smaller than those of *C. erysimoides*, and with less scent; petals not emarginate; stigma separated from the germ by a style. A native of Switzerland, flowering in May and June. 4. *C. alpinus*, Linn. Mant. p. 93. Mart. 3. Lam. 2. Willd. 3. (*Leucoium angustifolium alpinum*, flore sulphureo, Tourn. Init. 222. Allion. Pedem. 44. tab. 9. fig. 3.) Alpine wallflower. "Leaves linear, entire, somewhat downy." Linn. Root biennial. Stem generally simple. Leaves sometimes toothed. Flowers sulphur-coloured, large. A native of the Alps. 5. *C. lanceolatus*, Willd. 4. "Leaves oblong-lanceolate, quite entire; petals lanceolate; stem covered with soft hairs." Stem near a foot high, erect, quite simple, even; covered with wide-spreading hairs. Lower leaves oblong, obtuse, petioled; middle ones oblong-lanceolate, obtuse, lessened into a short petiole; upper ones sessile, narrower. Raceme with few flowers. A native of Tartary. 6. *C. Cheiri*, Linn. Sp. Pl. 2. Mart. 6. Lam. 1. Willd. 5. (*Leucoium luteum vulgare*, Bauh. Pin. 202.) Common wallflower.

CHEIRANTHUS.

wallflower. "Leaves lanceolate, acute, smooth; branches angular; stem shrubby." *Root* perennial, or biennial. *Stem* a foot and a half high, branched; branches rather upright. *Leaves* scattered, rather narrow, entire, smooth, greenish. *Flowers* yellow; calyx commonly tinged with a reddish brown or violet colour. *Seeds* with a membranous edge. Lam. This species has long been cultivated, and is universally esteemed for the beauty, durability, and fragrance of its flowers. These, as they appear under the head of cultivation, are single or double, larger or smaller, pale or deep yellow, ferruginous, yellow, or bloody; varieties which are perpetuated chiefly by cuttings or slips. A native of Europe. 7. *C. fruticulosus*, Linn. Mant. 94. Smith Flor. Brit. (*C. cheiri*, Hudf. With. Relh. Sib. *Leucoium luteum*, vulgo *cheiri*, Rai Syn. 291. *L. luteum minus fruticosus*, Barrel. Ic. tab. 1228.) Wild wallflower. "Leaves lanceolate, acute, greyish underneath; pubescence quite simple, pressed close down; stem shrubby; branches angular." *Root* perennial. *Stem* much branched; branches erect, leafy, greyish, bearing flowers near their summit. *Leaves* crowded, petioled, acute, generally quite entire, green above; lower ones somewhat serrated. *Flowers* yellow, sweet-scented; calyx purplish; petals emarginate. *Siliques* erect, roundish, greyish; style short; stigma emarginate. *Seeds* without a membranous edge. It differs from the preceding in having acuter leaves, greyish underneath; smaller petals; and recurved, rather rigid, not flaccid, loosely dependent capsules. Dr. Smith. A native of old walls in England and other parts of Europe. 8. *C. callosus*, Mart. 5. Willd. 7. Linn. jun. Supp. 296. "Leaves lanceolate, entire, callous; stem angular, shrubby." A native of the Cape of Good Hope. Thunb. 9. *C. striatus*, Mart. 4. Willd. 8. Linn. jun. Supp. 296. "Leaves linear, acute, smooth; stem shrubby, erect." Thunb. A native of the Cape of Good Hope. 10. *C. tenuifolius*, Mart. 20. Willd. 9. Hort. Kew. ii. p. 395. L'Herit. Stirp. i. p. 92. Narrow-leaved shrubby stock-gilliflower. "Leaves filiform, quite entire, somewhat silky; stem frutescent, branched." *Root* perennial. *Stem* a foot and half high. *Leaves* very narrow, spreading, acute; younger ones greyish. *Flowers* yellow; petals obtuse. *Siliques* linear, erect, terminated by the thick style; stigma obtuse, capitate. A native of Madeira, flowering in May and June. 10. *C. mutabilis*, Mart. 21. Willd. 10. Hort. Kew. ii. p. 395. L'Herit. Stirp. i. p. 92. Bot. Mag. Pl. 195. Broad-leaved shrubby stock-gilliflower. "Leaves lanceolate, acuminate, sharply serrated; stem frutescent; siliques peduncled. *Root* perennial. *Flowers*, at their first opening, white; sometimes inclined to yellow; in a few days becoming purple. A native of Madeira, flowering in March and April. 12. *C. apricus*, Willd. 11. "Hispid; leaves lanceolate, somewhat toothed at the base; siliques erect." *Root* perennial. Whole plant hispid, like the *asperifoliae*. *Stems* several from one root, about seven inches high, quite simple, somewhat woody. *Leaves* rather obtuse, sometimes quite entire. *Flowers* purple, peduncles spreading. *Siliques* stiff, smooth, linear, terminated by the thick style and two-lobed stigma. A native of Siberia. 13. *C. Chius*, Linn. Sp. Pl. 3. Mart. 3. Willd. 12. (*Hesperis chia*; Lam. 15. Tourn. Cor. 16. Dill. Elth. tab. 148. fig. 178. *Leucoium thlaspeos facie*; Herm. Par. tab. 193.) "Leaves inversely egg-shaped, veinless, emarginate; siliques awl-shaped at the tip." *Root* annual. *Stems* slender, much-branched, diffuse, prostrate at the bottom, oblique above, zig-zag, hairy. *Leaves* generally entire, sometimes a little serrated, scabrous about the edge. *Flowers* small, reddish, purple, or purple-violet, in terminal racemes; claws of the petals a

little longer than the calyx; expansion short, emarginate. *Siliques* slender, cylindrical, beset with short close-pressed hairs. A native of Greece, Barbary, and Spain. 14. *C. maritimus*, Linn. Sp. Pl. 4. Mart. 9. Willd. 13. Bot. Mag. 166. (*Hesperis maritima*; Lam. Tourn. Inst. 223. *Leucoium*; Pluk. phyt. 432. fig. 2.) Mediterranean stock, improperly called Virginia stock by the English gardeners. "Leaves elliptical, obtuse, naked, roughish; stem diffuse; rough." *Root* annual. *Stems* much branched, from five to seven inches high, divaricated, diffuse, rather rigid, rough with twin close-pressed hairs. *Leaves* obtuse, somewhat reflexed at the tip, green, rather rigid and rough, on long petioles; upper ones slightly toothed. *Flowers* lively red, changing to bluish purple, in a terminal raceme; calyx close, even; petals inversely heart-shaped; anthers in the throat of the flower. A native of the coast of the Mediterranean. This humble species continuing long in flower, is often used as an edging to borders, and is sometimes sown in patches with other annuals on the beds of the flower-garden, which it enlivens with the splendour of its blossoms. If sown in the autumn, it will come up early in the spring, and by varying the time of sowing it may be made to flower almost the whole summer. 15. *C. parviflorus*, Willd. 14. "Leaves lanceolate, repand-toothed; siliques sessile, horizontal, distant, forked at the tip." *Root* annual. *Stem* about seven inches high, erect, branched. *Leaves* green, pubescent, with stellated hairs, narrowing into a short petiole. *Flowers* pale violet, small, in a very long raceme. *Siliques* two inches long, round, terminated by two long awns with the short obtuse stigma between them. A native of Morocco; described by Willdenow from a living plant. 16. *C. incanus*, Linn. Sp. Pl. 6. Mart. 11. Willd. 17. (*Hesperis violaria*; Lam. *Leucoium incanum majus*; Pauh. pin. 200. *Viola*; Lob. Ic. 329. Stock-gilliflower. "Leaves lanceolate, quite entire, obtuse, hoary; siliques truncate at the tip, compressed; stem somewhat shrubby." *Root* perennial, sometimes biennial. *Stem* from fifteen to eighteen inches high, branched; branches cylindrical, straight, hoary. *Leaves* scattered, long, soft, clothed with a short down. *Flowers* pale or bright red, variegated or pure white, easily becoming double by culture, sweet-scented. A native of the sea-coast in France and Spain, but cultivated from a very early period in the English gardens for the beauty and splendour of its flowers. Numerous varieties have in consequence been produced. The principal ones mentioned by Miller are the queen's stock-gilliflower, the Brompton stock, the white stock, and the white wall-flower. 17. *C. fenestralis*, Linn. Sp. Pl. 5. Mart. 12. Willd. 18. Jacq. Hort. 2. tab. 179. (*Hesperis fenestralis*; Lam.) "Leaves crowded in heads, recurved, waved; stem undivided." Scarcely more than a variety of the preceding. *Root* biennial. *Stem* six inches high or more, shrubby, perfectly simple the first year, but afterwards divided at the top into two or three straight cylindrical branches. *Leaves* broader and shorter than those of the preceding. *Flowers* smaller and less sweet-scented. Native country unknown; first sown in the Upsal garden in 1753. It received its trivial name from its peculiar fitness to stand in windows. 18. *C. salinus*, Linn. Mant. 93. Mart. 10. Willd. 15. (*Hesperis salina*; Lam.) "Leaves lanceolate, obtuse, quite entire; stem erect; anthers included." *Root* perennial. Similar to *C. incanus*, but eight times smaller. Whole plant smoothly tomentous. *Stems* erect, enduring several years. *Flowers* purple with a yellowish throat; stigma obtuse, thickish, bifid, by no means slender. The scent of *C. incanus*. A native of the salt marshes of Siberia and Tartary. 19. *C. bicuspidatus*, Willd. 16. (*Hesperis orientalis* glasti-

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glaustifolium flore magno violaceo; Tourn. Cor. 16.) "Leaves lanceolate, acute, somewhat toothed, pubescent; siliques close-pressed, bicuspidate." Whole plant pubescent. Stem a foot and a half high, erect. Leaves sessile. Flowers resembling those of *C. incanus*, but the petals are obtuse, more lanceolate and a little longer. Siliques round, terminated by the erect two-lamellated stigma. A native of America. 20. *C. annuus*, Linn. Sp. Pl. 7. Mart. 13. Willd. 19. (*Hesperis æstiva*; Lam. *Leucoium incanum minus*; Bauh. Pin. 200.) Annual stock-gilliflower, or ten weeks stock. "Leaves lanceolate, somewhat toothed, obtuse, hoary; siliques cylindrical, acute at the tip; stem herbaceous." Nearly allied to *C. incanus*. Root annual. Stem about a foot and a half high, cylindrical, straight, branched near the top. Leaves long, narrowed towards the base. Flowers large, red, purple or white, of an agreeable smell, peduncled in terminal racemes; petals a little emarginate. A native of the sea-coast in the south of Europe. Commonly cultivated in gardens, where if sown in succession in February, March, and May, they continue in flower the greatest part of the summer. 21. *C. littoreus*, Linn. Sp. Pl. 10. Mart. 14. Willd. 20. (*Hesperis littorea*; Lam. *H. maritima angustifolia incana*; Tourn. Inst. 223. *Leucoium*; Bauh. Pin.) Sea stock-gilliflower. "Leaves lanceolate, somewhat toothed, somewhat downy, somewhat fleshy; petals emarginate; siliques downy." Root annual. Stem about a foot high, alternately branched, hoary. Leaves alternate, channelled, obtuse, hoary. Flowers in terminal racemes, purple, peduncled. Siliques slender, cylindrical. A native of the sea-coasts in France and Italy. 22. *C. contorplicatus*, Willd. 21. "Root-leaves sinuate-toothed; stem ones lanceolate, obsoletely toothed; siliques revolute, hispid." Stem about half a foot high, branched, divaricated, slightly pubescent. Root and stem-leaves almost pinnatifid. Flowers violet. Siliques round, rather obtuse, twisted. A native of Siberia towards Caucasus. 23. *C. leucanthemus*, Willd. 22. "Leaves pubescent; root-ones runcinate, stem ones linear, somewhat toothed; siliques erect." Whole plant hoary. Stem a foot high, erect; branches erect. Flowers white, small; siliques round, terminated by the short style, and capitate emarginate stigma. A native of the north of Persia. 24. *C. triflis*, Linn. Sp. Pl. 8. Mart. 15. Willd. 23. Bot. Mag. Pl. 729. (*Hesperis angustifolia*; Lam. *Leucoium*; Barrel. ic. 999. Bocc. Mus. tab. 111.) "Leaves linear, somewhat sinuated; flowers nearly sessile; petals wavy; stem somewhat shrubby." Root perennial. Stem five or six inches high, slightly cottony. Leaves alternate, sessile, soft, slightly cottony. Flowers in a loose raceme, first of a pale russet colour, then dull purple with brown veins; petals curled and somewhat toothed; scentless in the day time, odorous in the evening. A native of the sea-coast in the south of France, Spain, and Italy. 25. *C. trilobus*, Linn. Sp. Pl. 9. Mart. 16. Willd. 24. (*Hesperis triloba*; Lam. *Leucoium maritimum minus*; Bauh. Pin. 201.) "Leaves lanceolate, obtuse; calyxes smooth; siliques knotted, mucronate, smooth." Root annual. Stems seven or eight inches high, branched, spreading, hoary. Leaves with one or two teeth on each side. Flowers rather large, purple. Siliques linear, a little cylindrical, torulose, keeled at the futures. A native of Spain and the isles of Hieres. 26. *C. pulchellus*, Willd. 25. (*Turritis orientalis*; Tourn. Cor. 16.) "Leaves lanceolate, smooth, ciliate-toothed, stem quite simple." Root perennial, filiform, creeping, fibrous. Stems several, about two inches high, quite simple. Leaves alternate, nearly sessile, marked with four lines, attenuated

both ways. Flowers yellow, large. A native of Cappadocia. 27. *C. pinnatifidus*, Willd. 26. Whole plant beset with elevated points, and long, white, scattered hairs. Stem half a foot high or more, branched near the top. Flowers red. A native of Siberia. 28. *C. tricuspidatus*, Linn. Sp. Pl. 12. Mart. 17. Willd. 27. Gært. tab. 143. (*Hesperis tricuspidata*, Lam. pl. 564. fig. 2. *H. maritima latifolia*, Tourn. Inst. 223. *H. marinum*, Cam. hort. tab. 87. Moris. 2. tab. 8. fig. 13.) "Leaves lyre-shaped; siliques three-toothed at the tip." Root annual. Stems a little declining, cylindrical, whitish, moderately branched, from four or five to eight or ten inches high. Leaves deeply sinuated at the edges, hoary. Flowers purple violet, in a short terminal raceme, on short peduncles. Siliques about two inches long, terminated by three short diverging awl-shaped points or awns. Seeds ten or twelve in each cell; egg-shaped, compressed, not margined. Gært. A native of the south of France, Italy, and Spain. 29. *C. tomentosus*, Willd. 28. (*C. ann. littoreus*; Pallas it. 2. app. n. 115. tab. K. fig. 2. Germ. tom. 2. pl. 12. fig. 2. Fr.) "Leaves downy, pinnatifid, obtuse; siliques round, downy, even." Whole plant hoary, and clothed with a thick down. Root simple, rigid, a little branched at the top. Stems several, about nine inches high, ascending, nearly simple. Leaves thickish, oblong; segments obtuse. Flowers pale yellow, sweet-scented, peduncled, occupying half the stem. Siliques linear, long, sometimes torulose, terminated by the two-lobed stigma; when ripe extremely rigid, almost woody, divaricated. Pallas. A native of the coasts of the Caspian and about the Irtysh, flowering early in spring, and ripening its seeds in June. 30. *C. odoratissimus*, Willd. 29. Marschall ab Bieberst. Casp. 116. n. 22. Pall. ind. taur. in Nov. Act. Petrop. 10. p. 314. "Leaves downy, lyrate, sinuated; siliques compressed, downy, even." Root perennial. Whole plant hoary with down. Stem somewhat shrubby, branched at the base. Leaves oblong, very various in shape, generally sinuate-pinnatifid, with obtuse entire segments; sometimes deeply pinnatifid, sometimes unequally toothed; those about the root sometimes quite entire. Flowers the colour and size of *Hesperis tristis*, sweet-scented in the evening. Siliques terminated by the thick, oblong, bilamellated stigma. A native of naked hills in the north of Persia and Tauris. 31. *C. sinuatus*, Linn. Sp. Pl. 11. Mart. 18. Willd. 30. Eng. Bot. pl. 462. (*Hesperis sinuata*, Lam. *Leucoium maritimum sinuato folio*; Bauh. Pin. 201. Tourn. 221.) Prickly podded stock gilliflower. "Leaves downy, obtuse, sinuated; those on the branches entire; siliques prickly." Root biennial. Whole plant clothed with hoary, stellated, intricate down. Stem two feet high, branched, spreading, round. Leaves a little succulent, alternate, oblong, attenuated at the base. Flowers reddish lilac or purple, resembling those of the garden stock, but fragrant only in the evening; calyx compressed, purplish; petals emarginate; stigma four-cleft. Siliques long, compressed. Seeds numerous, flat, with a membranous border. A native of the sea-coasts of Wales, Cornwall, France, and Spain. 32. *C. taraxacifolius*, Willd. (*C. anchius*, Pall. itin. 1. app. n. 116. *Hesperis laxa*, Lam.) "Leaves pubescent, lower ones runcinate-pinnatifid, upper ones sharply toothed." Stem a finger's length, quite simple, erect, pubescent. Leaves green, clothed with short scattered close-pressed hairs. Flowers violet or purple. Willd. from a dried specimen. La Marck's description is formed from a living plant in the Royal Garden at Paris, which seems to have been rendered larger and smoother by cultivation. Root annual. Stems two or three feet high, much branch-

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ed, loose, rigid, quite smooth near the top. *Leaves* smooth on both sides. *Flowers* very small. *Siliques* three inches long, slender, often bowed round, smooth; stigma trifid, but so small, that its lobes are scarcely visible. A native of Tartary, on the banks of the Volga. 33. *C. quadrangulus*, Mart. 22. Willd. 33. L'Herit. Stirp. 1. tab. 44. (*C. cornutus*; Lam. *C. montanus*; Pallas itin. 1. app. n. 115. "Leaves linear, quite entire; siliques sessile, oblong, quadrangular, terminated by a long style." *Root* biennial. *Stem* two or three feet high, simple, but sometimes with a few short branches at the top. *Leaves* scattered, long, narrow, recurved, a little glaucous. *Flowers* pale yellow, in spike-like racemes, calyx yellowish white, petals obtuse. *Siliques* not more than half an inch long, hairy, thick, four-cornered, two of the angles more elevated; style as long as the filique, bifid. A native of Siberia. 34. *C. cuspidatus*, Willd. 32. Marschall ab Bibers. Casp. p. 116. n. 21. (*Turritis montana filiquis latis*; Buxb. Cent. 2. tab. 33. fig. 1.) "Leaves lanceolate, toothed; stem straight, simple; siliques peduncled, stiffly upright, broadly two-edged, style twice the length of the filique." *Root* biennial. Whole plant pubescent. *Stem* six or seven inches high. *Lower leaves* petioled. *Flowers* pale yellow, smaller than those of the preceding. *Siliques* hoary, oblong, compressed, four-cornered. A native of hilly pastures about the Caspian Sea. 35. *C. Farsetia*, Linn. Mant. 94. Mart. 19. Willd. 34. Defont. atl. 2. tab. 160. (*Farsetia Ægyptiaca*; Turra. Farset. Venet. 1765. p. 1. tab. 1. Thlasp. fruticosum ramosum; Pluk. Alm. 365.) "Siliques oval, compressed; leaves linear-lanceolate; stem shrubby, erect." *β. C. linearis*; Forsk. descr. 120. *Root* perennial. *Stem* a foot high, hoary, stiff, branched. *Leaves* alternate, sessile, acuminate, quite entire, hoary, or somewhat silvery. *Flowers* in somewhat lateral stiff racemes, the colour of *C. tristis*, fragrant in the evening, and calyx oblong, green; petals linear, rounded, quite entire, oblique. *Silique* oval, flatly compressed, resembling that of *Lunaria*. A native of Egypt and Arabia.

CHEIRANTHUS lacerus. See *HESPERIS lacera*.

CHEIRANTHUS turrifolius, hieracifolius et paniculatus, Lam. See *ERYSIMUM cheiranthoides, hieracifolium et repandum*.

CHEIRANTHUS Gron. virg. See *ARABIS lyrata*.

CHEIRANTHUS Africana, Comm. See *MANULEA cheiranthus*.

Obs. The essential character of this genus, like that of most of the other genera in this natural order, is by no means well-defined. Linnæus makes it chiefly consist in the glands on each side of the germ. La Marck considers this particular as too inconsiderable, and too uncertain to constitute a genus; and asserts, that two distinct sections of plants are improperly united by Linnæus under his *Cheiranthus*. He therefore pays no attention to the glands, and includes under his genus only those species which have yellow flowers and four-cornered siliques, removing to *Hesperis* those which do not possess these characters, and admitting some of Linnæus's *Erysima*. Ventenat and Du Tour, in Nouv. Dict. add to the character of *Cheiranthus*, "seeds with a membranous edge," which, according to them, is not to be found in the true *Hesperides*. Du Tour, in consequence of this decision, determines the colour of the flowers to be of no consequence, and replaces among the *Cheiranthi*, the *incanus*, *fenestratus*, and *annuus*, which have such a seed; and suffers the *salinus*, *maritimus*, and *chius*, to remain under *Hesperis*, because their seeds have no membranous edge. But in so doing, he surely separates plants which nature has closely united. In the present state of the science, it appears to us most eligible to adhere to the ar-

rangement of Linnæus. The confusion cannot be removed till some master-hand shall undertake a thorough investigation of the whole family.

CHEIRANTHUS, in *Gardening*, comprehends plants of the ornamental kind, as the Wall-flower and Stock Gilliflower.

There is a great number of species; but those mostly cultivated for ornament are the common wall-flower (*C. cheiri*); the queen's stock-gilliflower (*C. incanus*); the clutter-leaved dwarf stock gilliflower (*C. fenestratus*); the annual stock gilliflower, or ten week stock (*C. annuus*); and the dwarf annual stock gilliflower, or virgin stock, (*C. maritimus*.) The first sort has tough fibrous roots and a woody upright durable stalk divided into many erect angular branches, forming a bushy head from one to three feet in height, furnished with green spear-shaped leaves, and terminating in numerous spikes of flowers, varying in colour in different varieties. It is a native of Switzerland.

The chief varieties are, the common dwarf yellow with a low bushy head; the large yellow with a branchy stem forming a bushy head; the large yellow, bloody, with a branchy head; the true bloody, with a branchy stem; the narrow-leaved straw-coloured; the variegated-leaved yellow; the winter; and the white, having a very branchy greenish stem, and bushy-headed: the flowers in each variety single or double.

The second sort has a naked white root, an upright strong abiding woody stem from one to three feet in height, branchy at top, with spear-shaped obtuse hoary leaves, and the stems and branches terminated by spikes of flowers. It is a native of Spain. The flowers vary in their colour; some being of a pale red, others of a bright red, and some curiously variegated, but those of the bright red are generally held in the highest esteem. And there are likewise other varieties, as the *scarlet Brompton stock*, with a strong upright single stem, from one to three feet high, crowned by a cluster of long thick leaves and erect spikes of large scarlet single and double flowers:—the *white Brompton stock*, with the same stem and long erect spikes of large elegant flowers:—the *purple or Twickenham stock*, which has a thick stem a foot and a half or two feet high, very branchy upwards, and all terminated by erect spikes of purple single and double flowers, purple blood-spotted single and double flowers, variegated purple and white flowers:—the *wall flower leaved or shrubby stock*, which has a shrubby firm stem from a foot to a yard high, dividing into many short branches, forming a bushy head, all terminated by erect spikes of pure white single and double very fragrant flowers, whitish flesh coloured flowers, whitish purple flowers, and whitish red spotted flowers.

The third sort has a shrubby stem from six to eight inches in height, and nearly of the thickness of the little finger, straight, rigid, round, being covered with leaves, hoary with nap, dividing at the top into two or three very short alternate branches; the leaves are scattered, petioled, lanceolate, bending this way and that; the flowers alternate, nearly the size of those in the common stock, of a purple colour; they appear from May to July.

The fourth species rises with a round smooth stem about two feet in height, dividing into several branches at the top, the leaves lanceolate hoary, rounded at the end, nearly opposite or alternate, or three or four together of unequal sizes; the flowers produced in loose spikes at the ends of the branches, placed alternately. It is a native of the south of Europe. And of this sort there are varieties with red, purple, white, and striped single flowers, as well as with double flowers of the same colours.

The fifth species has the stalks six or eight inches in height,

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height, very much branched, divaricated, somewhat stiff, rugged, with twin appressed hairs; the leaves oval lanceolate, somewhat reflected at the tip, green on rather long petals, stiffish, obscurely subdentated in the upper ones; the branches terminated by spikes of red flowers, turning purple. It is a native of the sea coast of the Mediterranean. It is sometimes improperly termed virginia stock.

Method of Culture. These plants are all capable of being raised without much trouble or difficulty.

Method of Culture in the Wall-flower kind. These plants may be easily increased by seeds, slips, or layers; but, in order to have good flowers, very great care should be taken to have the seeds collected from the best plants; as such as are purchased from the seeds-men can seldom be fully depended upon for the purpose. The seed in this sort is less liable to produce double flowers than in the succeeding kind.

The seed should be sown in the spring season, as in April or the following month, either in the situations where the plants are to remain, or on beds of earth that have not been enriched by manure, being covered lightly in; but the first is the better practice. When the plants appear, frequent waterings should be given to them in dry weather; and when they have attained sufficient growth, where the bed method is practised, they should be thinned out during a wet season in the latter end of summer or beginning of autumn, and be replanted in the situations where they are to flower, or be pricked out in nursery beds, nine inches distant, to remain till the following spring, to be removed with balls of earth about their roots to the places where they are to flower: but the first is the most advisable method, as they do not succeed so well by removing. The bed method is chiefly in use with the market-gardeners, who cultivate the flowers for sale in large quantities. The slip mode of raising the plants is chiefly practised in perpetuating the fine double flowers. The slips are made from the side-shoots that have no flowers, which, after being divested of their lower leaves, are planted in the situations where they are to remain, or in beds, to the depth of three or four inches, any time from April to May, slight waterings and shade being given. In the autumn those in the beds should be removed into separate pots, to have the occasional protection of a frame in the winter, where the weather is very severe.

The young, tender, and more pliable branches may be laid down into the ground in the usual manner any time from May till the end of June, a little water being occasionally given when the weather is dry. They should afterwards be taken off when they are well rooted, and be planted out either where they are to remain, or in pots; or, what is the best practice, in both ways.

These two last methods, however, seldom afford plants that have so good flowers as those raised from seed, being mostly weaker and furnished with shorter spikes of flowers. They should therefore be chiefly confined to those varieties that cannot be raised with certainty from seed.

When these plants are intended for the purpose of ornamenting and affording variety on walls, ruins, and other places of this sort, the seed should constantly be sown upon them in the autumn or very early spring, covering it in with a little earth to the depth of half an inch. They will afterwards propagate themselves by shedding their seed, and continue for a great length of time in such places.

Where they are cultivated in the vicinity of large towns, for the purpose of sale, it is the practice, especially with the market-gardeners around London, to prick the young plants out of the seed-beds into nursery rows at the distance of ten or twelve inches, and nine or ten from plant to plant; and where they grow too luxuriantly in these situations,

they are again removed about August, in order to check their too full growth, and by that means render their heads more bushy. They are usually exposed for sale, with small balls of earth about their roots, when just beginning to put forth bloom, so as that their colours and the properties of their flowers can be discerned in some degree.

And where a blow of the double feeding sort is desired, they should be placed in pots, with balls of earth to their roots as soon as their double flower-buds appear, giving them a little water and proper shade, till they become established again in the earth or mould.

These plants in general succeed best and continue longest, where the soil is of the poor and rather calcareous kind. In rich soils they soon decline and go off.

Method of Culture in the Stock Gilliflower Kind.

In these plants the work of raising them may be performed exactly in the same manner as in the wall flower sort; only the seed should always, as much as possible, be sown where the plants are to remain, or the plants be pricked out into them while they are very young, as in their more advanced growth they never succeed well when removed, or are of so long duration; as their roots are sticky and but slightly provided with fibres. When the removal of the plants is practised at a late period, it should constantly be done with large balls of earth to their roots, or else they are very apt to be destroyed.

And in the slip or layer methods, as practised for the different varieties, the plants seldom grow so freely or become so fine as those raised from seed. The soils on which they are found to succeed best, are such as are fresh, and which have not been enriched by manure. In rich soils they soon disappear.

But both these species and their varieties, in order to have a good show of flowers, and the best and most perfect plants, should be raised annually in the different modes, as; in whatever way they are increased, they always afford the finest flowers the first season of their complete flowering, continuing to decline afterwards.

And such of the double sorts of the different kind as have been potted, should be protected during the winter season, either in frames for the purpose, or some other contrivance; a free supply of fresh air being always admitted when the weather is suitable.

In order to have good flowers of this sort, great care should be taken to remove all the small and imperfect flowers from the seed-beds at the time of setting the plants out.

Method of Culture in the Annual Stock Kind.

In these sorts of plants the work is accomplished by sowing the seeds at suitable times, so as to produce successions of flowers during the summer and autumn, from the beginning of February till the latter end of May, covering the seed in lightly. The first and second sowings should be made on a very gentle hot-bed, or in pots placed in it, or in frames, to be protected in the night; but the others may in general be performed in the places where the plants are to flower, or in beds, to be afterwards pricked out or removed into pots, or where they are to remain and blow. The former is, however, the best practice where it can be employed, as removing always injures the growth of the plants. And in sowing and planting them out in the borders, or other parts of pleasure grounds, it is usual to put them in, in patches, of five or six in each patch, disposing them in a varied manner, in different parts of them.

The plants of the early sowings will mostly be in a state to be planted out in pots or on the borders in the beginning of May, a little water being given at the time, when the

weather is dry. They are always proper to be set out when they have attained three or four inches growth, and have several leaves, and should never be delayed much longer.

In cases where these plants are raised by themselves for show, it is the practice to plant them in rows in beds four feet wide, ten or twelve inches apart each way, care being taken to keep them clear from weeds, and duly watered in dry weather afterwards.

In order to have these plants to flower in the autumn and winter, some of them should be potted about the latter end of July, and placed in a warm situation, occasional waterings being given; and in the beginning of autumn be removed under the protection of the green-house, or good garden frames; due supplies of fresh air being admitted when the weather is suitable.

Much caution is also necessary in the culture of these flowers, not only to chuse good seed, but to remove all the bad and imperfect plants as soon as possible from the beds, or other places where they are grown, as without this the plants are seldom good.

And in the fourth species the plants may likewise be increased by sowing the seeds at different times, as in the above sort, chiefly in the place where they are to flower, and a few in pots to be set out with others of similar growth.

The fifth sort may be raised and managed in the same methods as the two first.

It is advised, in order to provide good seed of the three first species, that great attention should be paid to have it collected from those single plants which have the largest flowers, with the deepest and brightest colours. Some suppose it advantageous to take it from such plants as have rather a tendency to the double kinds. The branches should be separated when dry, as the seeds become perfectly ripened, and be tied up in small bunches, and hung up in a dry airy situation, till the seed is fit to be rubbed out and put up for use, which should always be done as soon as it is in a fit state.

But in the two last species nothing further is necessary but to take it, when perfectly ripened, from the best plants of the respective kinds.

All the species and varieties of these plants are highly ornamental, but particularly the double flowering sorts, being introduced not only in the more open exposures of the clumps and borders of the pleasure-grounds and gardens, where variety is wanted; but in other places contiguous to the house, for the delightful smell they afford while they are in blow, which is a considerable length of time.

And the last species is sometimes made use of as an edging, and the third as an ornamental plant in the windows of bed-chambers, and other places where plants in pots are necessary.

CHEITO, in *Geography*, a town of Persia, in the province of Faristan; 120 miles S. of Schiras.

CHEITORE, a town of Hindoostan, in the province of Oudipour, considered by major Rennel as synonymous with Cheitore, subject to the Rana, or chief prince among the Raj-poots, and reckoned the first among the Raj-poot states. The whole of this province, and the adjacent tract of country in the soubah of Agimere, consist of high mountains divided by narrow valleys; or of plains environed by mountains, accessible only by narrow passes and defiles; and, in effect, one of the strongest countries. It has, however, an extent of arable land sufficient for the support of a numerous population, and is blessed with a mild climate, being between the 24th and 28th degrees of latitude. It is represented as a country likely to remain for ever in the hands of its

present possessors, and to prove the asylum of the Hindoo religion and customs. Notwithstanding the attacks that have been made upon it by the Gaznavide, Patan, and Mogul emperors, it has never been more than nominally reduced; and such are the strength of its fortresses and the independent spirit of its inhabitants, that every war made on these people, even by Aurungzebe, ended in a compromise, or defeat, on the part of the assailants. It first fell into the hands of the Mahometans in 1295, when Alla had possession of the throne of the Moguls, and began his plan of conquest by the reduction of Guzerat.

Cheitore was the capital of the Rana in the days of his greatness; it was then a fortress and city of great extent, situated on a mountain; but it has been in ruins ever since the time of Aurungzebe in 1681; and had once before experienced a like fate from the hands of Achar, in 1567. Rennel places it in N. lat. 25° 21'. E. long. 74° 56'. It is 300 miles S.W. of Agra; 76 S. of Agimere; 601 W. of Benares; 547 N. of Bombay; and 1168 by Moorshedabad, and 1063 by Birboom, N.W. of Calcutta.

CHEIWAN, a town of Arabia; 40 miles S. of Saade.

CHE-KANG, a town of China, of the third rank, in the province of Kiang-nan; 11 leagues E.S.E. of Tchitchou.

CHEKAO, in *Natural History*, the name of an earth found in many parts of the East Indies, and sometimes used by the Chinese in their porcelain manufactures. It is a hard and stony earth, somewhat like alum, and the manner of using it is this: they first calcine it in an open furnace, and then beat it to a fine powder. This powder they mix with large quantities of water, and stirring the whole together, they let the coarser part subside, and pouring off the rest, yet thick as cream, they leave it to settle, and use the matter at the bottom, which is found in form of soft paste, and will retain that humidity a long time. This supplies the place of the earth called *hoache*, in the manufacture of that elegant sort of China-ware which is all white, and has flowers which seem formed by a mere vapour within its surface. The manner of their using it is this: they first make the vessel of the common matter of the manufacture; when this is almost dry, they paint upon it the flowers, or whatever other figures they please, with a pencil dipped in this preparation of the chekao; when this is thoroughly dry, they cover the whole vessel with the varnish, in the common way, and bake it as usual. The consequence is, that the whole is white; but the body of the vessel, the figures, and the varnish, being three different substances, each has its own particular white; and the flowers, being painted in the finest white of all, are distinctly seen through the varnish upon the vessel, and seem as if traced by a fine vapour only. The hoache does this as well as the chekao, and has beside this the quality of serving for the making of the porcelain ware, either alone, or in the place of the kaolin: the chekao has not this property, nor any other substance beside this hoache, which appears to be the same with our steatites or soap-rock. See PORCELAIN.

CHEKE, JOHN, in *Biography*, a very learned writer, and an eminent promoter of learning in England, was born at Cambridge, June 16, 1514: he received his grammar learning under Mr. John Morgan, and was admitted into St. John's college about the age of 17, where he was greatly distinguished for his application to study, and particularly to the Greek language, which was then almost universally neglected. At the recommendation of Dr. Butts to Henry VIII. he was made king's scholar, and supplied with money for his education, and for his charges in travelling into foreign

foreign countries. At the age of 26, Mr. Cheke was appointed Greek professor at Cambridge, in which situation he endeavoured to render the study of that language more popular, and to reform the pronunciation of it, which was become almost barbarous. In both attempts he incurred the opposition of that party who set their faces against improvements of every kind. Gardiner, bishop of Winchester, was his chief and most violent opponent: he issued an edict, commanding a strict and rigid adherence to the old and received modes. Cheke justified his own conduct upon the authority of Erasmus, but the bishop adhered to his former resolution. In spite, however, of episcopal mandates, the improved pronunciation gradually made its way into the schools and universities of the kingdom. The reputation of Cheke was so high that, in 1544, he was sent for to court, to assist in the education of prince Edward, and he appears to have had some share in the literary instructions of the princess Elizabeth. When his royal pupil Edward VI. succeeded to the crown, he was rewarded with an annuity of 100 marks, and a grant was made to him of several parcels of land and manors: he was also, by royal authority, made provost of King's college, Cambridge. His interest, at particular periods, seemed to decline at court; he, nevertheless, continued in his post as tutor to the king, who was greatly indebted to him for the knowledge and virtuous principles by which his short life was so honourably distinguished; he became also the patron of religious and learned men, both of his own countrymen and foreigners. In 1551, the king conferred on him the honour of knighthood, and gave him a considerable estate for the maintenance of his rank in life. In the same year he acted as one of the disputants on the Protestant side of the question, at two conferences on the subject of transubstantiation; he at other times displayed his controversial talents, and at the close of the young monarch's reign he had so far succeeded as to be clerk of the council, secretary of state, and privy counsellor. The death of Edward was a fatal blow to the consequence of Cheke: he was anxious to have the crown transferred to lady Jane Grey, to whom, and to her council, he acted as secretary. Upon the accession of Mary to the throne of these realms, he was committed to the Tower, and indicted for high treason; but being stripped of the greater part of his property, he was pardoned and set at liberty. Unable, however, to conform to popery now re-established, he obtained leave to travel in foreign countries for a limited time. He went to Switzerland, and from thence to Padua, where he assisted some of his young countrymen in their studies, and read with them the orations of Demosthenes in the original. He afterwards settled at Strasburgh, where the Protestant forms of worship were openly maintained. His not returning home at the period appointed, afforded his enemies a pretext for confiscating what remained of his estate, so that for maintenance he was obliged to read Greek lectures at Strasburgh. In the beginning of 1556, by the invitation of his former friends, lord Paget and sir John Mason, who had become converts to the new order of things, he was induced to go to Brussels, where his wife was. Distrusting the sincerity of his old friends, he had recourse to the arts of astrology, to the follies of which he was addicted: these assured him that the intended journey would be prosperous. He was, however, way-laid by orders from Philip II., and carried to the Tower of London, where he was detained a close prisoner till the terrors of a cruel death induced him to recant, and make submission to the pope's legate, cardinal Pole. This humiliation was not sufficient: he was compelled to make a formal renunciation of all his errors in the presence of the

cruel queen, and more cruel and revengeful court. His lands were now restored; but with these no power could restore that peace which rarely attaches itself to those, who, from whatever motives, submit to a dereliction of principle. In many instances he was forced to witness the conviction of Protestants who exhibited that constancy in a good cause which he knew ought to have been shewn by himself. He became a prey to remorse, when he probably, but then too late, envied the feelings of those who expired at the stake, and died at the age of 43, leaving behind him three sons. Sir John Cheke was an accurate and elegant scholar; his most celebrated work is entitled "*De Superstitione, ad Regem Henricum*," written to excite the king to a complete reformation in religion. He endeavoured to correct the orthography and diction of the English language, and would admit of no words but the genuine English of Saxon and Teutonic origin. Hence he objected to the received version of the Bible, and undertook a new one. He finished the gospel of St. Matthew as a specimen, which is deposited in the library of St. Benet's college, Cambridge. Sir John was an excellent statesman, a sincere Christian, and an ardent friend to the reformation, though he wanted courage to die in its defence. He was beneficent and charitable, and the country is greatly indebted to him for his successful endeavours in reforming the pronunciation of the Greek and Latin languages.

CHE-KIANG. See TCHE-KIANG.

CHEKOUTOMIES, in *Geography*, a nation or tribe of Indians, situate near the south bank of Sanguenai river in Upper Canada.

CHELA, has several significations. It imports a forked probe, mentioned by Hippocrates, lib. ii. *De Morbis*, used in extracting a polypus of the nose. But in Rufus Ephesius, cap. iv. *chela* denote the extremities of the *cilia*, which touch each other when the eyes are shut. But the most frequent signification of *chela* is *claws*, particularly those of the crab.

Chela further signify fissures in the heels, feet, or pudenta.

CHELÆ, in *Ancient Geography*, a place seated on the southern coast of the Euxine sea, at the distance of 20 stadia from the small island of Apollonia, or Daphnusa, and 124 from the mouth of the river Sangar, according to Arrian.—Also, a port of the Thracian Bosphorus, on the coast of Asia Minor, where was a temple of Diana Dictyne.—Also, two promontories, mentioned by Silius Italicus, supposed by Ortelius to be the two promontories of Apollo and Mercury, which comprehended the gulf of Carthage.

CHELANDIUM, in *Middle Age Writers*, is used for a kind of vessel or ship. It is also called *chelandrium*, *chelindrus*, *chelindra*, *salandra*, and *salandria*, and by the Byzantine writers *χελανδριον*. It is mentioned by Ditmar as a vessel of great length, carrying oars, and 150 seamen. It seems to have resembled an Italian galley.

CHELANDURUS, a small kind of chelandium.

CHE-LAOU, in *Geography*, a town of China, of the third rank, in the province of Chan-si: 14 leagues S.W. of Fuen-tcheou.

CHELAZIUM, a name used by some authors for a moveable tubercle in the eye-lid, commonly called in English a *stye* or *stye*.

CHELIDON, in *Ichthyology*, a name by which many of the old Greek writers distinguish the Linnæan *Trigla hirundo*, or tub-fish of Ray. See *TRIGLA hirundo*.

CHELIDONIA, among the Romans, a name given to the wind more commonly called *favonius*.

It was only called chelidonia for a fortnight in the middle

of February, because at that time the swallow makes its first appearance.

CHELIDONIA, in *Antiquity*, a festival celebrated at Rhodes, in the month Boedromion, when the boys went from door to door begging and singing a song called "Chelidonisma," because it began with an invocation of the chelidon, or swallow. It is said to have been composed by Cleobulus the Lindian, as an artifice to get money in a time of public calamity.

CHELIDONIA, in *Botany*, C. Bauh. See **RANUNCULUS ficaria**.

CHELIDONIAE INSULÆ, in *Ancient Geography*, rocks of the Mediterranean sea, upon the coast of Lycia, in Asia Minor, according to Ptolemy. Strabo places them at the commencement of the coast of Pamphylia, and he says there are three mountainous islands, about five stadia from one another, and six from the land. M. d'Anville has placed them to the south of "Sacrum Promontorium."

CHELIDONII, a people of Illyria.

CHELIDONIUM, in *Botany* (from *χελιδων*, a swallow, said to be so called from a popular tradition in Greece that swallows make use of its juice to cure their young of blindness, but more probably because it flowers about the time when those birds make their first appearance in spring). Linn. Gen. 647. Schreb. 886. Willd. 1014. Juss. 236. Vent. 3. p. 92. Gært. 677. Class and order, *polyandria monogynia*. Nat. ord. *Rhœadææ*, Linn. *Papaveraceæ*, Juss. Vent.

Gen. Ch. *Cal.* two-leaved; leaves roundish, concave, caducous. *Cor.* Petals four, roundish, flat, spreading. *Stam.* filaments numerous (from twenty to thirty), shorter than the corolla; anthers oblong, compressed, erect, two-celled. *Pist.* Germ cylindrical, the length of the stamens, superior; style none; stigma bifid or trifid. *Peric.* Capsule resembling a filique, many-seeded, one or two celled, two or three-valved.

Eff. Ch. Stigma not more than bifid or trifid. Capsule slender, linear, resembling a filique.

Sp. 1. *C. majus*, Linn. Sp. Pl. 1. Mart. 1. Lam. 1. Willd. 1. Bauh. Pin. 144. Tourn. Inst. 231. Flor. Dan. tab. 542. Lam. Ill. tab. 450. Woody. Med. Bot. Supp. tab. 263. Eng. Bot. pl. 1581. (*Papaver chelidonia dictum*, Rai. Syn. 309.) Common or great celandine, so called in contradistinction to *Ranunculus ficaria*, which was called by the old botanists the lesser celandine. "Peduncles in umbels" β *C. laciniatum*, Dill. in Rai. Syn. 309. Miller, pl. 92. fig. 2. Flor. Dan. tab. 676. "Leaves resembling those of the common oak." The whole plant yields a yellow or saffron-coloured, acrid juice. *Root* perennial, spindle-shaped. *Stem* near two feet high, branched, tender, sometimes a little hairy. *Leaves* green above, glaucous underneath, alternate, large, soft, unequally winged, lobed, and notched; petioles hairy. *Flowers* yellow, in axillary and solitary umbels; general and proper peduncles hairy. *Capsules* about two inches long, slender, somewhat tapering at each end, one-celled, two-valved. *Seeds* small, black, shining, obsoletely pitted, crowned with a white, compressed, glandular crest, which, when fallen off, leaves an oblong scar; receptacle filiform, placed at the junction of the valves on each side, and furnished with a double row of seeds. A native of hedges and uncultivated grounds, among rubbish and under walls in the neighbourhood of villages in England, and other parts of Europe. The variety β is very hairy; its leaves are divided into long, narrow, segments, deeply jagged at their edges; and, what is most remarkable, its petals are lacinated or cut into several parts. La Marck thinks it a distinct species. It is mentioned by Clusius, Bauh. and several other of the old bo-

tanists, was found plentifully in the former part of the last century, among the ruins of the duke of Leeds's seat at Wimbledon, and, as we learn from La Marck, was cultivated in the royal garden at Paris, a little before the French revolution. Both kinds agree in their sensible qualities. The whole plant has a faint, unpleasant smell, and a durable, bitterish, acrid taste, which is considerably stronger in the root than in the leaves. Both water and rectified spirit extract nearly the whole of the pungent matter. The juice of the leaves is yellow, and gives a green tincture to rectified spirit; that of the roots is of a deep saffron colour, and tinges the same menstruum with a brownish-yellow. Its pungency is not of the volatile kind, little or nothing of it rising in distillation either with water or spirit; it is nevertheless greatly abated by drying the plant itself, or by inspissating with a gentle heat the spirituous or watery infusions. Its virtues have been highly extolled by some of the modern, as well as by the ancient physicians, in the removal of obstructions of the liver and the other viscera, in promoting expectoration and curing intermittents; but though they have gained it a place in the Edinburgh Pharmacopœia, it appears to have been greatly overrated; its use, in the jaundice, in particular, was probably suggested by the old absurd doctrine of signatures. The juice, however, certainly possesses active powers, and may be employed with advantage to destroy warts, clean foul ulcers, and remove obstructions of the cornea. See Woodville's Medical Botany. 2. *C. japonicum*, Mart. 5. Willd. 2. Thumb. Jap. 221. "Peduncles one-flowered; leaves petioled, winged, egg-shaped." *Stem* herbaceous, upright, weak, striated, smooth. *Leaves* alternate, petioled, unequally winged; leaflets three or five, opposite, on short petioles, ovate-oblong, acute, gashed, unequally serrated with acute ciliated serratures, smooth, pale underneath, an inch or an inch and a half long, the terminal lobe always longer. *Flowers* yellow, axillary; peduncles capillary, nearly the length of the leaves; calyx smooth; corolla a little larger than the calyx; four times the length of the stamens. A native of Japan. 3. *C. glaucum*, Linn. Sp. Pl. 2. Mart. 2. Lam. 2. Willd. 3. Flor. Dan. tab. 585. Eng. Bot. pl. 8. (*Glaucium flore luteo*; Tourn. Inst. 254. *G. flavum*; Crantz. anst. 141. *G. luteum*; Scop. Carn. 2. n. 63. Gært. vol. 2. 166. Vent. 3. 92. Smith Flor. Brit. 2. 563. *Papaver corniculatum*; Bauh. Pin. 171. Lob. ic. 270.) Sea Celandine, or yellow horned-poppy. "Peduncles one-flowered; leaves embracing the stem, scolloped; stem smooth." Whole plant glaucous. *Root* perennial. *Stems* several, near two feet high, branched, weak, spreading, of an even surface. *Leaves* alternate a little fleshy, rough with short hairs; root ones lyrate pinnatifid. *Flowers* yellow, large, axillary and terminal; calyx hispid. *Capsules* from ten to twelve inches long, slender, curved, often rough with tubercles, two-valved, two-celled; partition fungous, produced by an enlargement of the receptacle. *Seeds* numerous, seated in deep excavations within the substance of the partition or receptacle; pitted. A native of the sea-coast in England and other parts of Europe. 4. *C. phaniceum*, (*C. corniculatum*; Linn. Sp. Pl. 3. Mart. 3. Lam. 3. Willd. 4. *Glaucium phœnicum*; Tourn. 254. Gært. 2. 165. tab. 115. Smith. Flor. Brit. 2. 564. Eng. Bot. pl. 1433. Curt. Lond. fasc. 6. tab. 32. *Papaver*; Bauh. Pin. 171.) Scarlet horned-poppy. "Peduncles one-flowered, leaves sessile, pinnatifid; stem hispid; capsule bristly." *Root* annual, spindle-shaped. *Stem* two feet high, branched, clothed with horizontal hairs. *Leaves* glaucous, hairy; root ones lyrate pinnatifid; stem ones deeply pinnatifid, jagged and toothed, half embracing the stem. *Flowers* scarlet, half the size of those of the preceding species. *Capsule*

fulva rough with longish rigid close bristles, two-valved, two-celled with a partition or receptacle resembling that of the preceding species. *Seeds* pitted. A native of Germany and the south of France. Its right to be received as a British plant rests entirely on the authority of Stillingfleet, who sent it from Norfolk to Hudson, but it has not been found there by any other person. In Chelsea garden it has come up as a weed from time immemorial. 5. *C. fulvum*. (Glaucium *fulvum*; Smith. Exot. Bot. tab. 7.) "Peduncles one-flowered; Stem-leaves rounded, valved, capsule rough; flowers nearly sessile." Raised by Dr. Smith from seed originally obtained from the Cambridge garden by the name of *C. corniculatum*, and presumed to be a native of the south of Europe. Whole herb of a more blue cast. *Root* annual. *Flowers* orange, twice as large as those of *C. phœniceum*. 6. *C. violaceum*, (*C. hybridum*; Linn. Sp. Pl. 4. Mart. 4. Lam. 4. Willd. 5. Eng. Bot. pl. 201. Glaucium *violaceum*; Juss. 236. Smith. Flor. Brit. vol. 2. p. 565. Papaver; Bauh. Pin. 172.) "Peduncles one-flowered; leaves pinnatifid, with linear segments." *Root* annual. *Stem* a foot high or more, slender, branched, smooth, green. *Leaves* twice or thrice pinnatifid, deep green, smooth. *Flowers* rather large, violet, with a darker spot at the base of each petal; stigma trifid. *Capsules* two or three inches long, three-valved, one-celled; receptacles three; fixed to the valves, but not so far extended as to render the capsule three-celled. *Seeds* pitted. A native of Spain and the south of France. It has been found nowhere in Great Britain but in Cambridgeshire and Norfolk. Linnæus supposed it to be a hybrid plant between Papaver Argemone and some species of Chelidonium; but there does not appear any sufficient reason for the opinion. *Obs.* The Chelidonium of Linnæus comprehends the Chelidonium and Glaucium of Tournefort, which were separated from each other by that great botanist, partly on account of the difference in the number of the cells of the capsule, but chiefly because the petals of Chelidonium majus, his only species, appeared to him to be properly cruciform, whereas those of the other species are rather rosaceous, and therefore according to the principles of his system, belong to a different class. Gærtner, Jussieu, Ventenat, and Dr. Smith, all agree in restoring Tournefort's original genera, principally on account of the different number of cells; their Chelidonium being only one, and their Glaucium two. But unfortunately their Glaucium violaceum, which cannot be separated from their *G. luteum* and *phœniceum*, has only one cell, in direct contradiction to the generic character. Ventenat, who seems to have felt this difficulty, has dropped all consideration of the number of cells in his essential character of Glaucium, observing that the capsule of Phœniceum and Luteum (Chelidonium corniculatum and Glaucium of Linnæus) appears two-celled, because the space between the two receptacles is filled with a thick fungous substance. It is indeed so different in its consistence from the usual dissepiment or partition, that Jussieu could scarcely prevail upon himself to call it by that name. Its form in *C. violaceum* sufficiently demonstrates its true nature, and affords a connecting link between *C. majus* and the other species. It is with much diffidence that we dissent from such high authorities; but for the reason assigned, we cannot but think Linnæus fully justified in uniting Tournefort's two genera. The crested seed introduced by Gærtner and Dr. Smith into their essential character of Chelidonium; and the capitate stigma introduced by Ventenat into that of Glaucium, are, we apprehend, separately considered, of too little consequence to constitute generic distinctions.

CHELIDONIUM, Sloan. Jam. See BOCCONIA frutescens.

CHELIDONIUM majus canadense; Corn. Morif. Ray. See SANGUINARIA canadense.

CHELIDONIUM minus. See RANUNCULUS ficaria.

CHELIDONIUM Promontorium, in Ancient Geography, a promontory of Asia, in Pamphylia; probably the same with the Sacrum Promontorium.

CHELIDONIUS, in Natural History, a stone pretended to be found in the stomachs of young swallows; much esteemed by some for the falling sickness.

The word is formed from Χελιδων, a swallow. See SWALLOW-stone.

CHELIFER, in Entomology, a generic name assigned by Geoffroy and De Geer to the Acarus Cancroides of Linnæus, Phalangium Cancroides of Scopoli and Gmelin; which latter see.

CELLES, in Geography, a town of France, in the department of the Seine and Marne; 4 leagues W.S.W. of Meaux.

CELLUS, in Ancient Geography, a town of Palestine, mentioned in the Apocryphal book of Judith.

CHELM, in Geography, a town of Poland, in Red Russia, and capital of a palatinate of the same name; the see of a Roman bishop, suffragan of Lemberg, and a Greek bishop, suffragan of Kiev. The palatinate is partly subject to Russia and partly to Austria. The town is in a state of decay; 108 miles S.E. of Warsaw and 396 E. of Breslaw. N. lat. 51° 10'. E. long. 24°.

CHELMER, a river of England, in Essex, which runs into the sea a little below Malden.

CHELMIEZ, a town of Lithuania, in the palatinate of Minsk; 50 miles E. of Molyr.

CHELMON, in Ancient Geography, a town of Palestine, over-against Esdraelon, according to the book of Judith. Holofernes encamped before this city when he went to besiege that of Bethulia.

CHELMSFORD, in Geography, the shire town of Essex, England, is pleasantly situated near the centre of the county, at the confluence of the rivers Chelmer and Cann, from the ancient ford over the former of which it evidently derives its name. Camden, without any authority but its distance from the supposed site of the Roman station of Camalodunum, which he places at Malden, fixes Canonium here, though every circumstance, it is observed by Mr. Gough, "is against assigning such antiquity to this town; there was not even a road near it till Henry the First's time, when Maurice, bishop of London, to whose see it always belonged till Bonner's time, built a bridge over the Chelmer." Maurice possessed the episcopal dignity about the year 1100, and to his bridge this town owes its importance, as it occasioned the great road which before passed through Writtle, a village two miles to the west, to be brought to Chelmsford; and from that time the latter increased in buildings and population. In the first year of king John, William de Sancta Maria, bishop of London, procured the grant of a weekly market, and other privileges; these were afterwards confirmed by Edward I. In the eleventh of Edward III. four members were sent from Chelmsford to a council held at Westminster. The town is chiefly formed by four respectable streets. Near the centre is the shire-hall, an elegant, commodious, and well-designed structure, erected at the expence of the county, from designs and under the immediate direction of J. Johnson, architect, who having completed it to the satisfaction of his employers, and at a less expence than the original estimate, was presented, in pursuance of a vote passed at the quarter sessions in 1792, with an elegant silver cup. The front of the building

building is of white stone with a rusticated basement, and ornamented with four three-quarter columns supporting a pediment. The corn exchange, apartments for the courts of assize and sessions, an assembly room, and other convenient offices, are within the walls of this building. Contiguous to it is a neatly sculptured conduit; to which the water is brought from a spring about a quarter of a mile distant. When the original conduit was built is unknown; the present was erected a few years ago chiefly from subscription of the inhabitants, to which the Sun and Royal Exchange fire offices contributed 100*l.* each. The church is a spacious handsome building, dedicated to St. Mary; the body is modern, and was erected from designs by Mr. Johnson, in place of the more ancient part, which fell to the ground on the night of January 17th, 1800. At the west end is a square flint tower with pinnacles. When the original church was founded is uncertain; but from an inscription which was placed on the south side of the centre aisle, it appears to have been repaired by subscription, anno 1424. In this town is a free grammar-school, founded and liberally endowed in 1552 by Edward VI., on the petition of sir William Petre, knight; sir Walter Mildmay, knight, then one of the general supervisors of the court of augmentations; sir Henry Tyrrell, knight; and Thomas Mildmay, esq. The governors were at the same time constituted a body corporate. The school-house was rebuilt 1782 by R. Benyon, esq. then acting governor, on the site of a more ancient one, which was erected by sir John Tyrrell, bart. The education of youth is further provided for by two charity-schools supported by voluntary subscription; one founded August 17, 1713, for fifty boys; the other in April 1714, for twenty girls. The school-house stands at the north-east corner of the church-yard; adjoining to it are three alms-houses for decayed families. The bridge, erected by bishop Maurice, over the Chelmer, having greatly decayed, was rebuilt with one arch in 1787 from a design by Mr. Johnson. This bridge unites the hamlet of Moulsham with Chelmsford. Near it, on the Moulsham side, stands the county-gaol, a spacious and well-arranged stone building, which was commenced in 1773, by an architect named Hylyard, but has since been much improved and completed by Mr. Johnson. The front is formed by a commodious house occupied by the gaoler; from which, westward, extends a large paved yard, terminated by the hospital or ward for female criminals, and a very neat and convenient chapel. On the north side, next the river, is a double range of cells; and beyond, another large yard, secured by a wall and iron palisadoes, appropriated to the use of the convicts employed in picking oakum and making ropes. On the south side, extends a range of separate cells for condemned criminals, behind which, on the opposite side of a paved yard, are apartments for debtors, conveniently disposed. Every yard is provided with excellent spring water, which, with the general attention to cleanliness, greatly contributes to the health of the prisoners. The population of Chelmsford as returned under the late act was 3755, the houses 653. The surrounding country is extremely pleasant and fertile: the soil consists principally of a deep rich loam, intermixed with veins of gravel. Several flourishing plantations of hops are established in the neighbourhood. Within the last seven years, two extensive ranges of barracks, with accommodations for upwards of 4000 troops, have been erected in this parish; the largest at the west end of the town, the other on the southern side. At a small distance west of the latter begins a line of embankment for defending the approach to the metropolis, consisting of star batteries and parapets. It has been carried a considerable way in a south-east direction,

but is not yet completed to the extent proposed. This line is one among the numerous works now carrying on in this country to protect the metropolis in case of invasion. Chelmsford is 29 miles from London; has a weekly market on Fridays and annual fairs. About one mile from this town is Moulsham-hall, the seat and manor of the Mildmays, which, prior to the Norman conquest, was parcel of the possessions of the abbey church of St. Peter's Westminster. Morant's History of Essex, 2 vols. fol. Salmon's History of Essex, fol. History of Essex, 6 vols. 8vo.

CHELMSFORD, a township of America, in the county of Middlesex and state of Massachusetts, situated on the south side of Merrimack river, 26 miles N.W. from Boston, and containing 1144 inhabitants. This town is connected with Dracut by a bridge over the river at Pawtucket falls, of ingenious construction. The course of the Middlesex canal, designed to connect the waters of Merrimack with those of Boston harbour, will be southerly through the east part of Chelmsford.

CHELONE, in *Botany*, (from *χελων*, a tortoise) Linn. gen. 748. Scrb. 1005. Willd. 1139, 1140. Juss. 137. Vent. 2. 362. Gært. 318. Galane Fr. Clafs and Ord. *Didymia angiospermia*. Nat. Ord. *Personate*, Linn. Vent. *Bignonia*, Juss.

Gen. Ch. *Cal.* Perianth permanent, one leafed, five-cleft; segments erect, egg-shaped. *Cor.* monopetalous, ringent; tube cylindrical, very short; throat inflated, oblong, convex above, flat below; border closed, small; upper lip obtuse, emarginate; lower lip nearly equal to the upper, slightly trifid. *Stam.* filaments concealed under the back of the corolla; four fertile, with the rudiment of a fifth. *Pist.* Germ superior, egg-shaped; style filiform, the length of the filaments; stigma obtuse. *Peric.* Capsule egg-shaped, two-celled, two-valved, longer than the calyx. *Seeds* numerous, roundish.

Ess. Ch. Calyx five-cleft, rudiment of a fifth stamen. Capsule two-celled.

Obs. In most species the partition of the cells is double, formed by the inflexed margins of the valves, and not connate with the receptacle; but in *C. pentstemon* it is parallel to the valves, and not connected with them.

* *Barren filament smooth.*

Sp. 1. *C. glabra*, Linn. Sp. Pl. 1. Excluding part of the synonyms, Mart. 1. Lam. 1. Willd. 1. (*C. acadensis* flore albo; Tourn. Aët. 1706. tab. 7.) White Chelone, or Humming-bird tree. "Leaves petioled, lanceolate, obsoletely serrated; upper ones opposite." *Root* perennial, thick, fibrous, creeping. *Stems* three feet high, erect, nearly simple, cylindrical, or obscurely four-cornered, nearly smooth, green, stiffish, on short petioles. *Flowers* white, almost sessile, in short close terminal spikes; upper lip vaulted like the back of a tortoise, whence the generic name. *Seeds* surrounded with a membranous border. A native of North America. 2. *C. obliqua*, Mart. Wild. (*C. glabra*, Gært. tab. 54. fig. 6. *C. glabra* β. Lam. *C. floribus*, colore rose damascenæ; Gron. Virg. Mil. Ic. tab. 93. *Digitalis mariana*; Rai. Supp. 397. Pluk. Mant. tab. 348. fig. 3.) Purple Chelone. "Leaves petioled, lanceolate, oblique, deeply serrated; all opposite." *Roots* perennial, less creeping. *Flowers* bright purple. A native of Virginia and Carolina, flowering in August. La Marck asserts, contrary to all other authors, that there is not the rudiment of a barren anther in either of the two preceding species. 3. *C. mellioides*, Linn. jun. Supp. 279. Lam. 4. Willd. 3. Forst. Comment. Goett. 9. p. 35. (Ourisia; Juss. 100. Commerf.) "Root-leaves petioled, egg-shaped, serrated; stem ones opposite, embracing the stem; peduncles long; calyxes ciliated."

ated." *Root* perennial. *Stem* decumbent, scarcely longer than the root leaves. *Leaves* cinereous underneath, slightly nerved. *Flowers* purple. Peduncles axillary, one-flowered; corolla curved; rudiment of a fifth stamen, resembling an obtuse point between the smaller stamens in the upper part of the corolla. A native of the Straits of Magellan. Justieu, not being able to find the rudiment of the fifth stamen in the dried specimen sent by Commerçon, formed for it his genus *onrifia*. 4. *C. barbata*, Willd. 4. Cavan. icon. 3. tab. 242. (*C. formosa*, Wend. Obs. 51. *C. ruellioides*, And. Rep. tab. 34.) "Root-leaves petioled, spatulate-lanceolate, quite entire; stem ones lanceolate, sessile; peduncles long; lower lip of the corolla bearded." *Root* perennial. *Leaves* opposite. *Flowers* scarlet, nodding, in a terminal panicle; partial peduncles two, three, or four-flowered; segments of the calyx obtuse; lower lip of the corolla with three acute reflexed segments; inner part of the throat clothed with a dense yellow pubescence. A native of Mexico.

* * *Barren filament, bearded near the top.*

5. *C. pubescens*. *C. Pentstemon*, Linn. Sp. pl. 3. Mant. 415. Mart. 4. Lam. 2. Illust. pl. 528. *Pentstemon*, Mich. gen. 14. *Pentstemon pubescens*, Willd. 2. *Dracoccephalus*, Moris. Hist. 3. tab. 21. fig. 2, 3. *Cynorchium*, Pluk. Mant. 62.) "Stem pubescent; leaves embracing the stem; panicle dichotomous." *Root* perennial. *Stem* a foot and half high, cylindrical, branched in its upper part. *Leaves* opposite, lanceolate, entire, or very obscurely toothed; lower ones narrowing into a petiole. *Flowers* purple, whitish about the throat in a terminal panicle with opposite ramifications; tube the length of the calyx; upper lip short, obtusely bifid, reflexed; lower lip three-lobed, reflexed at the sides; barren filament broader toward the top, longitudinally bearded. *Seeds* without a membranous border. A native of Virginia. It varies in having broader or narrower leaves. 6. *C. hirsuta*. Linn. Sp. Pl. 2. Mart. 3. Lam. 3. (*Pentstemon hirsuta*, Willd. 1. *Digitalis Virginiana*, Pluk. Mant. 64.) "Stem and leaves hairy." According to Miller nearly allied to *C. glabra*, differing chiefly in the hairiness of the stem and leaves, and superior whiteness of the flowers. Linnæus, on the other hand, suspects it to be a variety of the preceding. 7. *C. lævigata*. *Pentstemon lævigata*, Willd. 3. *Chelone*, Arduin. Spec. tab. 5. *Digitalis perfoliata*, Moris. Hist. 2. tab. 8. fig. 6.) "Stem smooth; lower leaves quite entire." *Root* perennial. *Lower leaves* ovate-acuminate, petioled; *upper ones* embracing the stem, lanceolate, toothed. *Flowers* violet. A native of North America. 8. *C. campanulata*, Mart. 5. Cavan. ic. 1. tab. 29. (*C. campanuloides*, And. Repos. tab. 40. *Pentstemon campanulata*, Willd. 4.) "Stem smooth; leaves lanceolate, acuminate; all sharply serrated." *Root* perennial. *Stems* a foot and half high, cylindrical. *Leaves* opposite, sessile, or embracing the stem, green above, paler underneath. *Flowers* purple or violet, in a long loose terminal spike; peduncles axillary, single; lower ones two-flowered. A native of Mexico.

Obs. The *Pentstemon* of Willdenow differs from his *Chelone* in nothing but the bearded barren filament, a character certainly too trifling to constitute a generic distinction. Every one must be glad to get fairly rid of so harsh and indiscriminating a name.

CHELONE, in *Ancient Geography*, a promontory of the island of Cos, so named by Pausanias.

CHELONIDES, a marsh of Africa in interior Libya, according to Ptolemy. This was a lake formed by the river Gir.

CHELONISCUS, in *Zoology*, the name given by Co-

lumna to the species of Armadillo, called *Dasyfus quadricinctus* by Gmelin, which see.

CHELONITES, in *Ancient Geography*, a promontory of the Peloponnesus, in the territory of Elis, according to Ptolemy. Strabo calls it *Chelonates*. It is supposed by some to be the present Cape Tonesse.

CHELONITES SINUS, a gulf placed by Ptolemy on the western coast of the Peloponnesus; commencing at the promontory *Ichthys*, and terminating at *Jardani Sepulchrum*.

CHELONITES, a stone said to be found in the Indian tortoises, and to have the faculty of resisting poison.

The word is formed from *χελων*, a tortoise.

Some confound the chelonites with the bufonites, or toad-stones.

CHELONITIDES, or *CATATHRÆ*, in *Ancient Geography*, two small islands of the Red Sea, according to Ptolemy: who places them above the port called "Theon Soteron."

CHELONOPHAGI, a people of Arabia, inhabiting the deserts that lie between Egypt and the Persian gulf, according to Mela. Strabo says that they cast their dead into the sea.—Also, a people of Asia, who inhabited a corner of Caramania, according to Pliny and Ptolemy.—Also a people of Ethiopia, who not only used the flesh of tortoises for food, but likewise covered their huts or cottages with the shells of these animals. As in size and figure these shells resembled a small fishing vessel, the Chelonophagi employed them as boats on some occasions.

CHELSEA, in *Geography*, a large and populous village of England in the county of Middlesex, situate in the vicinity of London on the north side of the Thames, and famous for its college or hospital. See *HOSPITAL*.

CHELSEA, called by the ancient natives "Winnifimet," a town of America, in Suffolk county and the state of Massachusetts, containing 472 inhabitants. Before its incorporation in 1738 it was a ward of the town of Boston. It is situated north-easterly of the metropolis, and separated from it by the ferry across the harbour, called Winnifimet.—Also, a township of Orange county in the state of Vermont, having 239 inhabitants.—Also, a district of the town of Norwich in Connecticut. See *NORWICH*.

CHELTENHAM, a town of Gloucestershire, England, more celebrated for the salubrity of its medicinal water than for any other circumstance, is supposed to have derived its name from the river Chilt or Chelt, which flows on the south side in its passage to the Severn at Wainlode. By a peculiar custom of the manor confirmed by act of parliament, though lands descend as by common law, yet the eldest female inherits solely. The situation of Cheltenham is extremely pleasant: open to the vale on the south and west; but sheltered on the north-east by the immense amphitheatre formed by the Cotswold hills, which terminate abruptly at the distance of two miles to the north-east. The houses are principally ranged in one street, which extends nearly a mile in length. Since the commencement of the last century, when the sanative qualities of the springs were first noticed, the buildings have progressively improved, both in appearance and numbers, and especially within the last twelve years. Many neat mansions have also been erected in the vicinity, the principal of which is *Bays-Hill Lodge*, an elegant building, erected for the late Earl of Fauconberg, in the year 1781; and distinguished as the residence of their present majesties during their visit to Cheltenham in the summer of 1788. The Spring or Spa, as it is called by way of distinction, was first observed to possess medicinal virtues in the year 1716: the discovery of its qualities appears to have arisen from accident, but the immediate cause is uncertain.

tain. It rises about six feet below the surface of a meadow, which is about half a mile south of the town; and according to the experiments of Dr. Short, the water is "a neutral, purgative chalybeate." It continued open for two years from its discovery, but was then railed in; and in 1721, was let by the then owner, Mr. Mason, for the sum of 61*l.* per annum. In 1738 it became the property of captain H. Shillicorne, in right of his wife, the daughter of Mr. Mason: this gentleman erected a brick pavilion or dome, on four arches, over the well; formed several contiguous walks, and built a commodious room for the reception of the company. About the same time a long avenue of lime trees was planted. Several similar improvements have been since made. The beneficial effects of this spring have proved an increasing source of wealth to the town; its visitors, however, have been so numerous, that it was feared the waters would not have been sufficient to supply the increasing demand. In 1788, at the depth of about 50 feet, a spring was discovered, and was found to possess all the specific medicinal qualities of the other, and to be much more copious: a circumstance which enabled the proprietor to afford a more constant supply for every necessary occasion. A new spring was discovered, in 1803, by Dr. Thomas Jamefon, who has described the water as somewhat resembling that at Harrowgate, in Yorkshire, and containing rather a greater proportion of sulphureous gas than the other wells. The amusements of Cheltenham are similar to those of most other places of public resort: the season is from May to the end of November. The assembly-rooms are spacious and handsome; and a new theatre has been lately completed on an enlarged plan, under the direction of Mr. Watson. The hotel and principal lodging-houses are handsomely and conveniently fitted up. The church, situated near the center of the town, on the south side, is a large and elegant fabric dedicated to St. Mary, and for the most part, of the architecture of the middle ages. An hospital for six poor men and women, and a free school, were founded here, in the year 1574, by Richard Pate, Esq. Queen Elizabeth increased the endowments. By a subsequent benefaction, two scholars educated at the free school are sent to Pembroke college, Oxford. Some other schools are also established in this town; and a peculiar charity was instituted, about the year 1800, called the "Cheltenham repository, for the reception and sale of works of ingenuity and industry, for the benefit of the sick and industrious poor." This establishment originated with the fair sex, and is principally managed by a committee of females. The population of this parish was stated in the late return to be 3074; the number of houses 710. Cheltenham is 94 miles N.W. from London, has a market on Thursdays, and three annual fairs.

About two miles from Cheltenham, in the parish of Bishop's Cleeve, is *Southam House*, a venerable and far-famed mansion, now the property of Thomas Bagshott de la Bere, Esq. whose father, William Bagshott, Esq. of Presbury, assumed the name de la Bere, in pursuance of the will of his uncle, Kynard de la Bere, Esq. who, dying without issue in 1735, bequeathed to him this estate. Leland mentions this house as recently built by Sir John Huddelstone, at the time he made his survey by command of Henry VIII.; and it yet retains as much, or more, perhaps, of its original form, as any other domestic building in England of that era. Atkins's History of Gloucestershire, fol.

CHELVA, or XELVA, a town of Spain, in the province of Valencia; 6 leagues S.W. of Segorba.

CHELUM, a river of India. See BEHAT.

CHE'LY, ST., D'AUBRAC, a town of France, in the department of the Aveyron, and chief place of a canton in the district of Espalion; 7 leagues N.E. of Rhodéz. The place contains 1475, and the canton 3503 inhabitants: the territory comprehends 137½ kilimètres, and 5 communes.

CHÉLY, ST., D'APCHER, a town of France, in the department of the Lozère, and chief place of a canton in the district of Marejols; 7 leagues N.N.W. of Mende. N. lat. 44° 48'. E. long. 3° 10'.

CHELYDOREA, in *Ancient Geography*, a mountain of the Peloponnese, which belonged partly to Arcadia, and partly to Achaia. This mountain separated the territory of the Phenæates from that of the Pellenæans, according to Pausanias, l. viii. Arcad. c. 7.

CHELYS, among the *Ancients*, a musical instrument of the stringed kind, said to be invented by Mercury, and formed of a shell found in the river Nile, at the time of low water. This was a species of guitar, either thrummed with the fingers, or twanged with a quill.

CHELYSMA, in *Antiquity*, a thick piece of wood which the Greeks fixed to the keels of their ships, to save them from being worn or broken. It was also called *cuneus*.

CHEMA, according to Blancard, is the name of a certain measure sometimes mentioned by the Greek physicians, and which he thinks contains two spoonfuls.

The determined weight of this quantity cannot be accurately ascertained, in consequence of the different specific gravities of different substances: just as, at present, the word *spoonful* is used in a vague and undetermined sense, especially with respect to substances, of which it is a matter of indifference whether a little more or a little less be used.

CHEMACH, or KEMACH, in *Geography*, a town of Asiatic Turkey, in the southern part of Caramania.

CHEMAL, a town of Persia, in the province of Chufistan; 120 miles S. of Sufter.

CHEMAZZE', a town of France, in the department of Mayenne, and district of Chateau-Gonthier; 1½ league S.W. of it.

CHEME, among the Romans, was a liquid measure, containing the fifth part of a CYATHUS.

CHE-MEN, in *Geography*, a town of China, of the third rank, in the province of Tche-kiang; 20 miles S.S.W. of Kia-hing.

CHEMENS, in *Mythology*, a denomination given by the inhabitants of the Caribbee islands to a sort of genii or spirits, who are supposed by them to watch over the concerns of men: every man, in their apprehension, having a Chemen to himself. They present to these Chemens offerings of their first-fruits, which they place on a table made of rushes at the corner of their huts, where these genii, as they conceive, assemble to partake of the oblation.

CHEMERE', in *Geography*, a town of France, in the department of the Mayenne, and district of Laval; 4½ leagues S.E. of it.

CHEMERY, a town of France, in the department of the Ardennes, and district of Sedan; 7 miles S. of it.

CHEMIA, in *Ancient Geography*, a name given by the Egyptians, in their sacrifices, to Egypt, according to Plutarch.

CHEMICAL *glasses*, how to cement when cracked. See CEMENT.

CHEMICAL *vessels*. See VESSELS.

CHEMILLE', in *Geography*, a town of France, in the department of the Maine and Loire, and chief place of a canton, in the district of Beaupréau; 3½ leagues N.E. of Chollet.

Chollet. The place contains 3112, and the canton 10,386 inhabitants; the territory includes 310 kilometres, and 10 communes.

CHEMIN, *Couvert*, *Covert*, or *Covered Way*, in *Fortification*, is a space five or six toises broad, adjoining to the countercarps of the ditches, and going quite round the works of a fortification. It is covered by the inner part of the glacis, which serves as a parapet to it, and is raised from 6 to $7\frac{1}{2}$ feet high. The glacis terminates in an easy slope towards the field, at the distance of about 20 toises from the crest of it. The covert way is generally palisaded throughout its whole extent; has traverses to prevent its being exploded from without, and has places of arms in its re-entering angles.

CHEMIN Creux, a hollow way. See RAVIN.

CHEMIN des Rondes, a space left between the rampart and the upper part of the revetement of masonry in a fortified place, as a passage for the rondes or rounds. The old works at Portsmouth, to wit, those round the town, having a complete revetement, have also a *chemin des rondes*; whereas the new works round the Common and the Dock-yard, having only a demi-revetement, have no *chemin des rondes*.

CHEMIN, in *Geography*, a town of France, in the department of the Jura, and chief place of a canton, in the district of Dôle. The place contains 242, and the canton 6952 inhabitants; the territory includes 130 kilometres, and 16 communes.

CHEMINAIS, TIMOLEON, in *Biography*, a celebrated French preacher, was born at Paris in 1652, and entered among the Jesuits in 1667. After having taught the languages and rhetoric for some time in their school at Orleans, he gained great applause by preaching at Paris and Versailles; and before the appearance of Mafillon, was reckoned the most pathetic of the French preachers. But his health declined at an early period of his life; and when he was unable to preach, he went every Sunday, as long as he was able, into the country, for the purpose of instructing the poor. His course of service, however, was terminated in his 38th year. After his death, three volumes of his sermons were published by Bretonneau, and have been several times reprinted. He also wrote "*Les Sentimens de Piété*," 1691, 12mo.; and he is said to have had a talent for light and familiar poetry. *Nouv. Dict. Hist.*

CHEMINON, in *Geography*, a town of France, in the department of the Marne; 10 miles E. of Vitry-le-François.

CHEMISE, *SHIRT*. This word is not much in use as a military term; but when it is employed as one, it most frequently denotes a thin wall or revetement against the inner slope of a work, to prevent the earth from tumbling down. The same word is also used sometimes for expressing the exterior revetement of the rampart of a work.

CHEMISE de coup de main de surprise, a number of shirts of linen, or cloth well whitened, which a general or commanding officer sometimes makes use of for his troops, when he attempts a *coup de main*, or surprise, in order to enable them, in a mixture or *melée*, to distinguish one another from the enemy.

CHEMISE de feu, a French sea-term, employed to denote several pieces of old sails of different sizes, which, after they have been well pitched and thoroughly soaked in other combustible matter, as oil of petrol, camphor, &c. may be nailed to an enemy's ship on boarding her, and when set on fire to consume her.

CHEMISE de maille, or *de mailles*, a shirt of mail, or a fort of body-lining made of several scales or rings of iron, which was worn under the coat as a kind of defensive armour to

protect the body of a man. To this *chemise* they also gave the name of *gollette*.

CHEMISTRY. The science of chemistry may be defined, a knowledge of those attractions which take place at insensible distances between the heterogeneous particles of matter. The attraction of gravitation takes place not only between heterogeneous but homogeneous bodies, between masses as well as particles, between bodies that are at a distance from each other as well as those that are in contact: hence magnitude, form, and distance, or, in other words, the elements of mathematical investigation must be the basis of all inquiry into the phenomena of gravitation. The case is very different with regard to chemical inquiries: the subjects of these are particles of matter, both the magnitude and form of which, and the distances within which they act on each other, are wholly incapable, on account of their extreme minuteness, of being appreciated. The elements, therefore, of mathematical calculation cannot be applied to this branch of knowledge.

The science of chemistry is comparatively of late origin, although many chemical arts, such as metallurgy, pharmacy, cookery, the preparation of vinous liquors, dyeing, tanning, glass-making, &c. can boast of a very high antiquity. Neither among the ancient Egyptians, Greeks, or Romans, till after the age of Constantine, are there any traces of chemistry, unless some obscure and idle speculations about the four elements, as entering into the composition of natural bodies, may be dignified with this appellation. For this a double cause may be assigned: in the first place, it was not the habit of the age to make experiment precede theory; and in the second place, hardly any of the agents that are even the most indispensable in chemical inquiries were as yet discovered. None of the acids were known except the aceticus; and of the alkalies, soda was the only one of which even a very imperfect knowledge had as yet been obtained. The conquests of the Saracens, in the seventh and eighth centuries, destructive as they were to the religion and civilization of those countries which they occupied, appear to have given the first serious impulse to the study of chemistry in the west. Rhazes, Avicenna, Geber, and other Arabian physicians, introduced to the notice of Europe many pharmaceutical preparations, both vegetable and mineral, and made great improvements in the mode of conducting processes, particularly distillations. The three mineral acids were discovered, the vegetable and mineral alkalies were distinguished from each other, the preparation of alcohol was made known, the activity of the newly-discovered menstrua was directed upon the metals, and the golden age of alchemy commenced.

The conversion of the baser metals into gold was now the object that for the most part occupied the attention of chemists for several centuries, and an immensity of time, labour, and ingenuity was wasted in this visionary pursuit: it was attended, however, with this incidental advantage, that a considerable dexterity of operating was thus acquired, and many new substances and valuable facts were discovered, which perhaps, without this strong incentive, would have remained much longer in obscurity. In the 15th century, when the ardour of alchemy began to decline, a fresh motive for chemical pursuits began to be developed, by the happy application of them to the improvement of medicine. This was chiefly owing to a German monk, of the name of Basil Valentine, who, in his "*Currus Triumphalis Antimonii*," communicated to the public a number of valuable antimonial medicines, and discovered the volatile alkali. The success attending these new preparations, the controversy which they occasioned, and the recent discovery of the art of

printing, all contributed to give a vigour to chemistry which it had never felt before; and from this period its progress was rapidly accelerated. Isaac Hollandus, though deeply tinged with alchemical notions, eminently contributed to direct the attention of his contemporaries and successors to the improvement of metallurgical processes, and cleared the way for George Agricola, whose masterly work, "*De Re Metallica*," liberated metallurgy for ever from the trammels of alchemy, and may be considered as the basis of all the splendid discoveries by which this branch of chemical art has since been illustrated. Among the immediate successors of these three able men occur the memorable names of Lazarus Ercker, Zwelfer, Glaser, Cassius, Poterius, Van Helmont, Kunckel, Glauber, Kircher, and Conringius, to whom is owing the discovery of a multitude of new substances, principally among the class of compound salts, as well as many improvements of apparatus, and of those arts, such as glass-making, which are more strictly chemical. A similar praise is due to Beccher, who is still further worthy of notice as the author of certain speculations on inflammable earth, which suggested to Stahl the first hint of that theory which has rendered his name immortal in the annals of chemistry.

A multitude of chemical facts had been by this time discovered, but, from the state of disorderly confusion in which they were, their real value was much misunderstood, and their mutual connexion, as parts of a system, had not even begun to be appreciated. The first traces of a philosophical arrangement of chemical facts occur in the "*Exercitium Chemicum*" and "*Chemia Philosophica*" of Barner, the former published in 1670, and the latter in 1689, which long continued to be the text-books of lecturers in chemistry, in the most celebrated schools of Europe. In 1675, Bohn, professor at Leipsic, wrote a valuable treatise, shewing that the prevalent opinion of acid and alkaline ferments was insufficient to account for a large number of chemical phenomena, and therefore could not be received as the foundation of a philosophical theory of this science; and in 1670, Wedel published a work, entitled "*Non Entia Chemica*," also with the view of exploding some of the most popular Platonian notions with which chemistry was at this time infected. The way being thus in some degree cleared, and the spirit of experimental investigation gaining ground rapidly, the illustrious Stahl proposed his theory of phlogiston or inflammable earth, in his "*Specimen Becherianum*," published in 1703, and still more fully in his "*Fundamenta Chemicæ*," in 1723, and thus established himself for nearly 80 years as the acknowledged head of the chemical world. A few modifications of the Stahlian theory, of no great importance, were successively introduced by Boerhaave, Junker, and Machy, and with these chemists rested content, till the discovery of the gasses and the foundation of pneumatic chemistry by Hales, Black, Scheele, Cavendish, Priestley, Bergman, and Berthollet. An immense crowd of new and highly interesting facts was now offered to the attention of chemists, many of which appeared wholly irreconcilable to the phlogistic theory; and the philosophic genius of Lavoisier, demonstrating the falsehood of the popular system, founded a new and more comprehensive one on the affinities and combinations of oxygen with the various substances in nature, which, after a reasonable discussion, has been generally acquiesced in, as explaining a great number of phenomena in a manner much more consonant to the general mass of chemical facts than any other, though by no means entirely free either from difficulty or error.

The system of Lavoisier has been represented by many of his zealous partizans as a general theory of the science; and

oxygen, in one form or other, has been considered as the great agent of chemical composition and decomposition. It is manifest, however, that this substance has nothing to do with the mutual action of the metals, the earths, the alkalies, and the simple inflammables, into none of which oxygen enters as an ingredient; not to mention, some of the acids and compound inflammables, in which the presence of this principle is rather inferred than demonstrated. It is, therefore, to the higher and more abstract inquiries concerning chemical affinity that we must have recourse for the philosophy of the science, the general principles applicable to the chemical action upon each other of all the substances in nature.

The above sketch is not intended as a history of chemical discoveries, for to give any satisfactory account of these would require more minute detail than would be proper in this place: we have accordingly distributed this part of the subject among the several chemical articles contained in this work, by which much repetition has been avoided, and the historical notices respecting each particular subject and substance have been brought together in one point of view.

The subjects of chemical science are so prodigiously extensive as to require some classification, in order that we may be duly aware of their very magnitude. They may be conveniently arranged under the eight following heads:

1. *General Chemistry, both theoretical and practical.* The theoretical includes the philosophy of chemistry, or chemical affinity, and those extensive, but not, properly speaking, general systems, by which ingenious men have at different times, and with various success, endeavoured to link together a large number of chemical phenomena. The practical part comprehends, in general, the action of all the simple substances on each other.

2. *Pneumatic Chemistry*, the investigation of which requires a peculiar set of apparatus, and includes all the particulars relative to those substances that exist in a state of elastic fluidity.

3. *Metallurgical Chemistry*, which treats of the assay of metallic ores, and their reduction to the reguline state, both in the small and great way.

4. *Mineralogical Chemistry*, or the method of analysing minerals, including under this term both the stony minerals and mineral waters.

5. *Animal Chemistry*, including the analysis and properties of all the products of animalization, and the consideration of those vital functions which, like respiration, appear to be for the most part decidedly chemical.

6. *Vegetable Chemistry*, comprehending not only an acquaintance with the products of vegetation, but with such parts of the physiology of plants as can be explained or illustrated by the chemical action of their food, and those atmospheric influences to which they are exposed.

7. *Meteorological Chemistry*, including the chemical analysis of the atmosphere, and the whole subject of endiometry, as well as the connexion of chemical agency, with all the meteoric phenomena.

8. *Technical Chemistry*, or the principles and processes of those arts and manufactures which are for the most part purely chemical, such as dyeing, bleaching, the manufacture of glass, porcelain, and pottery, tanning, and the preparation of spirituous fermented liquors.

Besides a reference to each chemical substance, for the history of its discovery, and the particular theory connected with it, we beg leave to direct the notice of the reader, who wishes for further and more general information, to the articles ACIDS, AFFINITY Chemical, ALCHEMY, EARTHS, GAS, HEAT, METALS, and METALLIZATION, OXYGEN, and PHLOGISTON.

CHEMMIS, in *Ancient Geography*, a town of Egypt, situated on the east bank of the Nile, and at a full half league from it. The Greek name is Panopolis, and Chemmis, the Egyptian name, still subsists in that of *Echnimm* or *Achmim*. The remains of the ancient city are yet to be seen to the eastward, and near the walls that surround the modern town. An ancient mosque is still the object of the veneration of the Christians, who pretend that it was formerly one of their churches. The Copts falsely assert that it had been built upwards of 1000 years; but the edifice is falling, and its unstable construction sufficiently proves, that it is not the workmanship of a period when buildings possessed greater solidity. The temple is spacious, and has several entrances; its periphery is lighted by a line of contiguous windows. The interior, like that of all the mosques in this country, is a large, empty, and naked enclosure; but the small granite pillars by which it is supported, and which were taken from among the ruins of Panopolis, excite admiration. This town in its present state, like all those of Egypt, contains a crowd of priestesses addicted to the most disgusting sensuality, and who, like our street-walkers in Europe, make a trade of selling the semblance of pleasure. The Nile, says Sonnini, in the vicinity of this town, furnishes fish in great abundance. That which is most common is the *bayatte*, a species of *Silurus*, which grows to a great size without acquiring any additional flavour. See **ACHMIM**.

CHEMNITZ, **MARTIN**, in *Biography*, an eminent Lutheran minister, was born in 1522, at Britzen in the Marche of Brandenburg, and educated under Melancthon at Wittenburg, after whose death he became the most celebrated divine of the Augustan confession. Besides his skill in theology, he was also well acquainted with mathematics and astronomy. His counsel and services were much sought by the Protestant princes in all ecclesiastical affairs. His "Examination of the Decrees of the Council of Trent," published at Frankfort in 1585, was held in estimation as a historical and theological work. He also composed a "Harmony of the Gospels," and several other works. At Brunswick, where he died in 1586, he was 30 years a professor. Mosheim. E. H. vol. iv.

CHEMNITZ, **BOGESLAUS-PHILIP**, grandson of the preceding, was born at Stettin in 1605, followed the profession of arms, and having entered first into the service of Holland, and afterwards into that of Sweden, was raised by his merit to the posts of counsellor of state and historiographer. Queen Christina ennobled him, and presented him with the estate of Holstædt in Sweden, where he died in 1678. His principal work was a "History of the Swedish Wars in Germany," 2 vols. fol. 1648 and 1653, bringing down the history to 1636, and much esteemed, particularly the second volume, which was compiled from materials furnished by count Oxenstiern. To Chemnitz is attributed another work entitled "De Ratione Status Imperii Romano-Germanici," printed at Stettin in 1640, under the feigned name of Hippolytus a Lapide, and impugning the claims of the House of Austria. Moreri.

CHEMNITZ, in *Geography*, a town of Germany, in the circle of Upper Saxony, and marquisate of Meissen, containing three churches and an hospital; 36 miles W. S.W. of Dresden, and 32 S.W. of Meissen.

CHEMNITZ. See **KAMNITZ**.

CHEMOSH, in *Mythology*, an idol of the Moabites, mentioned in Scripture. St. Jerom supposes that Chemosh and Baal-Peor, (which see) were both names of one and the same idol, not very different from Priapus, which is inferred from the indecent ceremonies used in their worship. Others, however, deny this charge. Dr. Hyde derives Che-

mosh from the Arabic *khâmasb*, which signifies *gnats*, (though in the particular dialect of the tribe of Hodail), supposing it to have been an astrological talisman in the figure of a gnat, made to drive away those insects: and Le Clerc, who takes this idol for the Sun, deduces it from *Câmofha*, a root in the same tongue signifying to be swift.

CHEMOSIS, in *Surgery*, an inflammation of the eye, accompanied with an effusion of serous fluid, &c. under the *tunica conjunctiva*, which causes the white of the eye, as it were, to overtop the transparent *cornea*; and thus to produce a sort of *χρημα* or gap, at their place of union. Galen calls this disease a red and fleshy inflammation of the *cornea*, as it seems to be, when the blood-vessels are greatly distended.

Lightly astringent and sedative applications should be employed in this case; and, if the vessels be very turgid, it may be proper to puncture them freely with a lancet, or even to remove a portion of the protruding membrane. Dr. Burghart, in a *Chemosis* where the cornea was burst, dilated the opening, and extracted the crystalline lens, which had come forward before the iris. The elevation of the *tunica conjunctiva* will sometimes be so considerable, as absolutely to prevent the shutting of the eye-lids. See **OPHTHALMIA**.

CHEMPVALLAN, in *Geography*, a beautiful city of Mexico, situated on the coast of the gulf of Mexico, and remarkable for being that by which the Spaniards entered the Mexican empire.

CHEMUNG, a name sometimes given to the western branch of Susquehannah river. See **TIOGA river**.

CHEMUNG, a township of Tioga county in the state of New York. It has Newton W. and Owego E., about 160 miles N.W. from New York city. By the state census in 1796, 81 of its inhabitants were electors.

CHEN, in *Ancient Geography, a town, which according to Steph. Byz. was the country of Myson, or Muson, one of the seven wise men of Greece. He placed it in the Peloponnesus, in Laconia.*

CHENALOPEX, in *Ornithology*, the name given by Moehring to the great Auk, *Alca impennis* of Linnæus; *Alca major* of Brisson, and *Grand Pingouin* of Buffon.—This bird has the bill fulcated and compressed, and an oval spot of white on each side of the head before the eyes. It is about three feet long, and inhabits Europe and America.

CHENAY, in *Geography*, a town of France, in the department of the Two Seves, and chief place of a canton, in the district of Melle; 8 miles S.E. of St. Maixent. The place contains 1036 and the canton 9475 inhabitants: the territory includes 205 kilometres and 14 communes.

CHENCE, in *Old Customs*, seems to be much the same as **AMABYR**.

CHENCOUR, or **CHEMKOU**, in *Geography*, a town of Armenia, on the frontiers of Gurgistan, which has a beautiful castle, grand caravansaries, and several mosques; 160 miles N.E. of Erivan.

CHENDI, or **CHANDI**, a large village of Abyssinia, the capital of its district, in the province of Atbara, the governor of which is called in discourse Mek el Jahelen, prince of the Arabs of Beni Korcish, who are all settled about the bottom of Atbara, on both sides of the Magiran. In this place there is a tradition, that a woman, whose name was Hendaqué, once governed all that country; whence one might imagine that this was part of the kingdom of Candace; for writing this name in Greek letters, it would be no other than Hendaqué, the native, or mistress, of Chendi or Chandi. This was once a town of great resort, being the place of rendezvous for all the caravans of Sennaar, Egypt, Suakem, and Kordofan, especially since the Arabs have cut off the road by Dongola,

gola, and the desert of Bahiouda. Here every thing is cheaper and better than at Sennaar, the article fuel excepted, for wood is much dearer here than in any part of Atbara, so that the people burn camel's dung; but fire, indeed, would be unnecessary, if it were not for dressing victuals, for the heat is so great that in the month of October the thermometer was once so high as 119° ; and in the months of August and September, the weather was so sultry that many persons dropped down dead with heat, both in the town and the villages round it. Chendi has about 250 houses, two or three of which are tolerable, but the rest are miserable hovels built of clay and reeds. The women of Chendi are esteemed the most beautiful in Atbara, and the men the greatest cowards. N. lat. $16^{\circ} 38' 35''$. E. long. $33^{\circ} 24' 45''$.

CHENDOUL, a river of Asia in the province of Cabul, which may be regarded as a branch of the Bjure river, and runs into the Kameh, about 25 miles E. of Paishawur.

CHENE, a town of France, in the department of Leman, and district of Geneve; $2\frac{1}{2}$ miles E. of Geneva.

CHENE, LE, a town of France, in the department of the Ardennes, and chief place of a canton in the district of Vouziers; 15 miles S. of Mezieres. The place contains 1154, and the canton 7248 inhabitants; the territory includes 215 kilometres and 18 communes.

CHENENGO, a river of America, being a branch of the Susquehannah.

CHENENGO, a post town of America, one of the chief towns of Tioga county in the state of New York; lying about 40 miles N.E. from Tioga point, between Chenengo river, and the Susquehannah. It was detached from Montgomery county, and in 1790 had only 45 inhabitants. By the state census in 1796, 169 of its inhabitants were electors; it is 125 miles N.W. from New York, and 375 N.N.W. from Philadelphia. N. lat. $42^{\circ} 8'$. W. long. 76° .

CHENERAILLES, a town of France, in the department of the Creuse, and chief place of a canton, in the district of Aubusson; 9 miles N. of it. The place contains 709, and the canton 8018, inhabitants. The territory includes $207\frac{1}{2}$ kilometres and 12 communes.

CHENESSEE, or GENESSEE, a river of America, which takes its name from a lofty hill in the Indian territory, near which it passes, called by the Indians Genessee, a word signifying in their language, a grand extensive prospect. It rises in Pennsylvania, near the spot which is the most elevated ground in that state. About 50 miles from its source there are falls of 40 feet, and 5 miles from its mouth, of 75 feet, and a little above that of 96 feet. These falls furnish excellent mill-seats, which are improved by the inhabitants. After a course of about 100 miles, mostly N.E. by N. but only navigable for the last 40 miles, at the time of its inundations; it discharges itself into lake Ontario $4\frac{1}{2}$ miles E. of Irondequoit or Rundagat bay, and 80 E. from Niagara falls. The settlements on this river are Hartford, Ontario, Wadsworth, and Williamsburgh. When the western canals and locks are completed, there will not be a carrying place between the city of New York and Williamsburgh. The portages at present are as follow, viz. from Albany to Schenectady 16 miles; from the head of the Mohawk to Woodcreek, one; Oswego falls, two; Chenessee falls, two; so that there are but 21 miles of land carriage necessary, in order to convey commodities from a tract of country capable of maintaining several millions of people. The famous Chenessee flats, lying upon the border of this river, are about 20 miles long, and about 4 wide, and are estimated, in their present state, to be worth

200,000l. These flats are the property of the Indians; and are reckoned among the richest lands that are to be met with in North America, to the east of the Ohio. Wheat, indeed, will not grow upon them; but the soil is not impoverished by the successive crops of Indian corn and hemp that are raised upon them year after year. Their great fertility is owing to the regular annual overflowing of the Chenessee river, whose waters are very muddy, and leave a considerable quantity of slime behind them before they return to their natural channel. The high lands in the vicinity of this river are stony, and not distinguished for their fertility; but the vallies are all extremely fruitful, and abound with rich timber. This river is bordered with the richest woods imaginable; and may be seen from an adjoining hill for many miles, meandering through a fertile country; and beyond the flats, on each side of the river, appear several ranges of blue hills rising one behind another in a very fanciful manner, and forming a most beautiful landscape. See GENESSEE.

CHENET, a town of Asiatic Turkey, in the province of Caramania; 100 miles S.W. of Cogni.

CHEN-IN, a town of Asia, in the kingdom of Corea; 30 miles W.N.W. of Tsin-tcheou.

CHENISCUS, from *χην*, a goose; among the *Ancients*, an ornament in the form of little geese, used on the prows and sterns of their ships.

CHENIUS, in *Ancient Geography*, a mountain in the country of the Macroni, in the vicinity of the district of Colchis and the Euxine sea. Diod. Sic.

CHENOBOSCIA, a town of Egypt, situate in the Canopolite nome. Ptol. This place is marked in the Itin. of Antonin between Coptos and Thoma; and in the Not. Imp. it is called *Chenoboscium*, and placed in the Thebaide.

CHENOCOPRUS, *Goose-dung*, in *Medicine*, is accounted very acrimonious and resolvent, and therefore prescribed with success in the jaundice. The greenish dung is esteemed the best. It is gathered in the meadows in spring time, and being dried with a moderate heat, and pulverised, is given from half a dram to a full dram at a dose. It is recommended also in the scurvy, and other diseases.

CHENOLEA, in *Botany*, Schreb. 206. Willd. 464. Thunb. Nov. Gen. 9. Class and ord. *Pentandria monogynia*. Nat. ord. *Holoraceae*, Linn. *Atriplices*, Juss. *Chenopodia*, Vent.

Gen. Ch. Cal. perianth one-leaved, globular, somewhat fleshy, five-cleft; segments inflexed. Cor. none. Stam. filaments five, filiform, erect-inflexed, the length of the calyx, and inserted into its base; anthers minute. Pist. germ superior; style filiform, very short; stigmas two, simple, awl-shaped, acute, spreading, reflexed, a little longer than the style. Peric. capsule round, somewhat depressed, umbilicated, one-celled. Seed solitary, roundish, bifid at the tip; smooth.

Eff. Ch. Calyx one-leaved, globular, five-cleft. Capsule one-celled. Seed solitary bifid at the tip.

Nearly allied to *Salsola*, to which genus Jussieu, in conformity with L'Heritier, thinks it really belongs, though it has not a spiral seed. Willdenow asserts that in its fructification it is perfectly distinct, and cannot be united with *Salsola*.

Sp. C. *diffusa*, Mart. Willd. Thunb. Prod. 48. (*Salsola* sericea, Hort. Kew. 1. 317.) Stems several, filiform, herbaceous, diffused, covered with leaves, purple, smooth, at the bottom, somewhat downy at the top; the ends upright; branches alternate, scattered, few, very short. Leaves opposite,

site, ovate-lanceolate, obtuse, with a fleshy point, flat above, convex underneath, silvery-downy; upper ones imbricated. *Flowers* axillary, solitary, or in pairs, sessile in the axil of every leaf towards the top of the branches. A native of the Cape of Good Hope, on the low coast; flowering in August and September; cultivated by Miller in 1758.

CHENONCEAU, in *Geography*, a town of France, in the department of the Indre and Loire; 2 leagues S.E. of Amboise.

CHENOPODIÆ, in *Botany*, the name given by Ventenat to that natural order which Jussieu calls Atriplices. It consists of plants which are most commonly herbaceous, sometimes shrubby, with fibrous roots. *Stem* almost always upright. *Leaves* generally alternate. *Flowers* almost always hermaphrodite; calyx one-leaved, often deeply divided; stamens of a determinate number, inserted into the base of the calyx; germ simple, superior; styles commonly more than one, of a determinate number; stigma one to each style, rarely two. *Seed* generally one, either naked, or covered by the calyx, or enclosed in a pericarp; perisperm farinaceous, central, surrounded by the embryo, which is circular or rolled up in a spiral; radicle inferior. Ventenat places under it the following genera. 1. Fruit a berry; phytolacca, rivinia, salvadora, bosea. 2. Fruit a capsule; petiveria, polycnemum, camphorosma. 3. Seed covered by the calyx; stamens five; basella, falsola, spinacia, beta, chenopodium, atriplex. 4. Seed covered by the calyx; stamens one or two; blitum, salicornia. 5. Seed naked; corispermum.

CHENOPODIUM (from *χην*, a goose, and *πους*, a foot), goosefoot. Fr. Anserine or Patte d'oye, Tourn. Cl. 15. §. 2. gen. 4. Linn. Gen. 309. Schreb. 435. Willd. 497. Juss. p. 85. Vent. 2. 259. Gært. 468. Class and order, *pentandria digynia*. Nat. ord. *Holoraceæ*, Linn. *Atriplices*, Juss. *Chenopodeæ*, Vent.

Gen. Ch. *Cal.* perianth five-leaved, concave, permanent. *Cor.* none. *Stam.* filaments five, awl-shaped, opposite to the leaves of the calyx, and of the same length; anthers roundish, didymous. *Pist.* germ superior, orbicular; style short, bifid, or trifid; stigmas obtuse. *Peric.* the closed calyx, with five compressed angles, deciduous. *Seed* solitary, lenticular.

Eff. Ch. Calyx five-leaved, finally shutting close, and becoming a five-angled pericarp. Corolla none. Seed one.

Species.

* *With angular leaves.*

1. *C. Bonus Henricus*, good king Henry, wild spinach, English mercury, or allgood. Linn. Sp. Pl. 1. Mart. 1. Lam. 1. Willd. 1. Flor. Dan. 579. Lam. Ill. pl. 181. fig. 1. Curt. Flor. Lond. Fasc. 3. tab. 17. Eng. Bot. 1033. "Leaves triangular-arrow-shaped, entire; spikes compound, leafless." *Root* perennial, fleshy, branched, yellowish within. *Stems* a foot high, cylindrical, spreading from the base, then erect, branched below, striated, leafy. *Leaves* alternate, petioled, a little undulated, acute, green above, covered with an unctuous mealiness underneath. *Flowers* green, mealy, some of them frequently destitute of stamens; spikes numerous, axillary and terminal, erect, dense; calyx bordered with an abrupt membrane; styles often three, awl-shaped, spreading, pubescent. *Seed* kidney shaped. A native of church-yards and waste places in England and other parts of Europe, flowering from May to October. The young leaves are sometimes boiled and eaten as a substitute for spinach, for which purpose the plant is cultivated in some parts of England. The young shoots, peeled and boiled, may also be eaten as asparagus, and are greatly laxative. 2. *C. mucronatum*, Willd. 2. Thunb. Prod. 48. "Leaves tri-

angularly-halberd-shaped, obtuse, mucronate; racemes leafy." A native of the Cape of Good Hope. 3. *C. triandrum*, Mart. 22. Willd. 3. Forst. Prod. 129. "Leaves heart-arrow-shaped; spikes terminal, leafless, interrupted." A native of New Zealand. 4. *C. urticum*, upright goosefoot. Linn. Sp. 2. Mart. 2. Lam. 2. Willd. 4. Eng. Bot. 717. (Pointed blite, Pet. H. Brit. tab. 8. fig. 8.) "Leaves triangular, toothed; racemes crowded, stiff and straight, approaching the stem, very long, almost leafless." *Root* annual. *Stem* stiff and straight, simple or branched, angular, marked with red lines. *Leaves* deltoid-oblong, somewhat halberd-shaped, scarcely lengthened out at the base. *Flowers* green; racemes axillary and terminal. *Seeds* about the size of rape-seed. A native of waste places, about towns and villages. 5. *C. atriplex*, Linn. Jun. Supp. 171. Mart. 3. Willd. 5. Hort. Kew. 1. 311. (*C. purpurescens*, Lam. 14. Jacq. Hort. 3. tab. 80. *C. punctulatum*, Mart. 21. Scop. Infub. 26. tab. 11?) "Leaves rhomb-ovate, lanceolate; lower ones sinuate-toothed; panicles axillary, branched; stem erect." *Root* annual. Whole plant with the habit, height, colour, and leaves of the red garden atriplex or orach. *Stem* simple, scarcely mealy, striated near the top. *Leaves* alternate, petioled, somewhat toothed, red underneath. *Panicle* terminal, more and more crowded upwards; little racemes simple, intermingled with small linear leaves. *Flowers* red, sessile, from three to five in a raceme. A native of Siberia and China. 6. *C. rubrum*, red goosefoot. Linn. Sp. Pl. 3. Mart. 4. Lam. 3. Willd. 6. Lam. Ill. Pl. 181. fig. 2. Curt. Flor. Lond. Fasc. 6. tab. 21. (*Blitum pes anserinus* dictum. Rai. Syn. 154. *Atriplex sylvestris latifolia*, Bauh. Pin. 119. Sharp-pointed blite, Pet. H. Brit. tab. 8. fig. 6.) "Leaves rhomboid-sinuate-toothed; racemes erect, compound, leafy." *Root* annual. A foot and a half high, always erect, except on dunghills, or in a soil too loose to support it, when it becomes decumbent, and sometimes lies close to the ground; somewhat branched, smooth, grooved, becoming reddish as the seeds ripen. *Leaves* alternate, petioled, shorter than those of *C. urticum*, and ending in a shorter point, smooth above, a little mealy underneath. *Flowers* reddish, in axillary and terminal, rather dense racemes. *Seeds* not larger than grains of writing sand. A native of waste places, flowering in August. 7. *C. murale*, nettle-leaved goosefoot. Linn. Sp. Pl. 4. Mart. 5. Lam. 4. Willd. 8. Curt. Flor. Lond. Fasc. 6. tab. 20. (*Blitum pes anserinus* dictum acutiore folio, Rai. Syn. 154. *Atriplex sylvestris latifolia acutiore folio*, Bauh. Pin. 119. Thick shining blite, Pet. H. Brit. tab. 8. fig. 5.) "Leaves egg-shaped, shining, acute, toothed; racemes much branched, cymous, leafless." *Root* annual. *Stem* much branched, feeble. *Leaves* not mealy, triangularly egg-shaped, lengthened out at the base, sinuate-toothed; teeth acuminate, somewhat incurved. *Racemes* somewhat divaricated. *Seeds* minutely dotted with points. Whole plant generally of a deep green colour, and unpleasant smell. A native of waste places, under walls, and by road sides, flowering in August and September. 8. *C. guineense*, Willd. 7. Jacq. Ic. Rar. ii. tab. 345. Collect. ii. p. 346. "Leaves egg-shaped, unequally toothed, acute; racemes somewhat branched; naked, erect; stem simple, erect." Nearly allied to the preceding. *Root* annual. *Leaves* not shining. *Racemes* spreading, not cymous. A native of Guinea. 9. *C. Quinoa*, Willd. 9. Feuille. Peruv. tab. 10. "Leaves triangularly egg-shaped, obsolete toothed; the younger ones mealy; racemes crowded, shorter than the petioles." *Root* annual. *Stem* three feet high, erect, branched. *Leaves* alternate, furnished on each side of the base with a large tooth, and thence apparently triangular, sometimes but rarely with one or two smaller teeth.

CHENOPODIUM.

teeth above. A native of Chili. It is generally cultivated in Peru, where the leaves are eaten as spinach or sorrel, and the seeds, as millet. Mixed with the latter, it makes a pleasant kind of beer. Dombey, on his return from Peru, was lavish in its praise as a valuable esculent, and took great pains to naturalize it in France. The seeds which he brought into Europe failed; but the Spaniards are said to have imported some in a better state of preservation, which are likely to gratify the wishes of the public-spirited naturalist.

10. *C. ferotinum*, Linn. Sp. pl. 5. (*C. hispanicum procerius*, folio deltoide, Tourn. 666, but not blitum ficus folio of Ray's Synopsis.) "Leaves deltoid, sinuate-toothed, wrinkled, smooth, uniform; racemes terminal." Root annual. A native of Spain.

11. *C. album*. White goose-foot, Linn. Sp. pl. 6. Mart. 7. Lam. 6. Willd. 11. (*Atriplex sylvestris folio sinuato candicante*, Bauh. Pin. 119. Fusch. Hist. tab. 119. Frost blite, Pet. H. Brit. tab. 8. fig. 2.) "Leaves rhomboid-egg-shaped, gnawed, entire behind; upper ones oblong entire. Seeds not uneven, with hollow dots." β . with a roundish leaf, Dill. in Rai Syn. p. 155. Buddle's round blite, Pet. H. Brit. tab. 8. fig. 4. γ . Leaves green, or less white, narrower. Racemes looser. *C. viride*, Linn. Sp. pl. 7. δ . Branched with entire leaves, Dill. in Rai. Syn. 155. ϵ . With the thick obtuse leaf of the olive. Dill. in Rai. Syn. 156. Root annual. Stem branched, sometimes reddish. Leaves unctuous-mealy; upper ones narrower, without teeth. Racemes branched, erect, almost leafless. A native of dung-hills and corn-fields, flowering in July and August.

12. *C. ficifolium*. Fig-leaved goose-foot, Smith, Flor. Brit. i. 276. (*C. viride*, Curt. Flor. Lond. Fasc. 2. tab. 16. *C. ferotinum*, Hudf. 106. Sibth. 88. *Blitum ficus folio*, Dill. in Rai. Syn. 155. Buddle's fig blite, Pet. H. Brit. tab. 8. fig. 3.) "Leaves halberd-sinuated, gnawed, entire behind; upper ones oblong, entire; seeds dotted." Root annual. It differs from the preceding in being of a greener colour, purplish at the axils of the branches, and in having halberd-shaped lower leaves; but chiefly, as Curtis has observed, in the surface of its seeds, which are uneven, with hollow dots. A native of dung-hills and waste places, flowering in August. Dr. Smith assures us, that the ferotinum of Linnaeus differs from this species in having a stem five times higher; and larger, deltoid, scarcely halberd-shaped leaves. It also flowers later. The seeds he has not seen.

13. *C. hybridum*. Maple-leaved goose-foot, Linn. Sp. pl. 8. Mart. 9. Willd. 13. (*C. angulosum* Lam. 8. *C. stramonii folio*, Dill. in Rai. Syn. 154. Vail. Parif. tab. 7. fig. 2.) "Leaves heart-shaped, angularly toothed, acuminate; racemes much branched, somewhat cymous, divaricated, leafless." Root annual. Stem slender, branched. Leaves large, bright green, spreading, perfectly heart-shaped (not lengthened out at the base), with three angles on each side. Whole herb of an even surface, fetid. Seeds marked with larger dots. A rather rare native of moist uncultivated ground.

14. *C. Botrys*. Cluster, or cut-leaved goose-foot, oak of Jerusalem, Linn. Sp. pl. 9. Mart. 10. Lam. 9. Willd. 14. (*C. ambrosioides folio sinuato*, Tourn. Inst. 506. *Botrys ambrosioides vulgaris*, Bauh. Pin. 138.) "Leaves oblong, sinuated; racemes leafless, multifid." Root annual. Stem from six to ten inches high, upright, branched towards the base, rather rigid, thinly clothed with down. Leaves petioled, oblong, greenish on both sides. Flowers in very short axillary racemes, giving the summits of the stem and branches the appearance of leafy terminal racemes. A native of uncultivated places in the south of Europe. The whole plant is replete with a resinous viscous juice, which stains the hands. Its leaves emit a strong odour when

bruised, somewhat like that of ambrosia, for which it is sometimes cultivated in gardens.

15. *C. ambrosioides*, Mexican goose-foot, or tea of Mexico, Linn. Sp. pl. 10. Mart. 11. Lam. 10. Willd. 15. (*Botrys ambrosioides Mexicana*, Bauh. Pin. 138. 516. *Atriplex odora*, Morif. Hist. tab. 31. fig. 8.) "Leaves lanceolate, toothed; racemes leafy, quite simple." Root annual, oblong, fibrous. Stem about a foot and a half high, striated, leafy its whole length, branched, thinly clothed with a fine down, which almost resembles powder. Leaves alternate, attenuated both ways, sessile; upper ones narrow, and quite entire. Flowers greenish, in axillary and terminal racemes. The whole plant has a strong, but not disagreeable smell, and an aromatic taste similar to that of cummin. A native of Mexico. This and the preceding species are said to possess considerable sudorific, diuretic, emmenagogue, carminative, and stomachic qualities. The proper menstruum of their active matter is rectified spirit, but they give it also to boiling water.

16. *C. multifidum*, Linn. Sp. pl. 11. Mart. 12. Lam. 11. Willd. 16. Dill. Elth. tab. 66. fig. 77. "Leaves multifid; segments linear; flowers axillary, sessile." An ever-green undershrub. Stem two feet high, much branched, striated, clothed with very short hairs. Leaves alternate, close set, small, oblong, smooth, not so odorous as those of the preceding species. Flowers sessile, in small axillary clusters; calyx somewhat longer, and not so deeply cut as in the other species, and embracing the seed less closely. A native of Buenos Ayres.

17. *C. anthelminticum*, Linn. Sp. pl. 12. Mart. 13. Lam. 12. Willd. 17. Dill. Elth. tab. 66. fig. 76. "Leaves ovate-oblong, toothed; racemes leafless." Root perennial. Stem three feet high, erect, stiff, striated, slightly hairy, branched about the middle. Leaves alternate, narrowed into a petiole, green on both sides, somewhat hairy underneath, of an unpleasant smell. Flowers greenish, in small axillary racemes. A native of Buenos Ayres, and of Pennsylvania, and New Jersey. In North America, it is called Jerusalem oak, or worm-seed, and is said to be an excellent vermifuge.

18. *C. glaucum*, Linn. Sp. pl. 13. Mart. 14. Lam. 13. Willd. 18. Eng. Bot. 1454. (*C. angustifolium laciniatum minus*, Tourn. Inst. 506. Dill. in Rai. Synop. 155. *Atriplex* Bauh. Hist. ii. tab. 473. Tabern. Ic. 427.) "Leaves all oblong, with a deeply-waved edge, glaucous underneath; racemes compound and dense, leafless." Root annual. Stems from two inches to two feet high, thickish, branched, and spreading, often prostrate, striated with green and white. Leaves alternate, petioled, uniform, bluntish, green, and smooth above, mealy, and white underneath. Flowers green, in small axillary and terminal racemes. Seeds blackish, very minutely dotted. A native of several parts of Europe, flowering in August. In England found chiefly about the neighbourhood of London. In rich ground it grows extremely rank, losing its delicacy of colour, and much of those contrasted hues of green, red, and glaucous white, which, in a poor soil, render it more elegant in appearance than most of its family. Smith Eng. Bot.

** Leaves entire.

19. *C. olidum*, Curt. Flor. Lond. Fasc. 5. tab. 20. Withering, i. 273. Smith Flor. Brit. i. 277. Eng. Bot. pl. 1034. (*C. vulvaria*, Linn. Sp. pl. 14. Mart. 15. Willd. 19. Woodv. Med. Bot. pl. 145. *C. foetidum*, Lam. 15. Tourn. Inst. 506. *Atriplex*, Bauh. Pin. 119. *Vulvaria*, Dalech. Hist. 543. Tabernæmont. 428. Blackw. tab. 100. *Garofmus* Dod. Pemp. 616.) Stinking goose-foot. "Leaves egg-shaped, somewhat rhomboid; flowers in dense, clustered spikes." Root annual, small. Stems several, eight or ten inches high, spreading or prostrate, branched,

branched, whitish. *Leaves* alternate, petioled, small, covered, especially underneath, with a whitish unctuous meal. *Flowers* small. A native of waste places in England and other parts of Europe, especially near the sea shore; common about London and Yarmouth; flowering in August. The whole plant in its recent state has a nauseous taste, and a strong offensive smell, resembling that of putrid salt fish, and remaining long on the hands after touching the herb. To this remarkable sœtor its medicinal qualities are ascribed by Dr. Cullen, who says that it has been employed with advantage in Scotland as a powerful antispasmodic, and particularly in hysterical affections. He adds that, as it loses all its sensible qualities when it becomes dry, it can be used only in its recent state, when the most convenient formula is that of a conserve. It can, therefore, be only occasionally procured, and in many situations is altogether unattainable. On this account it has been expunged from the *Materia Medica* of the London Pharmacopœia, though it is still retained in that of Edinburgh. 20. *C. polyspermum*, Linn. Sp. Pl. 15. Mart. 16. excluding some of the synonyms. Lam. 16. Willd. 20. Eng. Bot. Pl. 1480. (*Blitum polyspermum*; Bauh. pin. 118. *Polysporon cassiani*; Lob. hist. 128. Allseed Blite; Pet. Fl. Brit. tab. 7. fig. 10.) Round-leaved Goosefoot. "Leaves egg-shaped, obtuse; racemes forming cymes, divaricated, leafless." *Root* annual, branched. *Stems* several, prostrate, widely spreading, mostly simple, roundish, striated, leafy from the base to the extremity. *Leaves* alternate, petioled, generally very obtuse, sometimes a little waved in their outline, of a deep grass-green colour. *Flowers* green, in large, axillary, repeatedly subdivided, sessile racemes. *Seed* black, kidney-shaped, minutely dotted. A native of cultivated ground in England and other parts of Europe. 21. *C. acutifolium*, Smith, Eng. Bot. Pl. 1481. (*C. polyspermum*; Curt. Flor. Lond. fasc. 2. tab. 17. With. 273. Hull. 57. Relh. 120. Sibth. 89. *Atriplex sylvestris* five *Polyspermon*, Ger. em. 325.) "Leaves egg-shaped, acute; stem erect; racemes somewhat cymous, elongated, leafless." *Root* annual. *Stem* nearly upright, much branched, leafy, square. *Leaves* rather paler than those of the preceding species. *Racemes* numerous, axillary; the larger ones somewhat cymous and spreading; the rest rather spiked. *Seed* orbicular, blackish, scarcely dotted. A native of England and Switzerland; flowering in July and August. 22. *C. caudatum*, Willd. 21. Jacq. ic. 2. tab. 344. Collect. 2. p. 325. "Leaves egg-shaped, obtuse; panicle leafless, terminal, elongated; stem simple, erect." *Root* annual. A native of Guinea. 23. *C. laterale*, Hort. Kew. 1. p. 313. Mart. 23. Willd. 22. "Stem-leaves lanceolate, obtuse; those of the branches oblong; peduncles lateral, solitary, one-flowered." *Root* annual. Native country unknown; introduced at Kew in 1781 by Dr. Broussonet. 24. *C. scoparia*, Linn. Sp. Pl. 16. Mart. 17. Lam. 17. Willd. 23. (*C. linifolia*; Tourn. Inst. 506. *Linaria scoparia*; Bauh. Pin. 212. *Linaria Belvidere*; Bauh. hist. 3. 462. *Oxyris*; Dod. Pempt. 101.) Flax leaved goosefoot, Belvidere or Summer Cypress. "Leaves linear-lanceolate, flat." *Root* annual. *Stem* three feet high or more, upright, slender, clothed with short hairs, furnished with short branches its whole length, and assuming a regular pyramidal form, so as to appear like a cypress tree in miniature. *Leaves* narrow, two or three inches long, and two lines broad, of a fine green, sessile, acute, ciliated. *Flowers* greenish, in small sessile clusters. A native of Italy, Greece, China, and Japan. It is sometimes cultivated in gardens on account of its pleasant verdure and elegant mode of growth. In Italy it is used to make besoms. 25. *C. villolum*, Lam. 18. "Leaves linear, flat, hairy, very soft, greyish; racemes woolly." Resembling the *Salsolas* in habit.

Root annual. *Stems* three feet high, upright, branched, almost cylindrical, hairy; woolly, and very white at the summits of the branches. *Leaves* half the length of those of the preceding species, whitish when young, afterwards greenish, and almost simply ciliated. *Racemes* sessile, short, leafy. Described by La Marck from a living plant in the royal garden at Paris. Native country unknown. 26. *C. maritimum*, Linn. Sp. Pl. 17. Mart. 18. Lam. 19. Willd. 24. Flor. Dan. tab. 489. Eng. Bot. pl. 633. (*Kali minus album*; Bauh. Pin. 289. Morif. hist. 2. tab. 33. fig. 3.) Sea Goosefoot or white Glasswort. "Leaves awl-shaped, semicylindrical." *Root* annual, fibrous, small. *Stem* eight or nine inches high, erect, branched, roundish, leafy. *Leaves* alternate, rather acute, smooth, succulent, abounding with a salt juice. *Flowers* green, sessile, from two to four together in small clusters, with a pair of bractes to each. *Seeds* finely striated, of a deep shining black. A common native of the sea-coast in various parts of Europe. It has the habit of a *Salsola*, like many other plants abounds with alkaline salt, and is one of those which are indiscriminately collected in the warmer parts of Europe, for the manufactory of glass. 27. *C. oppositifolium*, Linn. jun. Supp. 172. Mart. 20. Willd. 25. (*Salsola oppositifolia*; Pall. it. 2. 735. tab. O. Germ. Ed. 2. 545. pl. 14. Fr. Ed.) "Leaves opposite, lanceolate awl-shaped, very short." *Stem* somewhat woody, cylindrical, much branched, nearly erect; branches erect-spreading, opposite, striated with reddish lines. *Leaves* half-embracing the stem, somewhat fleshy, acute, scarious at the edges. *Flowers* in axillary leafy clusters. A native of Siberia about the river Jaick. The younger Linnæus observes, that it differs in habit from the *Chenopodia*, and may perhaps be a *Polycnemum*. 28. *C. arifolium*, Linn. Sp. Pl. 18. Mart. 19. Lam. 20. Willd. 26. Gmel. Sib. 3. tab. 15. fig. 1. "Leaves lanceolate, somewhat fleshy; corymbs dichotomous, awned, axillary." *Root* annual. *Stem* from two to five inches high, much branched, smooth; branches panicled, spreading. *Leaves* alternate, sessile, green or reddish, narrowed at their base, terminated by a weak point. *Flowers* small, greenish; corymbs or panicles composed of very slender, ramified dichotomous peduncles; each ramification terminated by a strong setaceous awn, with a sessile flower within each fork, and alternate ones when the bifurcation ceases. A native of Siberia. Linnæus mentions a variety said to be found in Virginia without awns.

CHENSERS, in our *Statutes*, is used for such as paid tribute or *cense*, quit-rent, or chief-rent.

CHEN-SI, or SHEN-SEE, in *Geography*, a province of China, bounded on the east by Hoang-ho, which separates it from Chan-si, or Shan-see; on the south by the provinces of Se-tchuen and Hou-quang; on the north by Tartary, and the great wall; and on the west by the country of the Monguls. Chen-si is one of the most extensive provinces of the empire, and is divided into two parts, the eastern and western, containing 8 *fou*, or cities of the first class, and 166 of the second and third. Its capital is Singnan-fou. Its population consists of 18,000,000 persons, and the extent of this province, together with that of Kan-fou, comprehends 154,008 square miles, or 98,565,120 acres. The revenue from the land and taxes amounts to 1,700,000 tahels or ounces of silver. It had formerly three viceroys; but at present it has only two, besides the governors of So-tcheou and Kan-tcheou, which are the strongest places in the country. This province is in general very fertile, commercial, and rich. It produces little rice; but the inhabitants have plentiful crops of wheat and millet: it is, however, subject to long droughts, and clouds of locusts sometimes destroy every thing that grows in the fields: these insects are boiled and eaten by the Chinese. This country abounds with drugs,

rhubarb, musk, cinnabar, wax, honey, and coals, of which it contains inexhaustible veins: it has also rich gold-mines, which, for political reasons, are not opened: gold-dust is washed down in such abundance among the fand of the torrents and rivers, that many people derive their whole subsistence from what they gain by collecting it. Travellers remark, that the natives of this country are more polite and affable to strangers, and possess greater genius, than the Chinese of the other northern provinces.

CHEN-TANG-CHAUNG, a river of China, which takes its rise in a range of mountains that surround the town of Chan-san-shen on several sides. The whole course does not exceed 200 miles, being generally through a hilly or little frequented country; and it has no communication with any considerable road, river, or canal, until it reaches Han-choo-foo. The tide, when full, increases the breadth of this river to about 4 miles opposite the city; and for the distance of somewhat more than 60 miles from the eastern sea, into which it discharges itself, it is crowded with vessels of every kind. At low water near Han-choo-foo there is a fine level strand about 2 miles broad, which extends towards the sea as far as the eye can reach. By this river Han-choo-foo receives and exports great quantities of merchandise to and from the southern provinces. The goods are shipped and unshipped by means of four-wheeled waggons, placed in a line, and forming a convenient pier, capable of being easily lengthened or shortened, by increasing or diminishing the number of waggons, according to the distance of the vessels from the shore.

CHEN-YANG, or **CHIN-YANG**, one of the three districts or governments into which the country of the Mandshurs or Mantchew Tartars in Chinese Tartary is divided by the Chinese. It comprises what was called Leao-tong, and extends as far as the great wall, which bounds it on the south; and on the east, north, and west, it is enclosed by a palisade, which is better adapted to the defence of the country against the nocturnal invasions of robbers, than for stopping the march of an army. It is constructed only of stakes 7 feet high, without any bank of earth, ditch, or fortified work: the gates are of the same kind, and are guarded only by a few soldiers. This country has many mountains, some of which abound with metals and wood. The land is fertile; and produces wheat, millet, leguminous plants, and cotton. The vallies are covered with herds of oxen and flocks of sheep. The chief town of this district is called Chen-yang.

CHEN-YANG, or **CHIN-YANG**, called *Mounden* by the Mandshurs, is the capital of the above government, seated on an eminence, and still a considerable place, with a mausoleum of Kunchi, who is regarded as the conqueror of China, and the founder of the reigning family. The Mantchew Tartars have taken great pains in ornamenting it with public edifices, and providing it with magazines of arms and storehouses. They consider it as the principal place of their country; and since China has been subject to their dominion, they have established several tribunals similar to those of Peking, composed only of Tartars, whose determination is final; and in all their acts they use the Tartar characters and language. Chen-yang may be considered as a double kind of city, one of which is enclosed within the other: the interior city contains the emperor's palace, hotels of the principal mandarins, sovereign courts, and the different tribunals:—the exterior city is inhabited by the common people, tradesmen, and those who by their employments or professions are not obliged to lodge in the interior. The latter city is almost a league in circumference, and the walls that enclose both are more than three leagues in circuit: they were entirely rebuilt in 1631, and frequently repaired since that

time. This city is 54 miles E.N.E. of Peking. N. lat. $41^{\circ} 52'$. E. long. $123^{\circ} 17'$.

CHENZINI, or **CHINTING**, a town of Poland, in the palatinate of Sandomirz; near which are mines of silver and quarries of marble; 10 miles E. of Malagocz.

CHEOU, a town of China, of the second rank, in the province of Kiang-nan; 455 miles S. of Peking. N. lat. $32^{\circ} 34'$. E. long. $116^{\circ} 23'$.

CHEOU-QUANG, a town of China, of the third rank, in the province of Chang-tong; 5 leagues N.E. of Tchiu tcheou.

CHEOU-TCHING, a town of China, of the third rank, in the province of Fo-kien; 62 miles N.E. of Kien-nghing.

CHE-OU-TCHANG, a town of China, of the third rank, in the province of Tche-kiang; 5 leagues S.W. of Yen-tcheou.

CHEOU-TCHANG, a town of China, of the third rank, in the province of Chang-tong; 9 leagues N.E. of Po.

CHEOU-YANG, a town of China, in the province of Chan-li; 10 miles E. of Tai-yuen.

CHE-PAU, or **PAU A PIERRES**, a sort of machine for throwing stones employed at sieges by the Tartars when they conquered the northern part of China in 1732.

CHEPELLO, in *Geography*, a small island, about a league in circuit, of South America, in the bay of Panama and province of Darien; 3 miles from the town of Panama, which supplies it with provisions and fruits. N. lat. $8^{\circ} 46'$. W. long. $80^{\circ} 45'$.

CHEPEWYAN FORT, a fort of North America, at the south-western extremity of the lake of the Hills, at about 8 miles from the discharge of the river Elk into the lake, in the territory of the Hudson's-Bay company. N. lat. $58^{\circ} 40'$. W. long. $110^{\circ} 30'$. The old establishment formed at the distance of about 40 miles from the lake, by Mr. Pond, in the year 1778-9, which was the only one in this part of the world till the year 1785, was transferred in 1788 to this fort, as a place much better situated for trade and fishing, the people here having recourse to the fishery on the lake for their support. Mr. Mackenzie made this place his head quarters for 8 years, and from hence he took his departure on both his expeditions, in the years 1789 and 1793, towards the Pacific and Frozen oceans. He has particularly described the manner of carrying on the fur-trade here, as well as the mode of fishing on the lake. The laden canoes, he says, which leave lake La Pluie about the first of August do not arrive here till the latter end of September or the beginning of October, when a necessary proportion of them is dispatched up the Peace-river to trade with the Beaver and Rocky-mountain Indians; others are sent to the Slave river and lake, or beyond them, and traffic with the inhabitants of that country. A small part of them, if not left at the fork of the Elk river, returns thither for the Knisteneaux, while the rest of the people and merchandise remain here to carry on trade with the Chepewyans. During their stay, these voyagers live wholly upon fish caught in the lake, without even the quickening flavour of salt, or the variety of any farinaceous root or vegetable. Salt, however, if their habits had not rendered it unnecessary, might be obtained in this country to the westward of the Peace-river, where it loses its name in that of the Slave-river, from the numerous salt ponds and springs to be found there, which would supply any quantity, in a state of concretion, and perfectly white and clear.

When the Indians pass that way, they bring a small quantity to the fort, with other articles of traffic. During a short period of the spring and fall, great numbers of wild fowl frequent this country, and they furnish a very gratifying food after such a long privation of flesh meat. It is remarkable, however, that the Canadians, who frequent the Peace,

Peace, Saskatchewan, and Assiniboine rivers, and live altogether on venison, have a less healthy appearance than those whose sustenance is obtained from the waters. At the same time the scurvy is wholly unknown among them. In the fall of the year the natives meet the traders at the forts where they barter the furs or provisions which they may have procured; they then obtain credit and proceed to hunt the beavers, and do not return till the beginning of the year, when they are again fitted out in the same manner, and come back the latter end of March or the beginning of April. They are now unwilling to repair to the beaver hunt until the waters are clear of ice, that they may kill them with fire-arms, which the Chepewyans are averse from employing. The greater number of the latter return to the barren grounds, and live during the summer with their relations and friends in the enjoyment of that plenty which is derived from numerous herds of deer. But those of that tribe who are most partial to these deserts, cannot remain there in winter, and they are obliged, with the deer, to take shelter in the woods during that rigorous season, where they contrive to kill a few beavers, and send them by young men, to exchange for iron utensils and ammunition.

Till the year 1782, the people of Athabasca sent or carried their furs regularly to Fort Churchill in Hudson's bay; and some of them have, since that time, repaired thither, although they could have provided themselves with all the necessaries which they required. The difference of price set on goods here and at that factory, made it an object with the Chepewyans to undertake a journey of 5 or 6 months, in the course of which they were reduced to the most painful extremities, and often lost their lives from hunger and fatigue. At present, however, this traffic is in a great measure discontinued, as they were obliged to expend in the course of their journey that very ammunition which was its most alluring object. See the next article.

CHEPEWYANS, or *Chippewas*, a numerous tribe of Indians, in North America, who consider the country between the parallels of N. latitude 60° and 65°, and W. longitude 100° to 110°, as their lands or home. They speak a copious language, of which Mr. Mackenzie (*ubi infra*) has given a specimen, very difficult to be attained, and furnishing dialects to the various emigrant tribes which inhabit the immense tract of country, the boundary of which is as follows. It begins at Churchill and runs along the line of separation between them and the Knisteneaux, up the Mississippi to the île à la Croix, passing on through the Buffalo-lake, River-lake, and Portage la Loche: from thence it proceeds by the Elk river to the lake of the Hills, and goes directly W. to the Peace river, and up that river to its source and tributary waters; from thence it proceeds to the waters of the river Columbia, and follows that river to N. latitude 52° 24', and W. long. 122° 54', where the Chepewyans have the Atnah or Chin nation for their neighbours. It then takes a line due W. to the sea-coast, within which the country is possessed by a people who speak their language, and are consequently descended from them, so that there is no doubt of their progress towards the east. A tribe of them is even known at the upper establishments on the Saskatchewan, and they also follow the Rocky-mountains to the east. The number of those who trade with the English does not exceed 800 men, and they have a smattering of the Knisteneaux tongue, in which they carry on their dealings. Those who inhabit the coast of the lake Superior and the islands in that lake furnished about 30 years ago 1000 warriors. Other tribes of their nation inhabit the country round Saguinam or Sagara

bay and lake Huron, the Puan bay, and a part of lake Michigan.

Of the number of the Chepewyans it is not possible to form a just estimate; but it bears no proportion to the immense extent of their territories, which may, in some degree, be attributed to the ravages of the small-pox. These people entertain singular ideas of the creation. They conceive, that, at first, the globe was a vast ocean, inhabited merely by a bird of large size, whose eyes were fire, whose glances were lightning, and the clapping of whose wings was thunder. On his descent to the ocean, and touching it, the earth instantly rose, and remained on the surface of the waters. This omnipotent bird called forth the whole variety of animals from the earth, except the Chepewyans, who were produced from a dog; and this circumstance occasioned their aversion to the flesh of that animal, as well as the people who eat it. The great bird, having finished his work, made an arrow, which was to be preserved with great care, and untouched; but the Chepewyans carried it away, and thus enraged the bird to such a degree, that he has never since appeared. They have also a tradition among them, that they originally came from another country, inhabited by very wicked people, and that they had traversed an extensive lake, narrow and full of islands; and that in their voyage they had encountered many hardships from ice and deep snow, as it was always winter. Upon their first landing at the Copper-mine river, the ground was covered with copper, under a bed of earth, to the depth of a man's height. They farther believe, that their ancestors lived till their feet were worn out with walking, and their throats with eating. They describe a deluge, where the waters spread over the whole earth, except the highest mountains, on the tops of which they preserved themselves. It is their opinion, that immediately after death, they pass into another world; and that, when they arrive at a large river, they embark in a canoe of stone, and are carried with a gentle current to an extensive lake, in the centre of which is a most beautiful island; in the view of which they receive that judgment for their conduct during life, which decides their final and unalterable state. If their good actions predominate, they are landed in the island, and commence an eternal happiness, consisting in the enjoyment of sensual pleasures and carnal gratifications. But if their bad actions weigh down the balance, the stone canoe sinks at once, and leaves them up to their chins in water, to behold and regret the reward enjoyed by the good, and eternally struggling, with ineffectual efforts, to reach the blissful island, from which they are for ever excluded. They have also some faint notion of the transmigration of the soul.

The Chepewyans are sober, timorous, and vagrant, with a selfish disposition, which has occasioned suspicions of their integrity. With regard to their stature, they are seldom corpulent, but sometimes robust. Their complexion is swarthy, their features coarse, and their hair lank, but not of a dingy black; nor have they universally the pleasing eye which generally animates the Indian countenance. The aspect of the women is more agreeable than that of the men; but they acquire an awkward gait, from their being accustomed, for nine months in the year, to travel in snowshoes, and to drag sledges from 2 to 400 lbs. in weight. To their husbands, who are sometimes jealous, they are very submissive; and yet, for trivial causes, the brutal men treat them with such cruelty as sometimes to occasion their death. They are frequently objects of traffic; and the father possesses the right of disposing of his daughter. However, they do not sell them as slaves, but as companions to

those who are supposed to live more comfortably than themselves. The men, in general, extract their beards; though some prefer a bushy black beard to a smooth chin. They cut their hair in various forms, or leave it to its natural long flow, as caprice or fancy suggests. The women wear their hair of great length, and well arranged; unless the jealousy of their husbands cause them to despoil it of its tresses, which they consider as a worse punishment than manual correction. Persons of both sexes have blue or black bars, or straight lines, from one to four, on their cheeks or forehead, by which they distinguish the tribe to which they belong. These marks are either tattooed, or made by drawing a thread, dipped in the necessary colour, beneath the skin. Their dress in winter is composed of the skins of deer and their fawns, and prepared with as much care as the chamois leather in the hair. In summer, their apparel is the same, except that it is prepared without the hair. When they are completely dressed, they will lie down on the ice in the middle of a lake, and repose in comfort; though in the morning they find some difficulty in disencumbering themselves from the snow which has drifted on them in the night. When they are in want of provision, they cut a hole in the ice, and seldom fail of catching some trout or pike, the eyes of which they scoop out, and then eat as a great delicacy; but if their appetite is not satisfied, they finish their meal with the fish in its raw state; though they generally prefer the dressing of their victuals, when circumstances admit the necessary preparation: but the want of wood for fuel sometimes reduces them to this exigency, though they generally dry their meat in the sun. The provision called "pemican," on which the Chepewyans, as well as the other savages of this country, chiefly subsist in their journeys, is prepared by cutting the lean parts of the larger animals in thin slices, and placing them on a wooden grate over a slow fire, or exposing them to the sun or to the frost. When the flesh is dry, it is pounded between two stones; and it may then be kept with care for several years. The fat of the inside, and of the rump, is melted and mixed, in a boiling state, with the pounded meat, and then put in baskets or bags, for the convenience of carriage. This becomes a nutritious food, and is eaten without any further preparation. Another sort is made, with the addition of marrow and dried berries, which is of a superior quality.

The women, when they are travelling, carry their infants on their backs within the folds of their loose garments, in a position convenient for being suckled; nor do they discontinue to give their milk to them till they have another child. They have a singular custom, when they are delivered, of cutting off a piece of the navel string of the new born child, and hanging it about their necks, and they decorate it with porcupines' quills and beads. The women, though absolutely subject to the men, are always consulted, and possess a considerable influence in the traffic with Europeans, and other important concerns. Plurality of wives is very common among these people; and marriage is a very simple ceremony. The girls are betrothed at a very early period to those whom their parents think best able to support them; nor is the inclination of the female considered. When a separation takes place, it altogether depends on the pleasure of the husband. In common with the other Indians of the country, they have the custom of secluding women in their periodical state from society; they are not allowed in travelling to keep the same path as the men; and it is considered as highly indecorous for a woman in such circumstances to touch any utensils of manly occupation. The subsequent use of such defiled utensils would, in their

apprehension, be followed by certain mischief or misfortune.

The Chepewyans are not remarkable for their activity as hunters, which is owing to the ease with which they snare deer and spear fish. They make war on the Esquimaux, who cannot resist their superior numbers, and put them to death, as it is a principle with them never to make prisoners. Nevertheless they tamely submit to the Knisteneaux, who are not so numerous as themselves, when they treat them as enemies. As these people are not addicted to spirituous liquors, they always possess a degree of understanding, which enables them to perceive and to pursue their own interest, and this disposition occasions their being sometimes charged with fraudulent habits. They submit with patience to the most severe treatment when they are conscious of deserving it; but they will never forget or forgive any wanton or unnecessary rigour. Mr. Mackenzie represents them as the most peaceable tribe of Indians known in North America. They have among them conjurors and high priests, who operate by their ceremonies on the imaginations of the people in the cure of certain disorders. Their principal maladies are rheumatic pains, the flux, and consumptions. The venereal complaint is also very common: and though its progress is slow, it gradually undermines the constitution, and brings on premature death. For the cure of these disorders they have recourse to superstition, and charms are their only remedies, except the bark of the willow, which, being burned and reduced to powder, is strewn upon green wounds and ulcers, and places contrived for promoting perspiration. Of the use of simples and plants they have no knowledge; as their country does not produce them.

Although they have no regular government, every man being absolute lord in his own family, they are influenced more or less by certain principles which conduce to their general benefit. In their mutual quarrels they rarely proceed to any greater degree of violence than is occasioned by blows, wrestling, and pulling of the hair; and their abusive language consists in applying the name of the most offensive animal to the object of their displeasure, and adding the term ugly, and chiay, or still born.

Their arms and domestic apparatus, besides those which they procure from the Europeans, are spears, bows and arrows, fishing nets, and lines made of green deer-skin thongs. They have also nets for taking the beaver as he endeavours to escape from his lodge when it is broken open.

Their snow-shoes are of superior workmanship, the inner part is straight, the outer one is curved, and it is pointed at both ends, with steel in front turned up. They are also very neatly lined with thongs made of deer-skin. Their sledges are formed of thin slips of board turned up in front, and are highly polished with crooked knives, in order to slide along with facility. The best wood for this purpose is that which is close grained; but theirs are made of the red or swamp spruce fir-tree. The chief vegetable substance produced by the thin soil of their country is the moss, on which the deer feed; and a sort of rock-moss, which, in times of scarcity, preserves the lives of the natives. When boiled in water, it dissolves into a clammy glutinous substance, that affords very sufficient nourishment. Notwithstanding the barrenness of their country, these people, with proper care and economy, might live with great comfort, as their lakes abound with fish, and their hills are covered with deer. However, in the dead of winter, they are under the necessity of retiring to their scanty stunted woods. To the westward they might find the musk-ox, but they do not recur to it as an article of sustenance. They have also

also large hares, a few white wolves peculiar to their country, and several kinds of foxes, with white and grey partridges, &c. The beaver and moose-deer they do not find till they come within 60° of N. latitude; and the buffalo is known to frequent an higher latitude to the westward of their country. These people find on the surface of the earth a beautiful variegated marble, which is easily wrought, leaves a fine polish, and hardens with time; it also endures heat, and is manufactured into pipes or calumets, as they are very fond of smoking tobacco, a luxury which was communicated to them by the Europeans.

Their amusements are few. Their music is so inharmonious, and their dancing so awkward, that they seldom practise either. They shoot at marks, and play at the games that are common among them; but they prefer sleeping to any recreation, and their time is spent either in procuring food or in resting from the toil that is necessary for obtaining it.

Their disposition is querulous; and they express their complaints by a constant repetition of the word "eduiy," it is hard, in a whining and plaintive tone of voice. They are extremely superstitious; and almost every action they perform, however trivial, is influenced by some whimsical notion. Mr. Mackenzie never observed among them any particular form of religious worship; but as they believe in a good and evil spirit, and a state of future rewards and punishments, he thinks they cannot be altogether without religious impressions.

The Chepewyans have been accused of abandoning their aged and infirm people to perish, and of not burying their dead; but these, says Mr. M., are melancholy necessities which proceed from their wandering way of life; and they are by no means universal. In their own country they cannot bury their dead, because the ground never thaws; but when they are in the woods, they cover them with trees. Besides they manifest no common respect to the memory of their departed friends, by a long period of mourning, cutting off their hair, and never making use of the property of the deceased. Nay, many frequently destroy or sacrifice their own, as a token of regret or sorrow. The barrenness of their country might be supposed to lead them to the horrid practice of cannibals; but this is a suspicion from which Mr. M. amply vindicates them. "In all my knowledge of them," says he, "I never was acquainted with one instance of that disposition; nor among all the natives which I met with in a route of 5000 miles, did I see or hear of an example of cannibalism, but such as arose from that irresistible necessity which has been known to impel even the most civilized people to eat each other." Mackenzie's Voyages, &c. Introduction.

CHE-PING, a town of China, of the third rank, in the province of Koei-tcheou; 5 leagues W. of Tchi-yaen.—Also, a city of China, of the second rank, in the province of Yon-nan; 410 leagues S.S.W. of Peking. N. lat. 23° 49'. E. long. 102° 24'.

CHEPO, **CHEPOOR**, or **ST. CHRISTOVAL DE CHEPO**, a small Spanish town of South America, in the country of Terra Firma, and province of Darien, seated on a river of the same name; 1 league from the sea, and 9 E. of Panama; N. lat. 10° 42'. W. long. 77° 50'.

CHEPSTOW, a town of Monmouthshire, England, is seated partly in a deep hollow, and partly on the steep side of a hill, shelving to the river Wy. This river makes a considerable curve here, and at the distance of about two miles, south-west, unites with the Severn. The situation and scenery of Chepstow are extremely picturesque and romantic. From some eminences the masts and sails of

vessels seem to rise in the midst of an immense quarry; which, with the town crouching in a deep dell, and rising a precipitous hill, form a singularly interesting mixture of buildings, vessels, cliffs, water, and woods. The natural features of this place are described by Mr. Coxe in the following terms: "The eminences which tower over the town are thickly overspread with wood; among which the rich groves of Piercefield rise conspicuous. The romantic cliffs of the Wy are here extremely picturesque, particularly the ridge which forms the left bank of the river below the bridge; it is lofty, perpendicular, of a concave shape, and tinted with various hues; white, grey, red, and yellow are beautifully blended, while green is superadded by the foliage of the oak that skirts the top and shades the sides, or by large clusters of ivy starting from the crevices at all heights, and twining in all directions. The ponderous remains of the castle form a grand and permanent feature in this diversified scenery; they cover a large tract of ground, and stretch along the brow of the perpendicular cliff which impends over the Wy."

The Romans probably occupied the site of Chepstow as a position commanding for several miles the only passage of the Wy, and we may infer from its name that it was not overlooked by the Saxons. But this part of Monmouthshire, which was then included in the county of Gloucester, came, soon after the conquest, into the possession of the Normans, and the castle of Eltrighoiel or Striguil, by which name Chepstow was then known, was erected by Wilhelmus Comes, who is supposed by Camden and Dugdale to be William Fitzosborn earl of Hereford. He was killed in 1070; and his third son, the heir to this castle, being doomed to perpetual imprisonment, it was probably transferred to the illustrious house of Clare, in whose possession we find it in the reign of Henry I. Isabella, the daughter and heiress of Richard Strongbow, earl of Pembroke, conveyed, on the death of her father in 1176, the castle and manor of Striguil, with all his other possessions, to her husband William, earl marshal of England, who, on the death of king John, became protector of the realm, and was created, in right of his wife, earl of Pembroke and Elstrigol or Striguil. By this illustrious nobleman, who, in a period of warfare, exhibited the most heroic prowess, and in an age of rebellion the most unshaken loyalty, the tottering crown of John was supported, the confederacy of the barons who had sworn allegiance to the Dauphin was dissolved, young Henry was fixed on the throne of his ancestors, and his distracted country blessed with peace. The Earl's five sons dying without issue, his eldest daughter Maud transferred the castle and borough of Striguil to her husband Hugh Bigod earl of Norfolk. But their grandson Roger having surrendered to the crown all the honors and estates of his family, they were granted by Edward II. to his brother Thomas de Brotherton; after whose death the castle and manor of Chepstow descended to the Mowbrays, and were sold by John, duke of Norfolk, to William Herbert, earl of Pembroke, with whose other estates they were conveyed by marriage to Sir Charles Somerset, and are now in the possession of his descendant the duke of Beaufort.

The town of Chepstow was formerly fortified; and the ruined walls, which were strengthened by round towers, reach from the bank of the river below the bridge to the castle, which, at one period, surpassed, in extent as well as importance, any fortrefs in this part of Great Britain. Its ruins stand on a precipice which overhangs the west bank of the Wy; the northern side, being built close to the edge, appears part of the cliff, and the ivy by which the walls are overspread,

overspread, twines and clusters about the unwieldy fragments, and down the perpendicular side of the rock: towards the land a moat defended it, and it was flanked with lofty towers. A very considerable space is occupied by the area, which is divided into four courts: the first contains the shells of the kitchens, grand hall, and other numerous apartments; from the second, which is now a garden, a passage leads into the third, and to a building called the chapel; there was formerly a communication from the third, which is also a garden, to the fourth, to which now the only access is by creeping through a sally-port in the wall. The characteristic style of the architecture appears, from a general survey, to be Norman: the shell seems to have been constructed on one plan and at the same period; but the other buildings have been altered and enlarged by later proprietors. Great importance attached to this fortress during the civil wars, when it was at first garrisoned for the king, till colonel Morgan, aided by the mountaineers, took possession of the town, and forced the castle to surrender. It was recaptured by the loyalists under Sir Nicholas Kemeys, who, with only 160 men, made a courageous stand against the assaults of Cromwell; but after a laborious siege, it was stormed, and Sir Nicholas and forty of his brave adherents, perished in the attack. At the south-eastern extremity of the first court of the castle is a tower, remarkable as the prison of the celebrated regicide Harry Marten. An early assertor of republican principles, he zealously co-operated with Cromwell in the abolition of monarchy; and on the trial of the king he sat as one of the judges. From the dissolution of the long parliament until the restoration, he remained in obscure retirement, when he surrendered on the king's proclamation: he was arraigned and condemned for high treason, but his sentence was commuted for perpetual imprisonment, and he was removed to Chepstow castle, where he was treated with great lenity, was allowed the possession of his whole property, and the privilege of visiting the neighbouring gentry. In the twentieth year of his abode here, an apoplexy terminated his confinement and life, at the age of seventy-eight. He was buried in the chancel of the church of Chepstow, where a stone with an inscription of his own writing, was placed over his remains: but the zeal of the vicar not suffering the monument of a regicide to pollute the vicinity of the altar, it has since been removed into the body of the church.

Chepstow is about three miles from the passage over the river Severn at Aust ferry; five from the new passage at Black Rock; fifteen from Monmouth; sixteen from Bristol, and 135 from London.

The tide of the Wy flows with great rapidity up to the town. It frequently rises at the bridge to 56 feet, and in January 1768 it arose about 70 feet; a phenomenon occasioned by the projection of the rocks at Beachley and Aust, which turns the tide with great violence into this river. The floor of the bridge, constructed similar to that of Caerleon, is level; and was formerly supported by wooden piers, about the height of 40 feet, which the counties of Gloucester and Monmouth jointly contributed to keep in repair. They remain in their original state on the Gloucestershire side, but stone piers have been substituted on the opposite shore. Part of it belongs to the county of Gloucester, and part to Monmouthshire.

Chepstow contains no manufactories; but supplies Herefordshire and this part of Monmouthshire with the necessary imports by the Wy, and exports the native productions, which are principally timber, grain for the Bristol market, coal, grind and mill-stones, iron, oak-bark, and cyder.

A considerable foreign trade is carried on during peace; and some vessels are built here. An alien priory for Benedictine monks (of which scarcely any traces remain) was founded here soon after the conquest, by one of the proprietors of the castle. The parish church was part of the priory chapel, and displays a curious specimen of Norman architecture. Its western entrance is a magnificent portal, enriched with the mouldings peculiar to the Saxon and Norman styles. In the neighbourhood are the remains of several religious houses. A pleasant eminence to the west of the town was occupied by St. Kynemark's priory; the walls of which, still visible, enclose the garden and yard of a farm-house, called St. Kynemark's farm. The foundations of St. Lawrence's chapel may also be traced. The traveller, in passing to this spot along the shire Newton road, and along the fields, commands a singular and beautiful prospect of Chepstow and its environs. The remains of several other chapels still exist. In the garden belonging to a house in Bridge-street, is a well, remarkable for good water, which at high tide becomes perfectly dry: a little before which it begins to subside, and soon after the ebb it returns; neither wet nor dry weather affects it, but its increase and decrease regularly correspond with the tide. The well, which is thirty-two feet deep, has frequently fourteen feet of water.

About two miles north of Chepstow is *Piercefield*, a seat of much celebrity, and a just theme of a descriptive encomium with the tourists and topographers of Monmouthshire. The grounds are extensive, and embrace much diversified scenery of wood, lawn, rock, and river. Stretching along the irriguous banks of the Wy, from the castle at Chepstow, to a lofty perpendicular rock called the Wynd-cliff, is a walk of about three miles in length: the prospects from which, and its accompanying scenery, are described in the following terms by Mr. Cox. "On entering the grounds at the extremity of the village of St. Arvans, and at the bottom of Wynd-cliff, the walk leads through plantations, commanding on the right a distant view of the Severn, and the surrounding country; it penetrates into a thick forest, and conducts to the Lover's Leap, where the Wynd-cliff is seen towering above the river in all its height and beauty, and below yawns a deep and woody abyss. It waves almost imperceptibly in a grand outline, on the brow of the majestic amphitheatre of cliffs impending on the Wy opposite to the peninsula of Laneant, then crosses the park, runs through groves and thickets, and again joins the Wy, at that reach of the river which stretches from Laneant to the castle of Chepstow. From the Lover's Leap the wall is carried through a thick mantle of forests, with occasional openings, which seem not the result of art or design, but the effect of chance or nature. This bow'ry walk is consonant to the genius of *Piercefield*; the screen of wood prevents the uniformity of a bird's eye-view, and the imperceptible bend of the amphitheatre conveys the spectator from one part of this fairy region to another without discovering the gradations. Hence the Wy is sometimes concealed, or half obscured by overhanging foliage, at others wholly expanding to view is seen sweeping beneath in a broad and circuitous channel; hence at one place the Severn spreads in the midst of a boundless expanse of country, and on the opposite side to the Wy; at another, both rivers appear on the same side, and the Severn seems supported on the level summit of the cliffs which form the banks of the Wy. Hence the same objects present themselves in different aspects, and with varied accompaniments; hence the magic transition from the impervious gloom of the forest to open groves; from meadows and lawns to rocks and precipices,

pices, and from the mild beauties of English landscape to the wildness of Alpine scenery."

The house erected on this estate is a magnificent pile of building, of freestone, and stands nearly in the centre of the park. Piercefield was long the property of the Waters family, till the year 1736, when it was sold to colonel Morris, father of Valentine Morris, Esq. who afterwards possessed it, and to whose taste and liberality it is indebted for its chief artificial beauties, and its long established celebrity. In 1784 it was bought by George Smith, Esq. who again sold it in 1794 to Colonel Wood, formerly chief engineer at Bengal. This gentleman has recently disposed of Piercefield to — Wells, Esq.

For the most recent account of this seat, of Chepstow, and this county, see Coxe's "Historical Tour in Monmouthshire." 2 vols. 4to.

CHEQ, CHERIF, or SHERRIFFE, the prince, or high-priest of Mecca; sovereign pontiff of the Mussulmans; and owned as such by all the sects into which they are divided.

The grand signior, sophies, mogols, khans of Tartary, &c. send him yearly presents; especially tapestry, to cover Mahomet's tomb, and tents for himself; for the cheq has a tent near the mosque of Mecca, wherein he lives during the seventeen days of devotion in pilgrimage to Mecca. The tapestry and tent are changed every year, and pieces thereof sent to the princes who furnish new ones.

His dominions are extensive; and his revenue is very considerable, consisting of presents made by the Mahometan princes, and pilgrims, to the mosque of Mecca and Medina. See SHERRIFFE.

The cheq subsists all the pilgrims during the seventeen days of devotion; on which account he is every year furnished with a very considerable sum of money from the grand signior: the better to obtain this, he makes him believe, that there are constantly, during this time, seventy thousand pilgrims; and that, should the number fall short, the angels, in form of men, would make it up.

CHEQUETAN, or SEGUATANEIO, in *Geography*, a town of North America, on the coast of Mexico, in the province of Mechochan, 7 miles W. of the rocks of Seguetaneio. Between this and Acapulco towards the east is a sandy beach, 18 leagues in extent, against which the beating of the sea is so violent as to prevent boats from landing; nevertheless there is a good anchorage for shipping at a mile or two from the shore, during the fair season. The harbour of Chequetan, though hard to be traced, is very important to vessels that cruise in these seas; as it is the most secure in a vast extent of coast, yields plenty of wood and water, and may be defended by a few men. When lord Anson touched here, the place was uninhabited.

CHER, a river of France, which rises near Auzanac, in the department of the Creuse, passes by Monthuçon, Ainay-le-Vieux, St. Amand, Chateaucneuf, St. Florent, Vierzon, Menetou, Villefranche, Chabris, Selles, St. Aignan, Montrichard, Blere, &c. and joins the Loire a few miles below Tours.

CHER, a department of France, deriving its name from the river Cher, which traverses a part of it, and bounded on the north, by the departments of Loire and Cher, Loiret and Nièvre; on the east, by that of Nièvre, from which it is separated by the Allier; on the south, by those of Creuse, Allier, and Indre; and on the west, by those of Indre, Indre and Loire, and Indre and Cher. This department is formed of part of the province of Berry, and its capital is Bourges. The territorial extent comprehends 7385 kilometres, or about 740,125 hectares, or 1,450,134 square acres; and is distributed into three districts, contain-

ing 29 cantons and 307 communes. The population was estimated in the 11th year of the French æra at 218,297 persons; its contributions to various purposes amounted to 1,742,031 francs; and the expences charged upon it for administration, justice, and public instruction, were 260,525 francs 79 cents.

CHERA, a river of South America in the province of Quito, in Peru, passing near Colan, and supplying Païta with its fresh water.

CHERÆUS, in *Ancient Geography*, a small town of Lower Egypt, situate upon the Nile, from which a canal passed to Alexandria, that served to discharge the water of the lake Moeris.

CHERAMIS, in *Antiquity*, a medical measure. According to Erotian on Hippocrates, it was the hollow of a shell-fish called *myan*, and took that name from *χρημα*, which signifies a *hollow place*. It frequently occurs in Hippocrates, and seems not much different from the *chema*, which in Galen's Exegesis is expounded by it. Cornavius also explains *cheramis* by the measure of a CHEMA; and Calvus on another passage expounds it by a *pugil*.

CHERASCO, in *Geography*, a town of Italy, in the principality of Piedmont, and capital of a county of the same name, on the borders of that of Asti, seated on a mountain, at the conflux of the Stura with the Tanaro. It is said to have been built by some inhabitants of Alba, Manzaon, Miana, &c. who were expelled their towns by the tyranny of their lords, and surrounded with walls. It was afterwards fortified in the modern manner with bastions, fosses, and out-works, by order of Christina of France, duchess of Savoy. Since that time it has been considered as the key and bulwark of the estates of Savoy, being situated on the frontiers of Piedmont, Montferrat, and the duchy of Milan, and strong both by nature and art. It was at first a republic, governed by its own laws, but professing dependence on the emperors of Germany. Cherasco continued in this flourishing state till the year 1260, when its allegiance was transferred to Charles I. of Anjou, king of Naples and Sicily; and it remained subject to that crown till the reign of Jane I. queen of Naples, when, left destitute of her protection, it was voluntarily surrendered to Amadeus VI. count of Savoy, and Jaques de Savoy, prince of Achaia. In a few years it became successively subject to other powers, till at length it was possessed by Charles V., who gave it, in 1530, to Charles III. duke of Savoy, surnamed the Good, in consideration of his marriage with Beatrice of Portugal. After having been taken in the same century by the Austrians and the French, it was restored by the peace of Cambray, in 1559, to Emanuel Philbert, son of Charles. Victor Amadeus gave it the title of city, and made it the capital of a province and residence of a governor. It has, together with the whole of Piedmont, at a late period, fallen into the hands of the French. See PIEDMONT. This town is in the diocese of Asti, and has 7 parish churches, 4 within the walls, and 3 without. The county, of which it is the capital, is about 9 miles in diameter; the land is fertile; the plains produce great plenty of corn, and the hills of various heights yield good wine for exportation. It is 20 miles S.S.E. from Turin, and 15 miles E. from Saluzzo. N. lat. 44° 33'. E. long. 7° 41'.

CHERAW HILL, a mountain of North America, in the state of South Carolina; 40 miles N.N.E. of Queenborough.

CHERAWS, a district in the upper country of South Carolina, bounded on the north and north-east by North Carolina; on the south-east by George-town district; and on the south-west by Lynche's creek, which separates it from Camden district. Its length is about 83 miles, and its breadth 63; and it is subdivided into the counties of Darlington,

ton, Chesterfield, and Marlborough. By the census of 1791, the number of inhabitants appeared to be 10,706, of whom 7618 were whites, and the rest slaves. It sends to the state legislature six representatives and two senators, and in conjunction with George-town district one member to Congress. This district is watered by Great Pedee river and other smaller streams; on the banks of which the land is populously settled and well cultivated. The chief towns are Greenville and Chatham.

CHERBOURG, a sea-port town of France, in the department of the Channel, and chief place of a canton in the district of Valognes; situated at the bottom of a large bay, between Cape Barfleur and Cape la Hogue. The place contains 11,389 and the canton the same number of inhabitants. The territory comprehends $17\frac{1}{2}$ kilometres and one commune. Before the revolution, Cherbourg was the seat of a governor and an admiralty. The chief employment of the inhabitants consists in building small vessels, and manufacturing woollen stuffs. In 1758 this town was taken and plundered by the English, the port destroyed, and the ships burned in the harbour. The French have always considered this port as of great importance in the navigation of the English Channel; and they have expended immense sums on the erection of piers, deepening and enlarging the harbour, and erecting fortifications. Vessels of 900 tons can be admitted in high-water, and in low-water those of 250 tons. N. lat. $49^{\circ} 38' 26''$. W. long. $1^{\circ} 38' 11''$.

CHERCHESENE, a town of Asiatic Turkey, in the province of Curdistan; 62 miles S. of Kerkuk.

CHEREF, or SHARIF, a title assumed by the emperors of Morocco.

CHEREM, among the Jews, is used to signify a species of ANNIHILATION.

The Hebrew word cherem signifies properly *to destroy, exterminate, devote, anathematize*.

CHEREM is sometimes likewise taken for that which is consecrated, vowed, or offered to the Lord, so that it may no longer be employed in common or profane uses. There are some who assert, that persons thus devoted were put to death; whereof, they say, Jephtha's daughter is a memorable example. Judg. xi. 29, &c.

CHEREM is also used for a kind of excommunication in use among the Jews. See NIDDUI.

CHEREN, in Ornithology, the Arabian name of the king-fisher, *ALCEDO Ispida*.

CHEREN tabanan, in Geography, a town of Chinese Tartary. N. lat. $41^{\circ} 32'$. E. long. $119^{\circ} 31'$.

CHERIBON, one of the four empires or kingdoms into which the island of Java is divided: the other three are Bantam, Jaccatra, and Soesoehoenam. Cheribon is under the dominion of three different princes, who are independent of the Dutch, and sovereigns in their respective districts. Whilst the company possessed power in the east, the princes of Cheribon were their allies, and bound, by treaty, to sell the whole produce of their territory exclusively to the company, and not to permit any other nation besides the Dutch, to enter their dominions. For the due maintenance of which conditions, the company took care to guard and garrison their sea-ports. The company, on former occasions, has exercised a kind of despotic power over these princes; de-throning one, and establishing another in his room. An instance of this kind occurred in the commencement of the year 1769; when one prince was set aside and banished to the castle Victoria, in the island of Amboyna, and the elevated prince constrained to furnish a certain sum of money annually, for the support of his imprisoned predecessor.

CHERIC, in Ornithology; the Gmelinian *Motacilla Ma-*

dagascariensis is so called by Buffon; named by Latham the white-eyed Warbler.

CHERI-KIAMEN, in Geography, a port of Chinese Tartary; 15 miles S.E. of Petouré Hotun.

CHERI-OUJOU, a town of Chinese Tartary; 8 miles S. of Geho.

CHERIPPE, an inconsiderable village of S. America, in Terra Firma, which furnishes the weekly market of Panama with provisions.

CHERIWAY, in Ornithology. See FALCO.

CHERLERIA, in Botany, (so called in honour of J. Henry Cherler, son-in-law and assistant to John Bauhin). Hall. opusc. 300. Linn. gen. 570. Schreb. 775. Willd. 898. Juss. 301. Vent. vol. 3. 243. Class and order, *decandria trigynia*. Nat. ord. *Caryophyllæ*, Linn. Juss. Vent.

Gen. Ch. Cal. Perianth five-leaved; leaves lanceolate, concave, keeled, striated, expanding. Cor. Petals none, Hall. Linn. Lam. Smith. (five, strap-shaped, green, Segn.) Nectaries five, very small, emarginate scales. Stam. Filaments ten; five attached to the scales of the nectary; five alternating with the calyx-leaves, inserted into the receptacle between the scales. Pist. Germ superior, styles three. Peric. Capsule egg-shaped, twice as long as the calyx; three-valved, three-celled, with three seeds. Linn. Lam. &c. (one-celled, with many seeds, Smith.) Seeds angular.

Ess. Ch. Calyx five-leaved; nectariferous glands five, emarginate; capsule superior, three-valved.

Sp. C. *Jedoides*, Hall. Helv. tab. 21. Segn. tab. 4. fig. 3. Jacq. Aust. tab. 284. Lam. Illust. tab. 379. Eng. Bot. 1212. (*Lychnis Alpina*; Pluck. Alm. tab. 42. fig. 8. *Sedum montanum*; Moris. Hist. tab. 6. fig. 14.) Root perennial, long, somewhat woody, much divided. Stems forming a tuft, an inch long; thickly beset with leaves. Leaves awl-shaped, obtuse, three-nerved underneath. Flowers yellowish, green, erect. Peduncles solitary, axillary, towards the top of the stem, one flowered, with two connate bracts about the middle. A native of moist places near the summits of high mountains in the highlands of Scotland, Carniola, &c. flowering in July and August. First observed in Great Britain by some of Dr. Hope's travelling pupils.

CHERMANSICK, in Geography, a town of Asiatic Turkey, in the province of Natolia; 30 miles N.N.E. of Milets.

CHERMES, in Entomology, a genus of hemipterous insects. The snout is placed in the breast, and contains three inflected bristles; antennæ cylindrical, and longer than the thorax; wings four, deflected; thorax gibbous; posterior legs formed for leaping.

There are many species of the chermes genus, some of which are peculiar to particular plants, while others inhabit a variety of plants indiscriminately. The females are furnished with a sharp tubular instrument at the extremity of the abdomen, with which they pierce the leaves of the willow, ash, oak, fir, and other trees, in order to deposit their eggs beneath the surface, and by those punctures occasion the swellings or excrescences of various sizes, which are commonly known by the name of tree-galls. These galls contain the infant brood of chermes, both in the larva and pupa, as well as egg state: the larva has six feet, and is generally covered with a kind of hairy or woolly substance, and the pupa is distinguished by two protuberances of the thorax which contain the embryo wings. In the perfect or winged state the chermes leap or spring with great agility. Geoffroy, who names several of this tribe of insects Psylla, observes, that both in the larva and pupa state they eject from the vent a sugar-like substance of a white colour, and much resembling

sembling manna : sometimes this matter occurs in the form of small white grains upon the leaves of plants, and is often seen attached to the posterior extremity of the insect's body. The galls occasioned by these insects are useful for various purposes. Some late French writers comprehend the two Linnæan genera, *chermes* and *coccus*, under one, denominated *Kermes*.

Species.

GRAMINIS. Found on grasses, particularly the *aira flexuosa*, Linn. Inhabits Europe.

ULMI. On the *ulmi campestris*, Linn. Fn. Suec. Found in the curled leaves of this tree.

CERASTII. On the leaves of the *cerastrum viscosum*, Linn. Fn. Suec.

PYRI. On the leaves of the *pyrus communis*, Linn. Fn. Suec. *Chermes pyri* of Degeer. This is of a brownish-green colour, with dusky spots and bands; and has the wings spotted with brown.

SORBI. On the *Sorbus aucuparia*, Fabr. Above varied with black lines and characters; beneath greenish; thorax yellow, with two dots in front, and four black lines behind.

PERSICÆ. On the *amygdalus persica*, Fabr. *Chermes persica oblongus*, Geoffr. *Le kermès oblong du pêcher*. This is chiefly on the branches of the *amygdalus persica*; the body is oblong and ferruginous.

CALTHÆ. On the flowers of *caltha palustris*, Fabr. Antennæ black at the tip; thorax rufous with three black curves; wings white, with yellowish veins and a brown dot.

BUXI. On the box, and other ever-greens, Fabr. &c. This is of a green colour, with setaceous antennæ, and the wings yellowish brown. The punctures of this insect make the leaves bend in towards each other at their extremity, forming a hollow knob in which the larvæ are enclosed.

URTICÆ. On the *urtica dioica*, Linn. Fn. Suec. This is of a green or fuscous colour with the sides of the abdomen spotted with white.

BETULÆ. On the branches of the *betula alba*, Linn.

ALNI. On the *betula alni*, Linn. *Chermes alni lanata viridis*, Degeer. *Vermis fusorius alni*, Frisch. The antennæ are varied with white and black; snout white tipped with black; body whitish; wings white with brown veins.

QUERCUS. On the oak, Linn. Fn. Suec.

FAGI. On the *fagus sylvatica*, Linn. Fn. Suec.

ABIETIS. On the branches of *pinus abies*, Linn. fl. Cappon, &c. *Psylla pallide flavescens oculis fuscis, alis aqueis*, Geoffr. *Insectum tuberculi muricati arboris taxi*, Frisch. *Picea pumila*, Cius. This species occasions by its puncture enormous scaly swellings or protuberances at the end of the branches of the pine.

SALICIS. On various species of *salix* found in Europe, Fabr.

FRAXINI. On the *fraxinus excelsior*, Linn. This is of a black colour varied with pale yellow.

ACERIS. On the branches of *acer platanoides*, Linn. The body is yellowish, beneath green; tail awl-shaped and brownish.

FIGUS. On the *figus carica*, Fabr. The body is brown; antennæ thick and hairy; wings with brown nerves.

LICHENIS. On various species of lichens, Gmel. &c. This is of a fuscous colour dotted with black, and has the antennæ longer than the body; the wings are spotted with brown.

PINI. Linn. Inhabits pines. It is not perhaps distinct from *C. abietis*.

CASTANEA. Fuscous; antennæ setaceous and smooth; wings nervous, Geoffr. &c. Inhabits various plants.

RUBRA. Red; wings nervous, Geoff. Inhabits various plants.

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PRUNI. On the *prunus domestica*, Scop. The abdomen is red, with dots, and lateral bands of brown.

CRATÆGI. On the *crataegus oxyacantha*, Scop. The larva is of a plumbeous green, with a fold down the middle of the abdomen.

EUONYMI. On the *euonymus europæus*, Scop. Colour black, legs pale.

SENECIONIS. On the *senecio vulgaris*, Scop. The body is of a greenish yellow colour; the last joint of the antennæ is the thickest.

CHERMITES, or CHERNITES, in the *Natural History of the Ancients*, a name given by many to a species of very bright and white marble or alabaster, which seems to have been the same with that called afterwards *LYGDINUM marmor*.

CHERNIBS, derived from *χες*, the hand, and *πρω*, to wash, in *Antiquity*, a vessel wherein people used to wash their hands before they went to attend religious service.

CHERO, in *Geography*, a small island of European Turkey in the Archipelago. N. lat. 36° 53'. E. long. 25° 40'.

CHEROKEES, a nation of Indians in N. America, once powerful and flourishing, but now declining. They reside in the northern parts of Georgia, and the southern parts of the state of Tennessee; having on the east the Appalachian or Cherokee mountains, which separate them from north and south Carolina; on the north and west the Tennessee river; and on the south the Creek Indians. Their country, extending westward to the Mississippi and northward to the Six nations, was surrendered, by treaty at Westminster, in 1729, to the crown of Great Britain. The present line between them and the state of Tennessee is not yet settled. A line of experiment was drawn in 1792 from Clinch river across Holston to Chilhowe mountain; but the Cherokee commissioners not appearing, it is called a line of experiment. The complexion of the Cherokees is brighter than that of the neighbouring Indians. They are robust and well made, and taller than many of their neighbours; being generally six feet high. Their women are tall, slender, and delicate. The talents and morals of the Cherokees are held in high estimation. They were formerly a powerful nation; but by their continual wars with the northern Indian tribes, and with the whites, they are now reduced, as some say, to 1500, or, according to others, to 3000 warriors; and they are becoming feeble and pusillanimous. They have 43 towns now inhabited.

CHERON, ELIZABETH-SOPHIA, in *Biography*, the daughter of Henry Cheron, painter in enamel, was born at Paris in 1648, and instructed by her father, who observed her passionate fondness for the art of painting, in design and colouring. Her improvement was very rapid, and she soon acquired great reputation by her performances; particularly by her portraits, which, independently of their striking resemblance, were elegantly disposed, well-coloured, and neatly finished; she also painted history, and her portraits were executed in the historical style: she employed herself much in drawing from the antique, and excelled in copying the figures on gems. Her father was a Calvinist; but from her mother she received early impressions in favour of the Catholic religion; and at a mature age she abjured Calvinism, and thus facilitated her admission into the Academy of Painting, in 1676, by the recommendation of Charles Le Brun. Her genius comprehended music and poetry, as well as painting; and many of her compositions in verse were much esteemed by J. Bapt. Rousseau. These productions obtained for her a seat in the Academy of Ricovrati at Padua; and as she played well on the lute, and had

occasional evening concerts, her house was frequented by persons of taste and literature. At the age of 60 she married M. Le Hay, engineer to the king, who was also advanced in years; and soon after, viz. in 1711, died at Paris, aged 63. This lady amused herself with engraving: and we have a series of gems partly from her own design, but mostly from the antique; and of these, three were etched by herself, viz. Bacchus and Ariadne, Mars and Venus, and Night scattering her poppies. She also engraved a "Descent from the cross," and a "Drawing book," consisting of 36 prints in folio. D'Argenville. Pilkington. Strutt.

CHERON, LOUIS, the youngest son of the preceding lady, was born at Paris in 1660; and having acquired the first principles of painting in his own country, he was enabled by the liberality of his sister to visit Italy and remain there 18 years. His models were the works of Raphael and Julio Romano; but though he composed with facility and drew correctly, he never attained the grace of the Italian masters; his heads having a ferocious air and his figures being too muscular. As he adhered to the Calvinistic profession, he was obliged to leave France, and in 1695 he sought a refuge in England, where he found some patrons, and particularly the duke of Montagu. He was a man of enlarged ideas and also of correct morals; so that he refused to paint for a nobleman a licentious subject. He died at London in 1713. He engraved with great taste the following prints, from his own composition; viz. "St. Peter healing the lame man at the gates of the temple," "The death of Ananias and Saphira," and "St. Paul baptizing the Eunuch." Pilkington. Strutt.

CHERONÆA, in *Ancient Geography*, a town of Greece in Bœotia; formerly called Arne, and situated in the environs of Lebadæa. On the plains of Cheronæa are two trophies, which are said to have been erected by the Romans and Sylla, in commemoration of a victory obtained over the general of the army of Mithridates. The Thebans who perished in their contest against Philip were buried near Cheronæa, and over their tomb was placed a lion. The principal divinity of the Cheronæans was the sceptre which Vulcan made for Jupiter, called "the lance;" from Jupiter it was transferred to Mercury, and at length it descended to Agamemnon, and is celebrated by Homer. This deity had no temple, but a priest waited on him, and daily sacrifices were offered to him.

CHERONNAC, in *Geography*, a town of France, in the department of the Charente; 15 miles S. of Confolent.

CHEROPOTAMUS, in *Zoology*, one of the synonyms of the hippotamus.

CHEROY, in *Geography*, a town of France, in the department of the Yonne, and district of Sens; 10 miles W. of it.

CHERRONESUS, or CHERRURA, in *Ancient Geography*, a town of Africa in Libya. Steph. Byz.—Also, a promontory of Asia Minor in Lycia.—Also, a town of Asia Minor, in the Doride, near the town of Cnidus. Id.—Also, a town of Spain near Sagonte. Strabo.—Also, an island in the vicinity of that of Crete.—Also, a port of Thrace, in the Euxine sea, between Apolloniades and Thyniades, according to Arrian.—Also, a town in the western part of the Tauric Chersonesus, at the distance of 20 stades from that of Bosphorus in the eastern part. It was also called "Chersonesus," or "Chersone." Pliny says, that it was also called "Megarice," and that it was made free by the Romans. Scylax reckons it in the number of the Greek cities, and Strabo makes it a colony of the inhabitants of Heraclæa of Pontus; and says, that it was built by the Greeks

on the gulph of Carcinitis, now the gulph of Nigropoli, on the west coast of the Chersonesus. It was freely surrendered to Mithridates. Procopius says, that it was the last frontier of the Roman empire; and that the country between the two towns was possessed by the Huns. Peyssonel says that the Chersonites were faithful subjects to the emperors of the east; and that they were governed by an officer called "Proteron," who had a council of senators or old men, denominated the fathers of the city; and that in process of time they sent them prætors. He adds, that they were very commercial, and possessed the whole trade of the Black sea. He moreover says, that when Constantius, who had employed the Chersonites against the Bosphorians, became emperor, he availed himself of their assistance against the Scythians, and in acknowledgment of their services granted them many exemptions and privileges. At length there was a conspiracy of the Bosphorians against the Chersonites, which was discovered by a young woman called "Gycia," to whom were erected statues, upon the pedestals of which were inscribed an abstract of this adventure.

CHERRONISO, in *Geography*, a town of European Turkey, on the N.E. coast of the island of Negropont; 25 miles E. of Negropont.

CHERRY-TREE, in *Botany*. See PRUNUS *Cerasus*. This tree is called *Cerasus*, according to Servius, from the name of a city in Pontus, which Lucullus destroyed; and the fruit of it was brought by him to Rome, A. U. C. 680, and into Britain about 100 years afterwards, or A. D. 55. Soon after it was spread through most parts of Europe.

CHERRY, *Barbadoes*. See MALPIGHIA.

CHERRY, *Cornelian*. See CORNUS.

CHERRY, *Dwarf*. See LONICERA.

CHERRY, *Hottentot*. See CELASTRUS *lucidus*.

CHERRY, *Winter*. See PHYSALIS *Alkekengi*.

CHERRY-brandy, a drink made of brandy, with the addition of cherries.

The cherries commonly used for this purpose, are of the black kind: with these, a bottle being half filled, is filled up with brandy, or spirits. The whole is to be shaken up now and then; and in a month's time it becomes fit for use.

To sweeten it, and improve the flavour, some choose to put in sugar, with a quantity of raspberries.

CHERRY-water is made by bruising 20 pounds of black cherries with the kernels, and drawing off by distillation, with as much pure water as is sufficient for avoiding empyreuma, 20 pounds. This water has been formerly used as a vehicle in preference to other distilled waters, and has been kept for this purpose in the shops. But it has been found by various experiments, that the kernels of cherries communicate to distilled water a poisonous quality; and the water has therefore been laid aside by both the London and Edinburgh colleges.

CHERRY-wine is made by adding two pounds of sugar to every two gallons of the juice of cherries. The liquor is afterwards put into a vessel to ferment; and after standing about two months in the cask, is bottled off with a little sugar for use.

In Russia they make cherry-wine by crushing about 5 or more vedros (each vedro being 13½ pints) of ripe cherries in a tub, so that even the stones are broken: and then adding 1, 1½, or 2 pounds of honey, and a quarter or half a quart of good brandy or wine, with some yeast to make it ferment. When it has done fermenting, it is cleared of the yeast and poured into kegs or bottles, and then placed in a cool cellar. Wine and brandy are often omitted, and a greater quantity of honey used in lieu of it, by which the wine proves sufficiently

ciently strong. The same process is used with other fruits.

CHERRY-valley, in *Geography*, a post town of America, in the county of Otsego and state of New York, at the head of a creek of the same name, about 12 miles N. E. of Cooperstown, and 18 southerly of Conajohary, 61 W. of Albany, and 336 from Philadelphia. It contains about 30 houses, a Presbyterian church, and an Academy. The township is very large, and extends along the east side of Otsego lake, and its outlet to Adiquatangie creek. By the state census of 1796, it appears that 629 of its inhabitants were electors.

CHERSA, called also *fecula*, in some medical writers, signifies a root reduced to a farinaceous powder. This way of preparation some condemn, as exhausting the virtues of the drug, and rendering it good for nothing; others defend it.

CHERSÆA, *earthy*, from *Χερσος*, *earth*; an epithet of the three species of *ASPS*, mentioned by Galen, and *Ægineta*.

CHERSETUM, in *Old Customs*, is used for *churchestet*. See **CHURCH-SCOT**.

CHERSEUS, in *Ancient Geography*, a river placed by Ptolemy in Phœnicia; the mouth of which, according to him, lay between Dora and Cæsarea of Strabo, which were towns of Palestine.

CHERSO, in *Geography*, an island of the Adriatic, on the coast of Croatia, about 150 miles in circumference. It is mountainous and stony: nevertheless it yields much wood, cattle, wine, oil, and honey. It belongs to the Venetians, who send a nobleman as governor every two years, with the title of count or captain, who resides at the capital, situated in the centre of the island, which has the same name, and contains about 2500 inhabitants. N. lat. $45^{\circ} 10'$. E. long. $14^{\circ} 26'$.

CHERSON, or **KHERSON**, a town of Russia, in the province of Catherineuslaw, seated on the Dnieper, about 14 versts below the mouth of the Ingulitz, and a little above the mouth of the Bog, in the neighbourhood of the Liman, a swampy lake, the entrance of which is guarded by the fortrefs of Kinburn, and is about a mile over. This lake has depth sufficient for the reception of large vessels; but they very quickly decay in it, as the water is fresh. The ancient city of Cherson was situated some miles to the south-west of the spot, where the Russians have built Swastopol. The present Cherson was founded by Catharine II. in 1778; it is chiefly built of hewn stone, and the completion of it was much accelerated by the activity of Prince Potemkin. It was intended to be the principal mart for all the commodities of export and import; but if an extensive trade should take place in this quarter, the great depositary for the merchandize would be more conveniently fixed on some spot below the bar of the Dnieper; and 12 miles S. of Cherson. In 1783 Cherson contained 40,000 inhabitants within its walls: and from its dock were launched not only vessels for the purposes of commerce, but ships of war destined to strike terror into the Ottoman empire. A new town, however, called Nicolaios, now the principal dock, was built by Potemkin, on the confluence of the Ingul and the Bog. The port and city of Cherson have not perhaps been equalled with regard to celebrity, prosperity, and importance, if we consider its recent standing, by any colony of modern times. Artisans, manufacturers, and merchants, have poured into it from all quarters, and the time seems not to be distant when it shall rank as the second port in the extensive empire of Russia. Its commerce was, if we may be allowed the expression, guaranteed and secured to the empress by the cession of

Kinburn, which lies opposite to Oczakow, at the mouth of the Dnieper. Cherson is celebrated as the place where the empress Catharine principally resided during her memorable journey to the Crimea, when she took possession of the provinces conquered from Turkey, and where she was visited by the emperor Joseph II. It is also on record as the place where the illustrious Mr. Howard closed his career of humanity and benevolence on the 20th day of January 1750. It is distant about 10 leagues from Oczakow and 2000 versts from Petersburg. N. lat. $46^{\circ} 40'$. E. long. $32^{\circ} 54'$.

CHERSONESUS, *Χερσονησος*; of *Χερσος*, *land*, and *νησος*, *island*; which signifies the same, in *Geography*, as peninsula; or a continent almost encompassed round with the sea, only joining to the main land, by a narrow neck, or isthmus.

This term is used by the moderns, in complaisance to the ancients, who called all their peninsulas by this name: accordingly such places as were hereby distinguished among them retain the name among us: as the Chersonesus of Peloponnesus, of Thrace, Chersonesus Cimbrica, Aurea, &c.

CHERSONESUS Aurea, the *golden Chersonese*, in *Ancient Geography*, a peninsula delineated by Ptolemy as if it stretched directly from north to south, and having at its southern extremity Sabana Emporium, the latitude of which he fixes at three degrees beyond the line. To the east of this peninsula he places what he calls the Sinus Magnus, or great bay; and in the most remote part of it the station of Catigara, the utmost boundary of navigation in ancient times, to which he affixes no less than $8\frac{1}{2}^{\circ}$ of southern latitude. Beyond this he declares the earth to be altogether unknown, and asserts that the land turns thence to the westward, and stretches in that direction till it joins the promontory of Prassum in Ethiopia, which, according to his opinion, terminated the continent of Africa. M. D'Anville, who has attempted to bring order out of the confusion in which this part of the geography of Ptolemy is involved, assigns to the peninsula of Malacca the position of the golden Chersonese of Ptolemy; but, instead of the direction which he has given it, we know that it bends some degrees towards the east, and that cape Romania, its southern extremity, is more than a degree to the north of the line. This geographer considers the gulf of Siam as the great bay of Ptolemy; but the position on the east side of that bay, corresponding to Catigara, is actually as many degrees to the north of the equator as Ptolemy supposed it to be south of the line. Major Rennell has given the sanction of his approbation (Introd. p. 39.) to the geographical ideas of M. D'Anville, and they have been generally adopted. But M. Gosselin has lately published "The Geography of the Greeks analysed, &c." in which he differs from M. D'Anville, with respect to many of his determinations. According to M. Gosselin, the Magnum Promontorium, which M. D'Anville concludes to be cape Romania, is the point of Bragu (which see), near to which he places Zaba, supposed by M. D'Anville to be situated on the strait of Sincapura or Malacca. The Magnus Sinus of Ptolemy he maintains to be the same with the gulf of Martaban, and not the gulf of Siam; and the position of Catigara corresponds, as he attempts to prove, to that of Mergui, a considerable port on the west coast of Siam. Thinae or Sinæ Metropolis, which M. D'Anville removes as far as Sin-hoa in the kingdom of Cochin-China, is situated, according to M. Gosselin, on the same river with Mergui, and now bears the name of Tana-serim. The Ibadii insula of Ptolemy, which M. D'Anville determines to be Sumatra, is, by Gosselin's arrangement, one of that cluster of small isles which lie off

this part of the coast of Siam. M. Goffelin conceives, that the ancients never sailed through the straits of Malacca, had no knowledge of Sumatra, and were altogether unacquainted with the eastern ocean. With regard to the golden Chersonese of Ptolemy in particular, he observes that what chiefly characterizes it is the mouth of a large river, which there divides itself into three branches before it joins the sea. These channels appeared so considerable that each of them bore the name of a river, the Chrysoana, the Palandar, and the Attabas. It does not appear that Ptolemy knew the source of this river, or that he had any knowledge of the interior of this country, as he does not determine the position of any place. Without detailing the other arguments of M. Goffelin, we may observe, that upon comparing Ptolemy's map with that of the country, there seems little reason to doubt that the Golden Chersonese is the southern part of the kingdom of Pegu, which may be considered as insulated. In the southern part of the Malayan peninsula, which has hitherto been regarded as the Golden Chersonese, the river Johr is so small a stream, that it could never have supplied the three important mouths noted by Ptolemy; and his delineation of the country of the Sinæ, stretching along a western sea, palpably corresponds with Tana-ferim; while M. D'Anville's map so much contradicts that of Ptolemy as to place the sea on the east of the Sinæ, and proceeding towards the north instead of the south. Moreover, the rivers laid down by Ptolemy, between the mouths of the Ganges and the Delta of the Golden Chersonese, amount to five; of which three appear in our maps, but we are ignorant of the southern part of Arracan, which probably contains the other two. The three chief mouths of the Irrawaddy, in the map of Mr. Dalrymple, sensibly correspond, even in the form and manner of division, with those in the Golden Chersonese of Ptolemy; and the bay to the south of Dalla seems to be the Perimulicus Sinus of the Greek geographer, the small river to the east of which is that of Sirian or Pegu. If the Malayan peninsula had been the Golden Chersonese of the ancients, the ancient geographer could not have been wholly ignorant, as he seems to have been, of the straits of Malacca, and of the northern part of the great island of Sumatra. Many have thought, but without sufficient reason, that the Ophir of Solomon was situated in the Golden Chersonese. See OPHIR.

CHERSONESUS *Cimbrica*, a peninsula of Europe to the north of Germany, supposed to have derived its appellation from the Cimbri who came from thence, and now called *Jutland*; which see. From this peninsula, bounded by the river Elbe on the south, by the German ocean on the west, and by the Baltic sea on the north and east, those people came into Britain, from whom the great body of the English nation is descended. When the unhappy Britons formed the fatal resolution of calling in foreign auxiliaries to preserve them from that destruction with which they were threatened by the Scots and Picts, they could find none nearer than the inhabitants of that country, who were likely to afford them necessary succour and protection; for their nearest neighbours and natural allies, the Gauls, who spoke the same language, and professed the same religion with themselves, were in no condition to give them any assistance; having been invaded, and almost conquered by the Franks, another German nation. The country above-mentioned, to which the Britons directed their views for relief in their distress, was at that time inhabited by three nations, which were called Saxons, Angles, and Jutes; who sent armies into Britain, and here obtained settlements. From these three nations the English in general derive their origin; though

several other nations, particularly Danes and Normans, have since mingled with them in very great numbers. See ANGLES, JUTES, and SAXONS.

CHERSONESUS *Magnus*, a port of Africa, in Marmarica, near the port called Phthia. Scylax places it opposite to the isle of Crete. The great Chersonesus of Ptolemy is supposed by some to be the present Cape Raccallino in the kingdom of Barca: so called because it forms a peninsula. M. D'Anville places it on the coast N.W. of Marmarica, at some distance S.E. from the promontory Drepanum.

CHERSONESUS *Parva*, a port or castle of Egypt, mentioned by Ptolemy and Strabo; and placed by the latter at the distance of 70 stadia S.W. from Alexandria, on a part of the coast which formed a small promontory,

CHERSONESUS *Taurica*, *Crimea*, a considerable peninsula of Europe, lying between the Euxine sea, the Palus Mæotis, and the Bosphorus Cimmerius; extending, according to Sir John Chardin, 61 leagues from east to west, and about 35 from north to south; and joined to the continent by a narrow isthmus about a mile broad. In very remote times this peninsula was governed by its own sovereigns. Its most ancient inhabitants were the Tauri, or Tauroscythæ, as Pliny and Ptolemy call them, and from them it derives its appellation. The mythologists refer to these remote times the first voyage of the Greeks into Taurica. In process of time the Greeks traded here and founded cities. Mithridates, king of Pontus, possessed the peninsula, and it is said, drew from it annually a tribute of 220,000 measures of grain, and 200,000 talents in silver. It was conquered by the Romans, and given by them to the kings of Bosphorus. Some of the eastern tribes of Asia, known to us by the name of Huns, established themselves here, and many of them remained till the time of the emperor Julian. It afterwards passed to the princes of the family of Genghis Khan. The cities of note in former times were Taphræ or Taphrus on the isthmus, where Przekop or Precop now stands; Chersonesus, or Cherfon; Theodosia, afterwards called Caffa, but now known by its ancient name; Nymphæum, Lagyra, and Charax, seated on the Euxine sea, and Panticapæum on the Bosphorus. See CRIMEA.

CHERSONESUS *Thracia*, the Chersonesus of Thrace, a peninsula enclosed on the south by the Ægean sea, on the west by the gulf of Melas, and on the east by the Hellespont, and joined on the north to the continent by a neck of land, about 37 furlongs broad. In former times this peninsula was separated from the continent by a wall called in Greek "Macrontichos." The isthmus, connecting with the continent, was, according to Herodotus, 36 stadia; according to Strabo, 400. The length of the isthmus, says Herodotus, was 480 stadia; but Scylax says, that it was 400. It contained the following cities, viz. Cardea, Agora, Panormus, Alopeconefus, Elæus, Sestus, Madytos, Cissa, Callipolis, Lysimachia, and Pactye. The Athenians were for some time in possession of this peninsula. By the counsel of the oracle at Delphos, it is said by Cornelius Nepos, they sent hither Miltiades, the son of Cimon, at the head of a colony; but the account of Herodotus is different. The Dolonæes, he says, a people of Thrace, had possession of this peninsula; but having carried on an unfavourable war with the Abynthians, they sent to consult the oracle. The Pythian recommended their obtaining a colony under the conduct of the first person who offered them an asylum. Accordingly having sent deputies to Athens, where Pisistratus reigned, they were hospitably treated by Miltiades, the son of Cypselus, a rich and powerful man in that city. Upon their being thus kindly treated, they informed him what was the

the opinion of the oracle, which they had consulted. Upon this, Miltiades engaged a number of the Athenians to accompany him to the Chersonesus, and the Dolonces immediately invested him with the sovereign power. He began his reign with erecting the wall which separated the peninsula from the continent. At his death, he bequeathed the sovereignty to his nephew Stefagoras, who was assassinated; and when this disastrous event occurred, the Pissistratides sent Miltiades, the son of Cimon, and brother of Stefagoras, to take possession of the government of the Chersonesus. At length the Athenians lost this peninsula; and under the kings of Macedon, after Alexander, it belonged to Thrace, and made part of their kingdom.

CHERSYDRUS, *Χερσυδρος*, an amphibious serpent; so called, because it lives first in watery places, whence it is called *hydrus*; after which it shifts its habitation, and lives on dry ground, and thence has its compound appellation *chersydrus*.

CHERT, in *Mineralogy*. See *HORN-stone*.

CHERTO BALUS, in *Ancient Geography*, a town of Upper Pannonia, situated near the Danube.

CHERTSEY, in *Geography*, a town of England, in the county of Surrey, situated near the banks of the Thames; 20 miles W.S.W. of London. This town was formerly the residence of some of the Saxon kings, and the first burial place of Henry VI. who was afterwards removed to Windsor. Here was formerly an abbey, founded in 1664; of which, only part of the walls now remains. It has a weekly market on Wednesday.

CHERUB, or **CHERUBIM**, a celestial spirit, which, in the *Hierarchy*, is placed next in order to the seraphim. The word is formed of the Hebrew כְּרוּב, *cherub*; the plural whereof is *cherubim*. In Hebrew, this term is sometimes taken for a calf or an ox. In Syriac and Chaldee, the word cherub signifies to till or plough, which is the work of oxen. It also denotes strong and powerful, implying the strength of an ox. According to Grotius, the cherubim were figures resembling a calf. Bochart and Spencer think they were similar to the figure of an ox. Josephus merely says, that they were extraordinary creatures, whose figure was unknown to mankind. Clemens of Alexandria is of opinion, that the Egyptians imitated the cherubim of the Hebrews in their sphinxes and hieroglyphical animals. The figure of the cherubim was not always uniform, since they are differently described in the shapes of men, eagles, oxen, lions, and in a composition of all these figures put together. Moses likewise calls these symbolical or hieroglyphical representations, which were represented in embroideries upon the veils of the tabernacle, cherubim of costly work. Such were the symbolical figures which the Egyptians placed at the gates of their temples, and the images of the generality of their gods, which were commonly nothing but statues composed of men and animals.

The two cherubim that covered the mercy-seat are represented by Moses as extending their wings on both sides, and looking upon one another with their faces turned towards the mercy-seat, which covered the ark. It would afford our readers little instruction or entertainment to introduce in this article the fanciful conjectures of the Hutchinsonians, with regard to the form or import of the Hebrew cherubim; or to detail the result of the researches of Mr. Parkhurst in his Hebrew lexicon on this subject, who has minutely traced in the cherubic figures emblems or representations of the three persons in the Trinity. That the cherubim were hieroglyphic or emblematical figures, composed of the various parts of different animals, is unquestionable. Each cherub had four heads or faces; viz. those of a man,

of a lion, of an ox, and of an eagle. Their bodies, at least in the upper part, resembled the human form. The prophet Ezekiel describes the cherub as having four wings: the seraph of Isaiah had six wings. They had four hands or arms; and their lower part from the rim of the belly downwards was composed either of human thighs, legs, and feet, to which were appended behind, the body and hinder legs of an ox, or, more probably, the body and four legs of an ox, out of which the human part seemed to rise, so that the whole below the rim of the belly was in the form of an ox, and that above this division was human. As to the services which they were designed to perform, it has been suggested (see Fragments annexed to the last edition of Calmet's Dictionary) that, as the vision of Ezekiel and also of Isaiah was that of the likeness of a moveable throne or chariot of immense size, in which the conductor was supposed to sit, the wheels annexed to it were such as were joined to the royal travelling or military thrones of the Persian kings, and the four cherubim occupied the places of four horses for drawing this capacious machine. As to the eyes in the wheels and the cherubim it has been conjectured, that they were spots or streaks embellished with brilliant colours. After all the suggestions and conjectures of ingenious and learned persons, it still remains to be determined, what these emblematical figures were intended to represent. It is certain that they are very ancient, and that they have been adopted in other countries besides that in which they were originally introduced. Symbolical figures resembling cherubim embellished part of the palace of Persepolis; and they are thus described by Sir John Chardin. In the front of each pilaster is a figure of monstrous size, whose head and feet stand out in whole relief, and make the front of the pilaster. The relief is two inches high. Those figures, which look towards the plain, have their faces so mutilated, that it cannot be known, whether they represented horses, lions, rhinoceroses, or elephants. Those figures which look towards the mountains are more entire; and represent monstrous creatures, whose body is, e. g. that of a winged horse, with the head of a man covered with a high cap, having a crown upon it. The figures delineated by Chardin have at least three parts of the cherubic composition, the bird, the ox, and the man.

CHERUB, in *Heraldry*, a child's head between two wings, or between three pair of wings. We shall here observe, that the word, כְּרוּב, formed of כ, or כִּי, *as*, and רוּב, or רִבִּי, a child, denotes as a child.

CHERUBIM, was also the name of an ancient military order in Sweden, otherwise called the *order of Seraphim*. It was instituted by Magnus II. in 1334, in memory of the siege laid to the metropolitan city of Upsal, and abolished by Charles IX. upon the change of religion which happened in Sweden: but it was revived Feb. 11th, 1748, by Frederic I. king of Sweden. It took its denomination from the golden figures of cherubim, whereof the collar of the order was composed.

The *habit* of the order is a white satin jacket, trimmed with black lace, and lined with black; white breeches, shoes, and stockings, trimmed with black, and black ribbons; a black satin short cloak lined with white, and a black cape, trimmed with black lace; a hat of black satin, bound with white, having on the left side four white ostrich feathers, and in the middle one black feather. Upon the left breast of the cloak is a star of 8 points embroidered in silver; and upon the jacket on the same side is the like star, somewhat less in size. The *collar* of the order is composed of eleven golden heads of Seraphs, with wings expanded, and 11 blue patriarchal crosses, enamelled in gold, all joined with chains of

the last. To the collar is suspended the *enſign* of the order: viz. a ſtar of 8 points, enamelled white, the centre blue, with the arms of Sweden, and the initial letters I. H. S.; over the H. a croſs; the arms enſeſed with 4 heads of Seraphs, as in the collar; in the arms, under the bottom crown, the paſſion-nails. The Seraphs heads are between the double points of the ſtar, and over the upward points is the regal crown of Sweden, by which it is pendant to the collar. The enſign is alſo pendant to a broad ſky-blue watered ribbon, worn ſcarf-wiſe, and brought over the right ſhoulder, and under the left arm.

CHERUBIN, *Father*, of Orleans, in *Biography*, an aſtronomer and philoſopher, concerning whom little is known. He flouriſhed about the year 1650. Having acquired a competent knowledge of the languages, he was admitted a capuchin friar in the convent at Orleans. His large work, entitled, “*Dioptrique Oculaire*,” on the theory, uſe, and mechanism of teleſcopes, is adorned with engravings of inſtruments deſigned by himſelf, and was printed at Paris 1671, fol. Another work, ſuppoſed by ſome to be an enlargement of the former, and entitled, “*La Viſion Parfaite*,” was published in 2 vols. fol. in 1677 and 1681. Moreri.

CHERVES, in *Geography*, a town of France, in the department of the Charente; one league N.W. of Cognac.

CHERVEUX, a town of France, in the department of the Two Seves, and diſtrict of Niort; $2\frac{1}{2}$ leagues N.E. of it.

CHERVIL, in *Botany*. See *SCANDIX cerefolium*, *CHÆRAPHYLLUM ſylveſtre*, and *TAMULENTUM*.

CHERUSCI, in *Ancient Geography*, a powerful people of Germany, who were ſituated near the Hercynian foreſt. They had the Cauchi to the ſouth, and were ſeparated from the Catti by the foreſt Baceni. Tacitus and Cæſar mention them.

CHESAPEAKE, in *Geography*, one of the largeſt and ſaſteſt bays in the United States. Its entrance is nearly E.N.E. and S.S.W. between Cape Charles, N. lat. $37^{\circ} 12'$, and Cape Henry, N. lat. 37° , in Virginia, 12 miles wide; and it extends 270 miles to the northward, ſeparating Virginia from Maryland. Its breadth is from 7 to 18 miles, and general depth about 9 fathoms: it affords many convenient harbours, as well as a ſafe and eaſy navigation. It has many fertile iſlands, particularly along the eaſtern ſide, and ſome on the western ſhore. A number of navigable rivers, and other ſtreams, diſcharge themſelves into it: the chief of which are Suſquehanna, Patapo, Patuxent, Potomack, Rappahannock, and York, all which are large and navigable. This bay has alſo many excellent fiſheries of herring and ſhad, as well as of very good crabs and oysters. It is the reſort of ſwans, and of a ſpecies of wild duck, called “*Canvaſback*,” much admired for its richneſs and delicacy. In a commercial view, Cheſapeake bay is of very conſiderable advantage to the neighbouring ſtates, and particularly to Virginia.

CHESELDEN, WILLIAM, in *Biography*. By the aſſiſtance of Mr. Bowyer’s biographical anecdotes, we are enabled to give a pretty diſtinct account of the life of this celebrated ſurgeon and anatomist. He was of a reſpectable family in Rutlandſhire, and born at Burrow-on-the-Hill, in Leiceſterſhire, in the year 1688. After ſuch acquirements in Latin, as might be picked up at a neighbouring grammarſchool, he was put apprentice, in 1703, to Mr. Wilkes, a ſurgeon at Leiceſter, and at the end of his apprenticeship, he came to London, and was admitted a pupil in St. Thomas’s hoſpital, under Mr. Ferri, whom he afterwards ſucceeded. In anatomy he was inſtructed by Cowper, at whoſe houſe he reſided. The progreſs he made under theſe preceptors

was ſo conſiderable and rapid, that he commenced lecturer in ſurgery and anatomy as early as the year 1711, when he was only 22 years of age. The ſame year he was elected fellow of the Royal Society. In 1713, he published his “*Anatomical Deſcription of the Human Body*,” in 8vo. with plates, to which were added ſome ſelect caſes in ſurgery, and a ſyllabus of his lectures. Cheſelden had the pleaſure of ſeeing this work paſs through ſix editions, each more improved than the former one. To the fourth and ſubſequent editions the author added an appendix, in which he gave a ſhort-hiſtory of the operation of cutting for the ſtone in the bladder. He performed the operation in the manner recommended by Dr. James Douglas, on nine patients in St. Thomas’s hoſpital, with ſucceſs; but failing in ſome ſubſequent trials, he reſorted to the mode recommended by Rau, which he ſo much improved, that the firſt 27 patients, whom he cut by that method, all recovered. Notwithſtanding the candour with which Cheſelden had acknowledged the improvements made by Dr. Douglas in the method of performing the high operation, yet he did not eſcape cenſure: an anonymous pamphlet, ſuppoſed to have been written by the Douglases, being addreſſed to him, under the title of “*Lithotromus caſtratus*.” But his character, both as a lithotiſt and as a ſurgeon in general, was too well eſtabliſhed to be injured by ſo feeble an attack. To the ſame edition of his anatomy he added ſome curious obſervations, made by a patient, who had been blind from his infancy, and whom he reſtored to his ſight. The caſe was firſt published in the Philoſophical Tranſactions. In 1729, he was elected a correſponding member of the Royal Academy of Sciences at Paris; and in 1732, he was made foreign aſſociate to the Royal Academy of Surgery, then newly inſtituted. He had before been appointed principal ſurgeon to queen Caroline, to whom he dedicated his ſplendid work on the bones, published in 1733, in folio. The bones are given on a large ſcale, and are beautifully, and the large ones correſtly, delineated. Some errors in delineating the ſmall bones of the head, drew upon him the cenſure, much too ſevere, of his opponent and rival, Dr. Douglas. In 1738, Mr. Samuel Sharp dedicated to him his treatiſe on the operations in ſurgery, acknowledging the great improvements he had made in the art. Cheſelden had the year before been appointed ſurgeon to Chelſea hoſpital, to which place he retired, to enjoy a comparative ſtate of leiſure, from the hurry and buſtle of public practice. Beſides the works we have mentioned, ſome of his lucubrations on ſubjects of anatomy and ſurgery, were published in the Philoſophical Tranſactions, and he furniſhed 21 valuable plates, and ſome uſeful obſervations, to Gataker’s tranſlation of Le Dran’s treatiſe on the Operations in Surgery. Towards the end of the year 1751, he was ſeized with a ſtroke of palsy, which induced him to go to Bath, where he appeared for a time to have received ſome benefit, but this was of ſhort duration, as he died in a fit of apoplexy, on the 11th of April, in 1752, aged 64 years.

Cheſelden was ſtrongly attached to his profeſſion, and was always ready with his advice, and aſſiſtance, to young practitioners. He was of a ſocial and chearful diſpoſition, and among other acquaintance, was intimate with Mr. Pope, who appears to have had a great eſteem for him. To his patients he was tender and humane, and he is ſaid to have felt a conſiderable depression of ſpirits, when about to perform an operation, but this never proceeded ſo far as to occasion any wavering, or unſteadineſs of his hand, which the ſucceſs of his practice, and the high character he enjoyed, abundantly teſtify. It was probably to cure himſelf of this weakneſs, that he became a frequent attendant at the places where

where prize-fighting and other athletic exercises were performed. With so much acknowledged ability, that there should be mingled some portion of vanity, and being allowed to decide on subjects of surgery, that he should sometimes expect the same attention to be paid to his opinion, on subjects with which he was not so well acquainted, should excite no surprize. Some stories of the kind, which we shall not contribute to propagate, have been handed down. He left only one child, a daughter, who had been married to Charles Coates, M. D. of Woodcote, in Shropshire, member of parliament for Tamworth, in Staffordshire. She became a widow in 1748, and removed to Greenhithe, in the parish of Swanscombe, in Kent, where she died several years after her father, leaving no issue.

CHESELETH-TABOR, or **CARTHA**, in *Ancient Geography*, a town of Judæa, in the tribe of Zabulon. Joshua gave it to the Levites of this tribe, who were of the family of Merari. It was situated on the side of Mount Tabor. Eusebius and Jerom call it Cafalus or Exalus, and place it 10 miles E. from the S.W. part of Diocæsarea.

CHESHAM, in *Geography*, a small but populous town of England in Buckinghamshire, situated in a pleasant and fertile valley, and consisting of three streets, which are principally occupied by shoe-makers and lace-makers, and the manufacturers of wooden articles, in the respective branches of round, hollow, and Tunbridge ware. The turnery goods produce a considerable sum annually; and the number of shoes made every week has been computed at a thousand pair. The inhabitants are for the most part dissenters; and the town has 4 places of worship, besides the parish church. There is also a free-school for the education of the children of the poor. Chesham has a weekly market on Wednesday. It is 29 miles W. N.W. from London.

CHESHIRE, one of the western counties of England, was included by the Romans in the division named Flavia Cæsariensis; but on the final departure of that people from the island, it reverted to the Britons, who continued in possession till about the year 607, when it was conquered by Ethelfrith, the Saxon king of Bernicia, who defeated the army of Brochmael Yfrithroc, king of Powys, near Chester. On this occasion, Ethelfrith is said to have slain 1200 defenceless monks, whom Brochmael had called from the neighbouring monastery of Bangor, and stationed on a neighbouring hill, that they might assist him with their prayers. It was afterwards wrested from Bernicia by the Mercians, and continued a part of their kingdom till the reign of Egbert, who united it with the other Saxon states under one government. Canute the Dane, who obtained this division of the kingdom by his famous partition treaty with Edmund Ironside, invested the administration of this county in the earls of Chester; three of whom enjoyed that dignity prior to the conquest; Leofric the son of Leofwin; Algar, his son; and Edwin, son of the latter; in whom ended the race of the Cheshire earls of Saxon blood. On the conquest, the provinces of Britain which had hitherto been governed by a few great men, were divided into lesser portions, and distributed as rewards among the followers of the Norman king. Cheshire was bestowed on Gherbod, a valiant Fleming; and after him on Hugh de Aunage, better known by the name of Hugh Lupus. To him the monarch delegated a fulness of power; made this a county palatine, and gave it such a sovereign jurisdiction, that the ancient earls kept their own parliaments, and had their own courts of law, in which any offence against the dignity of the sword of Chester was as cognizable as the like offence would have been at Westminster against the dignity of

the royal crown; for William allowed Lupus to hold this county "tam libere ad gladium, sicut ipse rex tenebat Angliam ad coronam." The sword with which he was invested is still to be seen in the British Museum, inscribed Hugo Comes Cestrie. As soon as Lupus was firmly established, he began to exert his regal prerogatives. He formed his parliament by the creation of eight barons, who were obliged to pay him attendance, and to repair to his court to give it the greater dignity. They were bound in all wars between this county and Wales, to find, for every knight's fee, a horse with caparison and furniture, or two without furniture, for the division of Cheshire. Their knights and freeholders were to have corselets and habergeons, and were to defend their lands with their own bodies. This species of government continued from the conquest till the reign of Henry III., a period of 171 years, when in 1237, on the death of John Scot, the seventh earl of the Norman line, without male issue, Henry took the earldom into his own hands, and gave the daughters of the late earl other lands in lieu; unwilling, as he said, that so great an inheritance should be parcelled out among distaffs. The king bestowed the county on his own son Edward, who did not assume the title, but afterwards conferred it on his son Edward of Caernarvon. Since that time the eldest sons of the kings of England have always been earls of Chester as well as princes of Wales. The palatinate was governed by the earls of Chester as fully and independently for nearly three centuries after this period, as it had ever been by the Norman earls; but Henry VIII. by authority of parliament, made it subordinate to the crown of England. Yet notwithstanding this restraint, all pleas of lands and tenements, and all contracts within the county, are to be heard and determined in it; and all determinations out of it are deemed void, "et coram non iudice," except in case of error, foreign plea, and foreign voucher; and for no crime but treason can an inhabitant of this county be compelled to be tried out of it. Thus being solely under the jurisdiction of its own earls, and considered in a certain degree as a separate kingdom, representatives to the national parliament were never sent, either for the shire or city, till the year 1549, the third of Edward VI., when upon the petition of the inhabitants, two members were summoned from each.

Cheshire is bounded on the north by the rivers Mersey and Tame, which separate it from Lancashire; on the east by the counties of Derby and Stafford, the division between which is chiefly marked by a chain of hills and by the rivers Goyt and Dane. The southern side unites with Shropshire and Flintshire; and the western border is skirted by Denbighshire, Flintshire, and the estuary of the Dee. The dimensions of the county are estimated by Mr. Wedge, in the "General View of the Agriculture of Cheshire," at about twenty-two miles and a quarter, on a medium, in width, and nearly forty miles in length from W. S.W. to E. S.E. Its form is rather oval, with two projecting necks of land; one about twenty miles in length, and six in breadth, running out into the Irish sea, between the estuaries of the Dee and Mersey, and called the Wirral. The other forms part of Macclesfield hundred, and extends about fifteen miles in length from Stockport, between the counties of Derby and York; but rarely exceeds four miles in width. Alfred divided this county into seven hundreds, exclusive of Chester which is a county in itself; it contains one city, twelve towns, 670 villages, about 35621 houses, and 191,751 inhabitants.

Cheshire is in general a flat country, though some considerable hills rise near its eastern borders, and connect with those of Derbyshire and Staffordshire. These ex-
tend

tend about twenty-five miles in length from Congleton to the north-eastern corner of the county. An interrupted ridge of high ground also crosses it from north to south, on the western side, beginning near Frodsham, where a bold promontory overhangs the Mersey. After crossing the large tract of heath, called Delamere Forest, it exalts itself in the towering rock of Beeston, near the middle of the county. About Macclesfield are a few other hills, and some on the Shropshire side. Another chain runs north and south through the peninsula of Wirral. The rest of the county is nearly level; and the principal part of it consists of arable, meadow, and pasture land. A variety of soil is found in this county; but clay, sand, black moor, or peat, seem to predominate; and the under soil is commonly clay, or marl. The red grit rock is the most prevalent stone of the county, and of this most of the towns and villages are built. There are few large woods in the county; yet, as the generality of farms abound with hedge-rows, a considerable quantity of timber is produced, and particularly a great number of oak-trees, from which the tanners derive a supply of that invaluable antiseptic, oak bark. Cheshire was formerly distinguished for its numerous yeomanry; and though they have decreased for the last hundred years, they are still very considerable. In the vicinity of manufacturing towns, and particularly on the borders of Lancashire and Yorkshire, many parcels of land have been purchased by tradesmen and appropriated to small farms; but the greatest portion of the county is retained and cultivated by gentlemen who reside on their own estates. The evil of congregating farms has in a limited degree extended into Cheshire; and the possessions that furnished support, and gave independence, to several families, have been thus confined to one. The tenure is almost universally freehold; yet in the manors of Macclesfield, Halton, and some others, there are a few copyholds, or what may be denominated customary freeholds, paying fines and rents certain. Leasing for lives, which was formerly a very constant and general practice, is yet continued by a few landholders; but the most common term of leases is eleven years, with a restriction on the tenant to a certain quantity of tillage (usually about one-fourth of his farm) and a particular rotation of crops. The extent of farms is, on the average, from 150 to 300 acres; but some few contain upwards of 500.

The *Dairy* is the principal object of attention with the Cheshire husbandman; yet it is rather a singular fact, that though the county has for many ages been famed for its cheese, it was formerly as celebrated for its wheat. Strabo and Pliny have affirmed, that cheese-making was introduced into this country by the Romans; but this is improbable, from various circumstances; and we are certain that the Roman armies on the continent received a great supply of cheese from this country soon after they had secured its possession. The quality and flavour of *Cheshire cheese* are almost universally known; yet as few persons, comparatively speaking, are acquainted with the process of its manufacture, we shall give a brief detail of the chief particulars. A dairy farm of one hundred acres is usually divided in the following proportions: from ten to fourteen acres of oats, from six to eight acres of fallow-wheat, and the like quantity of summer fallow; the remainder is appropriated to pasture and hay, the latter occupying about twelve acres. The judicious dairy farmer is more attentive to the size, form, and produce of the udder of his cows, than to any fancied beauty of shape. Utility to him is preferable to fashion. This consideration induces him to be scrupulous in the breeding and rearing of calves, and in the management of his cows during the winter and

summer seasons. The annual quantity of cheese made from each cow varies from 50 to 500lb. and upwards; the produce being governed by the nature of the land, the quality of the pasture, the seasons, and the mode of wintering the stock. On the whole, the average produce may be stated at about 200lb. from each animal. The quantity of milk, according to this estimation, yielded daily by each cow, during the milking season, is about eight quarts, which is commonly supposed to produce one pound of cheese. The Cheshire cheese is generally made with two meals' milk; though often, towards the latter end of the season, which continues nearly twenty-two weeks, with four, five, or six: for as the cheeses are usually made very large, it is necessary to have a sufficient quantity of milk to make one at a time; though in some of the dairies two are made in a day. The most common size for a cheese is sixty pounds; a weight susceptible of every excellence to be found in the cheese of this county. It is usual to preserve the evening's milk till the next morning, when it is skimmed, heated, and incorporated with the new milk; and after being mixed in a large tub, together with the cream, the dairy woman puts in a proper quantity of rennet and colouring, and then leaves it for about an hour and half to coagulate or curdle. The colouring should be Spanish annatto; but, from the high price of that article, an adulterated colouring is often substituted. In making cheese of the best quality, the milk used is as pure as it comes from the cow, not robbed of any cream; though the practice of making a certain quantity of fresh butter weekly, frequently occasions an appropriation of that cream to the churn which properly belongs to the cheese-tub. After the cheese is "come," or when the milk is properly coagulated, the dairy-maid breaks the curd into very small particles, which are then left to subside, and the whey skimmed off. This process is repeated till the whey is nearly expelled, when the curd is placed in a vat, and occasionally sprinkled with salt. Some dairy women use about three handfuls to a cheese, and make it a rule to put the greatest quantity near the middle. The vat is filled very full, and the whey repeatedly squeezed out before it is placed in the press; as it is very material to expel all the whey, and also to keep the vat quite full of curd. The cheese is commonly taken twice or thrice from the vat, to place fresh cloths, pare off the edges, and turn it; and sometimes it is immersed in hot whey, which is supposed to harden its coat. After remaining in the press two or three days, it is next conveyed to the salting house, where it is placed in a salting-tunnel or tub, in which it continues about three days more, and is next placed on the benches for about eight days, being well salted all over, and turned every day. After this process it is turned twice daily for six or seven days, and then washed in warm water, and wiped dry with a cloth; and when dry, smeared over with whey butter, and placed in the warmest part of the cheese-room, where it is left to assume its proper age and consistence.

The principal *mineral* productions of Cheshire are *salt* and *coal*. Of the latter, a considerable quantity is found on the eastern side, and some is obtained from the hundred of Wirral. The former is more abundant in this county than in any other part of England. The immense trade carried on in this article, and vast revenue derived from it, render it an object of considerable local and national importance. The principal salt-works are at Nantwich, Middlewich, Winsford, and Northwich. See NANTWICH and SALT.

The *cotton* business, next to the manufacture of salt, seems to be the most considerable. This flourishing branch of trade has lately been extended from Lancashire, and some of the bordering counties, over many parts of Cheshire. Exclusive of

of these, manufactures of leather, ribbon, thread, gloves, buttons, and shoes, are carried on at Nantwich, Macclesfield, Congleton, Knutsford, and some other places.

Most of the rivers and streams which wind through this county direct their currents northward, and empty themselves into the Mersey or the Dee. The former divides Cheshire from Lancashire for a course of nearly 60 miles, about 35 of which, from Liverpool to the mouth of the river Irwell, are navigable for vessels of considerable burthen. The Mersey derives its source from a conflux of small streams at the junction of the county with Derbyshire, and flowing in a westerly direction, receives in its course the waters of the Goyt, the Tame, the Bollin, the Irwell, and the Weaver. After its junction with the latter, it swells into a broad estuary, and taking a north-western course, soon unites with the Irish channel. The Dee was held in great veneration by our British ancestors, and its waters regarded as sacred and purifying. It derives its origin in the mountainous district of Merionethshire, and after forming the large lake of Pemblemere, passes through a series of very picturesque and grand scenes, and approaches the western border of this county, to which it forms a boundary from Worthenbury to Aldford. It then passes on to Chester, whose walls it nearly encircles, and afterwards flows to the west, through an artificial channel, which was formed, at an immense expence, by a body of gentlemen, called The River Dee Company. This river also forms a large sandy estuary between the county of Flint and the hundred of Wirral, and joins the Irish sea about 14 miles N.W. from Chester. The Weaver, deriving its source from Ridley Pool, close to Cholmondeley Hall, passes the towns of Nantwich, Minshall, Weaver, Winsford, and Northwich, where it is joined by the Dane, from the northern parts of Staffordshire, and two or three other streams from the central parts of the county. Hence it proceeds to Wareham, Acton-Bridge, and Frodsham, where it falls into the swelling basin of the Mersey. The Weaver receives several tributary streams in the course of its progress; and from Winsford to Frodsham it has been rendered navigable by means of various locks. See CANAL. Several other rivers meander through this county, the principal of which are the Goyt, the Bollin, the Dane, and the Whirlock. Cheshire also abounds with broad sheets of water, denominated meres, lakes, and pools. The principal are Oak-Mere, Rosthern-Mere, Mere-Mere, Tattow-Mere, Comber-Mere, Broad-Mere, and Bag-Mere; Petty-Pool, Rookery-Pool, and Ridley-Pool. Most of these waters abound with fish.

The county is intersected by portions of four canals, which allow a very constant and cheap intercourse between the towns of Chester, Liverpool, Manchester, the north of England, Staffordshire, Shropshire, and adjacent counties. See CANAL.

The diocese of Chester comprehends all Cheshire and Lancashire, and various parts of Westmoreland, Cumberland, Yorkshire, Denbighshire, and Flintshire, and is divided into two archdeaconries. Cheshire returns four members to parliament, viz. two for the shire, and two for the city of Chester: pays seven parts of the land-tax, and furnishes the militia with 560 men. Gower's Sketches towards a History of Cheshire. Leigh's Natural History of Lancashire and Cheshire.

CHESHIRE, a county of America, in New Hampshire, on the E. bank of Connecticut river, bounded on the S. by the state of Massachusetts, on the N. by Grafton county, and by Hillsborough county on the E. It contains 34 townships, the chief of which are Charlestown and Steine, and 28,772 inhabitants, including 16 slaves.

CHESHIRE, a township in the county of Berkshire and state of Massachusetts, famous for its good cheese; 140 miles N. westerly from Boston.—Also a township of New-Haven county in the state of Connecticut; 13 miles N. of New-Haven city, and 26 S.W. of Hartford. It contains an episcopal church and academy, and three congregational churches.

CHE-SINEN, a town of China of the third rank, in the province of Chen si; 15 leagues N.W. of Hir-ngan.

CHESINUS, in *Ancient Geography*, a river of European Sarmatia. Ptolemy.

CHESIUM, a small town of Asia Minor, in Jonia. Steph. Byz.

CHESLEY, in *Geography*, a town of France, in the department of the Aube; 9 miles S.E. of Ervy.

CHESLON, in *Ancient Geography*, a town of Palestine, in the tribe of Juda.

CHESNE. See LA CHENE.

CHESNE, ANDREW DU, in *Biography*, called "the Father of French History," was born in 1584, at l'Isle Bouchard, in Touraine. His historical and geographical researches were very various, and his productions, considering that his life was not very extended, were astonishingly numerous. In these he appears rather the diligent and laborious compiler, than a judicious writer. His premature death in 1640, was occasioned by an accidental injury.

He wrote "A History of England," 2 vols. fol. 1634; "A History of the Popes," 2 vols. fol. 1633; "A History of French Cardinals;" "The Genealogies of several great Families of France," 7 vols. fol.; "History of the Dukes of Burgundy," 2 vols. 4to.; "A Bibliotheque of Authors who have written on the History and Topography of France." He was also the editor of the works of several other authors, as Abelard, Pasquin, &c.; and he issued proposals for printing a large collection of French historians, in 24 vols. fol. of which 2 volumes, comprising the period from the origin of the nation to the time of Hugh Capet, were published in 1636; and other two volumes, in the press at the time of his death, together with a fifth, bringing the History down to Philip the Fair, were published by his son, Francis du Chesne, who was also a learned man. Moreri.

CHESNE, or QUESNE, called also QUERCETANUS, an eminent practitioner and voluminous writer in medicine, which he practised successfully many years in Germany, was born in the county of Armagnac in Gascony, about the middle of the sixteenth century. Applying himself to the study of medicine, particularly of chemistry, in which he acquired a considerable proficiency, he was admitted to the degree of Doctor at Basle, about the year 1573. In the latter part of his life, he removed to Paris, and was made one of the physicians in ordinary to the king, Henry IV. As he affected great mystery, and was a professed admirer and follower of the doctrines of Paracelsus, he drew upon himself the censures of many of his contemporaries; among them, Riolan was one of the most formidable of his opponents. We also find Goy Patin, who flourished some years at Berlin, treating his doctrines with great severity, and in fact, whatever popularity his works might enjoy in the lifetime of the author, they are long since deservedly forgotten. Haller has given the titles of them, and analyses of the principal of their contents. The most celebrated among them, which passed through the greatest number of editions, is his Pharmacopœa Dogmaticorum restituta, pretiosis, selectisque Hermeticorum Floribus illustrata. Giese Hefs. 1607. This is said to have been recommended by Boerhaave to his pupils. Schroder, in 1643, published a volume, in quarto,

under the title of *Quercetanus redivivus*, containing an abridgment of his doctrines. He died at Paris in 1609. Haller. Bib. Eloy. Di&.

CHESNEAU, NICHOLAS, a physician of Toulouse, was born at Marfeilles, where he took his degree of Doctor in Medicine, in the early part of the seventeenth century. He appears to have had a large share of practice in his profession, and was author of several useful publications. The principal of them is his "*Observationum Medicinalium Libri quinque. Quibus accedit ordo Remediorum alphabeticus ad omnes fere morbos conscriptus*," &c. 8vo. Parisiis, 1672. This work has passed through several editions, and in 1719, was printed at Leyden in 4to. Haller has given an abridged account of its contents. Amidst some insignificant and some incredible accounts of cures, there are contained in it many useful practical observations. Haller Bib.

CHESNUT, in *Botany*. See *FAGUS castanea*.

CHESNUT, *horse*. See *ÆSCULUS hippocastanum*.

CHESNUT *hill*, in *Geography*, a township of America, in the county of Northampton and state of Pennsylvania.

CHESNUT *creek*, a branch of the Great Kanliaway, in Virginia, where it crosses the Carolina line. Here, it is said, are iron mines.

CHESNUT *ridge*, part of the Alleghany mountains, in Pennsylvania, westward of Greensborough.

CHESS, an ingenious game performed with little round pieces of wood, on a board divided into sixty-four squares; where skill and address are so indispensably requisite, that chance has no place; and a person never loses but by his own fault.

Sarasin has a precise treatise on the different opinions of the origin of the Latin *scacchi*; whence the French *echecs*, and our *chess*, is formed. Menage is also very full on the same head. Leunclavius takes it to come from the *uscoches*, famous Turkish robbers. P. Sirmond from the German *schackhe*, *theft*; and that from *calculus*. He takes *chefs* to be the same with *ludus latrunculorum* of the Romans, but mistakenly. This opinion is countenanced by Vossius and Salmassius, who derive the word from *calculus*, as used for *latrunculus*. Some derive it from the Hebrew סִיג, *sejag*, *sepes*, whence *vallare*, *vallavit*; מוֹת, *mut*, *mori*, *mortuus*; others again from שְׂחָק, *sech*, *lusus*, and מוֹת, *mori*; whence *chefs* and *chess-mate*. Fabricius says, a celebrated Persian astronomer, one Schatrenfcha, invented the game of *chefs*; and gave it his own name, which it still bears in that country. Nicod derives it from *schegue*, or *seque*, a Moorish word for *lord*, *king*, and *prince*: Bochart adds, that *schach* is originally Persian, and that *schachmat*, whence our *check-mate*, in that language, signifies the *king is dead*.

The learned Hyde has undertaken to shew, from undoubted authorities, that this game was first invented in India, and passed from thence to Persia before the year of Christ 576, and from Persia to Arabia. He adds, that the antiquity of this game is traced much higher, or to the middle of the second century, in an Irish chronicle, the authenticity of which is doubtful. And he shews, that *sbab*, i. e. *rcx*, was a term much in use among the orientals, whilst engaged in this play, and that they used it to caution the king against any danger; and hence the Europeans and others have denominated the game *sbachiludium* and *sbabiludium*, and in English *chefs*, from this circumstance. He also derives the word *mat* from the Persic *manit*, *lassatus est*; and says that it was used in play; when any of the men was fixed in its place, or taken captive. See *Historia Shahiludii* apud Sharpa, vol. ii. p. 1. &c.

Sir William Jones concurs in opinion with the learned

Hyde, and ascribes the invention of this game to the Hindoos. "If evidence were required to prove this fact," says this excellent writer, whose knowledge of the eastern languages, combined with indefatigable industry in his researches, and a correct judgment and taste, gives a kind of decisive authority to his opinion, (See *Asiatic Researches*, vol. ii.) "we may be satisfied with the testimony of the Persians; who, though as much inclined as other nations to appropriate the ingenious inventions of a foreign people, unanimously agree, that the game was imported from the west of India in the 6th century of our æra. It seems to have been immemorially known in Hindoostan by the name of "*chaturanga*," i. e. the four *angas*, or members of an army; which are these, *elephants*, *horses*, *chariots*, and *foot soldiers*; and in this sense the word is frequently used by epic poets, in their descriptions of real armies. By a natural corruption of the pure Sanscrit word, it was changed by the old Persians into *chatrang*; but the Arabs, who soon after took possession of their country, had neither the initial nor final letter of that word in their alphabet, and consequently altered it further into *skatranj*, which found its way presently into the modern Persian, and at length into the dialects of India, where the true derivation of the word is known only to the learned. Thus has a very significant word in the sacred language of the Brahmins been transformed by progressive changes into *axedraz*, *scacchi*, *echecs*, *chefs*; and, by a whimsical concurrence of circumstances, has given birth to the English word *check*, and even a name to the *Exchequer* of Great Britain."

It is confidently asserted, that Sanscrit books on *chefs* exist in Bengal; but Sir William had seen none of them when he wrote the memoir which we have quoted. He exhibits, however, a description of a very ancient Indian game of the same kind, but more complex, and in his opinion more modern, than the simple *chefs* of the Persians. This game is also called "*Chaturanga*," but more frequently "*Chaturaji*," or the four kings, since it is played by four persons representing as many princes, two allied armies combating on each side. The description is taken from a book called "*Bhawishya Purán*;" in which the form and principal rules of this factitious warfare are thus laid down: "Eight squares being marked on all sides, the red army is to be placed to the east, the green to the south, the yellow to the west, and the black to the north. Let the elephant (says the author of the *Purán*) stand on the left of the king; next to him the horse; then the boat; and before them all, four foot-foldiers; but the boat must be placed in the angle of the board."

"From this passage (says the president,) it clearly appears, that an army with its four *angas* must be placed on each side of the board, since an elephant could not stand, in any other position, on the left hand of each king; and Radhacant (a Pandit) informed me, that the board consisted, like ours, of 64 squares, half of them occupied by the forces, and half vacant. He added, that this game is mentioned in the oldest law-books, and that it was invented by the wife of a king, to amuse him with an image of war, while his metropolis was besieged in the second age of the world. A ship or boat is absurdly substituted, we see, in this complex game for the "*rat'h*," or armed chariot, which the Bengalese pronounced "*rot'h*," and which the Persians changed into "*rokh*;" whence came the rook of some European nations; as the verge and sol of the French are supposed to be corruptions of *ferze* and *fil*, the prime minister and elephant of the Persians and Arabs."

As fortune is supposed to have a great share in deciding the fate of a battle, the use of dice is introduced into this game to regulate its moves; for (says the *Purán*) "if cinque
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be thrown, the king or a pawn must be moved; if quatre, the elephant; if trois, the horse; and if deux, the boat. The king passes freely on all sides, but over one square only; and with the same limitation the pawn moves, but he advances straight forward, and kills his enemy through an angle. The elephant marches in all directions as far as his driver pleases; the horse runs obliquely, traversing the squares; and the ship goes over two squares diagonally." The elephant, we find, has the powers of our queen, as we are pleased to call the general or minister of the Persians; and the ship has the motion of the piece to which we give the unaccountable appellation of bishop, but with a restriction which must greatly lessen its value.

In the Purân are next exhibited a few general rules and superficial directions for the conduct of the game. Thus, "the pawns and the ship both kill and may be voluntarily killed; while the king, the elephant, and the horse may slay the foe, but must not expose themselves to be slain. Let each player preserve his own forces with extreme care, securing his king above all, and not sacrificing a superior to keep an inferior piece." Here (says the president) the commentator on the Purân observes, that the horse, who has the choice of eight moves from any central position, must be preferred to the ship, which has only the choice of four. But this argument would not have equal weight in the common game, where the bishop and tower command a whole line, and where a knight is always of less value than a tower in action, or a bishop of that side on which the attack is begun. "It is by the overbearing power of the elephant (continues the Purân) that the king fights boldly; let the whole army, therefore, be abandoned in order to secure the elephant. The king must never place one elephant before another, unless he be compelled for want of room, for he would thus commit a dangerous fault; and, if he can slay one of two hostile elephants, he must destroy that on his left hand."

All that remains of the passage which was copied for Sir William Jones relates to the several modes in which a partial success or complete victory may be obtained by any one of the four players: for, as in a dispute between two allies, one of the kings may sometimes assume the command of all the forces, and aim at a separate conquest. First, "When any one king has placed himself on the square of another king (which advantage is called "sinhafana" or the throne) he wins a stake, which is doubled, if he kill the adverse monarch when he seizes his place; and, if he can seat himself on the throne of his ally, he takes the command of the whole army." Secondly, "If he can occupy successively the thrones of all the three princes, he obtains the victory, which is named "chaturaji"; and the stake is doubled if he kill the last of the three, just before he takes possession of his throne; but if he kill him on his throne, the stake is quadrupled. Both in gaining the "sinhafana" and the "chaturaji" the king must be supported by the elephants, or by all the forces united." Thirdly, "When one player has his own king on the board, but the king of his partner has been taken, he may replace his captive ally, if he can seize both the adverse kings; or if he cannot effect their capture, he may exchange his king for one of them, against the general rule, and thus redeem the allied prince, who will supply his place." This advantage has the name of "nripacrishta," or recovered by the king. Fourthly, "If a pawn can march to any square on the opposite extremity of the board, except that of the king or that of the ship, he assumes whatever power belonged to that square." Here we find the rule, with a slight exception, concerning the advancement of the pawns, which often occasions a most interesting struggle at our common chess; but it appears that, in the opinion of one ancient writer on the Indian game, this

privilege is not allowable when a player has three pawns on the board; but, when only one pawn and one ship remain, the pawn may advance even to the square of a king or a ship, and assume the power of either. Fifthly, According to the people of Lanca, where the game was invented, "there could be neither victory nor defeat if a king were left on the plain without force; a situation which they named "cacacast'ha." Sixthly, "If three ships happen to meet, and the fourth ship can be brought up to them in the remaining angle, this has the name of "vrihannauca;" and the player of the fourth seizes all the others."

The account of this game in the original Sanscrit is in verse, and there are two or three couplets still remaining, so very dark, either from an error in the manuscript, or from the antiquity of the language, that Sir William Jones could not understand the Pandit's explanation of them, and suspects, that even to him they gave very indistinct ideas. It would be easy, however, he thinks, if it be judged worth while, to play at the game by the preceding rules; and a little practice would perhaps make the whole intelligible.

The Honourable Daines Barrington, in his elaborate "Historical Disquisition on the Game of Chess," (See Archæologia, vol. ix.) asserts, and maintains the claim of the Chinese as inventors; though, he says, Hyde inclines against it, chiefly because they have some additional pieces, which differ from ours, both in their form and powers. This single circumstance, he thinks, is by no means conclusive; because, in all countries where any game hath been of long continuance, the players will make innovations, though in substance it remains the same. Du Halde cites a Chinese treatise, by which it appears that it is the favourite game of that country, and, as such, is sometimes depicted upon Chinese paper. Indeed, in China, it makes a considerable part of the education of their females, and seems to take the place of dancing among us. The origin of this game has been traced to China, in a letter from Eyles Irwin, Esq. to the Earl of Charlemont, published in the 5th volume of the Transactions of the Royal Irish Academy. During a long residence in the East Indies, where the game of chess is generally supposed to have originated, Mr. Irwin has often heard of its existence in China, though on a different footing, as well in respect to the powers of the king, as to the aspect of the field of battle. A tradition of this nature obtained among the Brahmins, who excel in this game. When a young Mandarin was shewn an English chess-board, he informed Mr. Irwin, that the Chinese had a game of the same nature; and he specified the difference that subsisted in the pieces and the board. Upon farther investigation of the subject, the young Mandarin, named Tinquá, brought a Chinese MS. which contains an account of the origin of the game of chess in that country. From this MS. it appears, that 379 years after the time of Confucius, or 1965 years ago, Hung Cochú, king of Kiangnan, sent an expedition into the Shení country, under the command of a mandarin, called Hanfing, to conquer it. After one successful campaign, the soldiers were put into winter quarters; where, finding the weather much colder than what they had been accustomed to, and being also deprived of their wives and families, the army, in general, became impatient of their situation, and clamorous to return home. Hanfing, upon this, revolved in his mind the bad consequences of complying with their wishes. The necessity of soothing his troops, and reconciling them to their position, appeared urgent, in order to finish his operations in the ensuing year. He was a man of genius, as well as a good soldier; and having contemplated some time on the subject, he invented the game of chess, as well for an amusement to his men in their va-

cant hours, as to inflame their military ardour, the game being wholly founded on the principles of war. The stratagem succeeded to his wish. The soldiery were delighted with the game, and forgot, in their daily contests for victory, the inconveniences of their post. In the spring the general took the field again, and, in a few months, added the rich country of Shenfi to the kingdom of Kiangnan, by the defeat and capture of its king, Choupayuen, a famous warrior among the Chinese. On this conquest Hung Cochu assumed the title of emperor, and Choupayuen put an end to his own life in despair.

From the above extract from the Concum, or Chinese annals, it appears, that the institution of this game forms a principal æra in the Chinese history; since, by the conquest of Shenfi, the kingdom was first connected in its present form, and the monarch assumed the title of emperor. Mr. Irwin observes, that the confined situation and powers of the king, resembling those of a monarch in the earlier parts of the world, countenance the supposition of the Chinese origin of chess; and that, as it travelled westward, and descended to later times, the sovereign prerogative extended itself, until it became unlimited, as in our state of the game. The agency of the princes also, in lieu of the queen, points out the nature of the Chinese customs, which exclude females from every kind and degree of influence and power; and these princes, in the passage of the game through Persia, were changed into a single vizier, or minister of state, with the enlarged portion of delegated authority that exists there; instead of whom, the European nations, with their usual gallantry, adopted a queen on their board. The river between the parties is expressive of the general face of this country, where a battle could hardly be fought, without encountering an interruption of this kind, which the soldier was here taught to overcome; but, on the introduction of the game into Persia, the board changed with the dry nature of the region, and the contest was decided on terra firma. Moreover, with the Indians, this game was designed by a Brahmin, to cure the melancholy of the daughter of a rajah. But with the Chinese, it was invented by an experienced soldier, on the principles of war; not to dispel love-sick vapours, or instruct a female in a science that could neither benefit nor inform her; but to quiet the murmurs of a discontented soldiery, to employ their vacant hours in lessons on the military art, and to cherish the spirit of conquest in the bosom of winter quarters. Its age is traced by the Chinese actually on record near two centuries before the Christian æra; and among the numerous claims for this noble invention, that of the Chinese, who call it by way of distinction, Chong-Ke, or the royal game, seems to Mr. Irwin to be indisputable.

In Thibet and the Birman empire, as well as throughout Bengal and Hindoostan, the game of chess is held in high estimation. The board used by the Birmans, as we learn from Symes's Embassy to Ava, (vol. iii. p. 289) is exactly similar to ours, containing 64 squares, and the number of their troops the same, 16 on each side; but the names, the power, and the disposal of them differ essentially, the king and his minister (a queen being never introduced by the orientals) are mounted on elephants; these are defended by two castles, two knights on horseback, two officers on foot, and eight foot soldiers; the forces of each party are arranged in three lines, by which eight squares remain unoccupied; none of the pieces possess equal force with our queen: and this restricted operation renders the Birman mode of playing more complex and difficult than ours. The Birmans affirm that it is a game of high antiquity, and that it is acknowledged and authorized by their sacred writings, although every play

of chance is prohibited. The name of this game, viz. "Chedreen," bears some resemblance to the name which is given to the game in most other parts of the world. Col. Symes infers from this detail, that chess was invented in India, according to the opinion of sir William Jones, and that it is not of Persian origin. Others may probably concur with the honourable Mr. Barrington, Mr. Irwin, &c. in deducing it from the long civilised empire of China, and tracing its progress westward through Thibet and Hindoostan to Persia. If indeed this most interesting game had been known in Persia, whilst Alexander or his successors continued there, they would undoubtedly have introduced it into Greece, and its name would certainly have been transmitted to us, together with its pieces and their moves.

Chess is unquestionably a very ancient, as it has been a very general, game. The opinion maintained by some learned writers, and which has much prevailed, ascribes the invention of it to Palamedes at the siege of Troy. Most of the passages relied upon in proof of this opinion may be found in Stephens's Thesaurus, Art. Πίσσος, or pebble. Mr. Barrington says, that he has examined all these passages, and that he can venture to affirm, that none of them relate to chess, because there is not the most distant allusion to the putting of the enemy's king in such a situation that he cannot be extricated, which is the great object of each player. From a line in the first book of the Odyssey it has been inferred that Penelope's suitors amused themselves with this game before the gates of Ulysses's palace. The game played by Penelope's suitors, and called *πίττω*, is particularly described by Athenæus in his 1st book of the Deipnosophistæ, on the authority of a native of Ithaca, and it differs most materially from chess, as the pieces were in number 108 instead of 32. The principal authority for Palamedes's having been the inventor of chess is a line from Sophocles,

Εἰς οὐρανὸν (sc. Palamedes) πίσσους, κυβούς τε, τέτρατον ἀργυρίου ἀκρόν.

But nothing more can be inferred from this line than that he invented some game which was played with pebbles, *πίσσοις*. The game called *πίττω* in Greek, was by the Romans termed *calculi* or *latrunculi*; and Ovid (de Art. Am. l. iii. 357-366) has so described the mode of playing it, that no person who is acquainted with the moves even at chess, can read it with attention, and conceive that it alludes to this game. Mr. B——n has also examined a passage cited from Lucan, in order to prove that chess was known to the Romans, and shown that it is not justly applicable to this game, supposing that the passage is genuine or ancient. Donatus, on Terence's Eunuch, observes, that Pyrrhus, the most knowing and expert prince of his age, ranging a battle, made use of the men at chess to form his designs; and to shew the secrets thereof to others. Vopiscus, in his life of Proculus, informs us, that one of the Roman emperors had the title Augustus given him, because of his gaining ten games at chess successively.

Tamerlane is also recorded as a very expert gamester at chess.

It appears from Mr. B——n's historical account, that the game of chess, called by the Persians *Σατγκαζ*, and by the Constantinopolitans *Σακον*, was a common game at Constantinople in the 12th century, when Anna Comnena flourished; and this will probably account for its introduction into Europe. The first crusaders, before the destruction of the eastern empire, often remained for some time at Constantinople, and thus probably became acquainted with this bewitching game, which, on their return, they introduced into their respective countries. Among the European nations it was first known to the Italians, as we may conclude from

from their being nearer to Constantinople than others, and from their early trade with the eastern ports of the Mediterranean. Accordingly we find by Boccace, who lived in the 14th century, that it was a most common amusement at Florence, and that there was a celebrated player, who (like Philidor) could beat two antagonists without seeing either of the chess-boards. Of its first introduction into Italy we have further evidence in the term *gamlat* at chess, now known in most European languages, which is confessedly of Italian origin; for *dare il gambetto* signifies to throw down your adversary in wrestling, by placing your foot against his. Chess thus introduced, became the favourite game throughout Europe till it was given up for cards; but before cards had banished chess, it was in such vogue that the kings both of Spain and Portugal pensioned the great players, whilst they also staked considerable sums on the event of the game. We find that three Italians set out from Naples for the court of Philip II., in which was a famous player, and by concealing their skill won very large sums. Hence it happened that as it was impossible to form a just estimate of the abilities of an antagonist, no one would play at chess for money, which, therefore, like drafts, fell into disuse. Italy, however, continued to produce the greatest proficient at this game, till the middle of the 17th century. The Italians are said to have been so much devoted to chess, that a father, who had died before the conclusion of a game, has bound his son to finish it; and the same custom is also said to obtain among the Germans. See Hyde, *ubi supra*, p. 7, 8. As Italy was the country from which Europe in general derived its knowledge of chess, Spain seems to have had the next claim for having produced at an early period players of eminence; and it has been said that in this country whole cities have challenged each other at this game. As to the time of its introduction into England, the learned Hyde supposes that it was known in our country about the time of the conquest, because the court of exchequer was then first established. See EXCHEQUER. Mr. Barrington, however, is of a different opinion; and though he allows it possible that chess might have been known in England in the next century after the first crusade had taken place, he rather supposes that it was introduced during the 13th century, upon the return of Edward I. from the Holy Land, where he continued so long and was attended by so many English. The Turks, who never change their habits, are still great players at this game, which well suits both their sedentary disposition and their taciturnity. Many of them were often prisoners in the Christian camp, as were also the Christians to the Saracens, so that they had many favourable opportunities in all these ways of obtaining instruction. The first mention which Mr. Barrington has met with of chess being known in England is in a MS. of Simon Aylward, said by Hyde to be in the library of Magdalen college. The same learned writer cites another MS. of Lydgate, monk of St. Edmund's Bury, who calls it the "game royal," in which are the following lines:

"Was of a *Fers* so fortunate,"
"Into a corner drive and maat,"

which lines are very intelligible, if we suppose that the preceding line relates to the piece called the king; and they will then have the following meaning; "the king was by a fortunate queen (of the adversary) driven into a corner of the chess-board, and check-mated," which of course concludes the game.

We find in Gale's edition of Hist. Ramfisins. (c. 85.) that when bishop Ætheric obtained admission to Canute the Great about midnight, upon some urgent business, he found the king and his courtiers engaged at play, some at dice, and

others at chess. From Hist. Olai Magni (p. 572.) we learn, that when a young nobleman applied to a father for permission to pay his addresses to his daughter, the parent, as it is said, commonly made a trial of his temper, by playing with him at dice and chess, before he gave him an answer.

It is certain that our ancestors played much at chess before the general introduction of cards, as no fewer than 26 English families have emblazoned chess-boards and chess-rooms in their arms, and it must therefore have been considered as a valuable accomplishment. Hyde moreover states, that chess was much played both in Wales and in Ireland; and that in the latter country some of their best estates depended upon it, and that it was a condition by which two noble families enjoyed their lands, that the one should engage the other every year at this game. Barrington, however, expresses his doubts as to these facts, because neither of these countries was scarcely civilized till the latter end of the reign of Henry VIII. With respect to both Ireland and Wales he apprehends, that they have no term for this game in their respective languages. From a treatise, entitled "the Game at Chess," and published by Caxton in 1474, it appears, that this game was not uncommon during the reign of Edward IV.; and it is certain also that it was a fashionable amusement in most houses of rank in the time of Richard III.

From the time of Edward IV. chess continued to be played by our ancestors, till cards became the more general amusement. We have reason to believe that queen Elizabeth was a chess player. Charles I. was also supposed to have been a player at this game; though in the *Εκλογὴ Βασιλική*, ascribed to him, he advises his son against it, because it is over-wise. In the last century Stamma, who was a native of Aleppo, and resided some time in England as translator of Oriental dispatches, published some select games at chess, together with a few instructions; and after him Hoyle taught how to open the game at a crown per lesson.

In France this game seems to have been known at an earlier period than in England. The traces of its antiquity, however, are few and faint. The historian Carte gives us the following account of a chess-match between Henry I. before his accession to the throne of England and Louis le Gros, son to Philip of France; which took place at Philip's court in 1087. Louis lost several games to Henry, and a considerable sum of money, by which he was so much irritated, that he threw the chess-men at Henry's head. Henry retaliated the affront by striking Louis with the board, so that he was laid bleeding on the floor, and Henry would have killed his antagonist, if his elder brother Robert had not interposed. This is without doubt a very early instance of the game being known in France; but Barrington says, it is much to be wished that Carte had stated the term used in the Norman chronicle to which he refers, and which he has translated chess, as the game of drafts was very ancient, bears a considerable affinity to chess, and equally requires a chequered board.

John of Salisbury relates, that in a battle between the French and English in 1117, an English knight seizing the bridle of Louis le Gros, and crying out to his comrades, *the king is taken*, that prince struck him to the ground with his sword, saying, *Ne scais tu pas qu' aux echecs on ne prend pas le roy? Dost thou not know, that at chess the king is never taken?* The reason is, that when the king is reduced to such a pass, that there is no way for him to escape, the game ends, without exposing the royal piece to further affront. This fact is said to be related in John of Salisbury's book "De Nugis Curialium;" but Mr. Barrington has not been able to discover it. In the reign of Charles V. of France, the king, as Froissart relates, played at this game with the duke of Burgundy. Chess is alluded

to in the Romance of the Rose, which ascribes the invention of it to one Attalus; and many of the French families bear in their arms a chess-rook. In the sixteenth century it was much played in this kingdom; and in the seventeenth century the treatise intitled "The Calabrian" was translated from the Italian into French, and might have contributed to revive the game after it had been supplanted, as it has been with us, by the more general amusement of cards. At a later period, and even in our own times, Philidor, who was born at Dreux, was the most distinguished champion in this game, and considerable subscriptions were made towards bringing him over to England, that the amateurs of chess might have an opportunity of perceiving his decided superiority. It is well known, that he could play two games against able adversaries, and generally beat them, without seeing either of the boards. Great chess-players must necessarily bear in their minds several moves which are probably to ensue, both on their own part and that of their adversary; and he, who, like Philidor, can do this throughout the whole game, even with a single antagonist, must commonly be the victor.

With regard to Germany Mr. Barrington has not been able to obtain much information; but he says, that Selenus, duke of Brunswick, wrote a treatise on that subject, and named one of his towns from it. In Muscovy it is said to be in great vogue among the shop-keepers and common people, who play before the doors of their shops or houses; and it is highly probable that they received it, together with their profession of faith, from the eastern empire, whilst the Greek sovereigns resided in Constantinople. The Russians are said to be great proficient in chess. With them the queen has, in addition to the other moves, that of the knight, which, according to Philidor, spoils the game, but which renders it more complicated, and of course more interesting. The Russians play also at chess with four persons at the same time, two against two: for which purpose the board is longer than usual, contains more men, and is provided with a greater number of squares. This mode, it is said, is more difficult, but more agreeable, than the common manner. Hyde informs us, that this game is not unknown even in Iceland; and it would undoubtedly be a very convenient game for occupying their very long nights during the winter. As the Mahometan religion forbids gaming for money, the Moors of Africa, particularly in the empire of Morocco, are only allowed by the government publicly to play at chess, which is in itself a game sufficiently interesting without the assistance of wagers.

Cardinal Cajetan, and other casuists, rank chess in the number of prohibited games, as requiring too much application; and Montaigne blames it as too serious for a game.

Hyde (*ubi supra*) has given a copious account of the names of the several pieces used in this game, as they occur in different languages. The honourable Daines Barrington has also made some remarks on this subject. Conceiving that the game was originally Chinese, and that it was transferred from their country to Thibet, Bengal, Hindoostan, and Persia, he thinks it highly probable that the pieces did not differ materially in these several countries, either in name or figure. But when the Turks had learned it from the more eastern inhabitants of Arabia, they of course made the pieces destitute of any particular form or figure, as they understand the second commandment in its most literal and rigid sense. The Greeks and Crusaders, becoming adepts in this game by their long continuance in Palestine, took the liberty of giving any name or form to the pieces at their own pleasure; and consequently they often differ in the several parts of Europe where chess hath been introduced. It was natural, therefore, that their principal

piece should be a *king*, both in form and name, and this seems to have obtained also in the more eastern parts of Asia. In most of these governments, however, the kings are rather indolent monarchs, and consequently this piece scarcely moves at all, but is merely to be defended from attacks. The emperor himself, being thus indolent, necessarily requires a minister or general, who can protect his master by vigorous and extensive motions, against distant insults, in the most remote parts of the board. Accordingly the piece of the greatest powers was by the Persians styled "Pherz," or general. Chess having been universally considered as an engagement between two armies, and the piece of the greatest importance being termed the general, the allusion is properly pursued. When the game, however, was introduced into Europe, the Christians did not trouble themselves about the Asiatic names for the pieces, and styled the "Pherz" (or general) *queen*, probably because she is placed near to the king, as the general was among the Asiatics; but this does not keep up so properly the idea of a military conflict, as when the "Pherz," or general, is placed in the same situation. Another impropriety arises from the *Pawn's* becoming a queen, when he hath reached the last square of the adversary's camp; as it is a suitable reward to the Pawn (or foot-soldier) to make him a general, if he penetrates so far through the enemy's troops; but certainly no prowess on his part can entitle him to be transformed into a queen. The French, and after them the English, in the middle ages, called the queen *ferce*, *fiertes*, &c. from the eastern word "Pherz;" but the title Queen is of considerable antiquity. The next piece in power to the "Pherz," or *Queen*, is that which we sometimes call the *Rook*, but more commonly the *Castle*. Mr. Douce (Archæologia, vol. vii.) suggests, that the European form of the castle was copied in part from some ancient Indian piece of the elephant with a castle on his back. Mr. Barrington conceives this term to be derived from the Italians, the first Europeans who played at chess; as *rocca* in their language not only signifies a rock but a fortress, which was generally placed on such an eminence. Hence, he adds, our phrase at chess, "the King castles," or puts himself in a state of security, by exchanging, in some measure, places with the castle, which then becomes more exposed to the enemy. The piece, which we call the *Bishop* has been termed by English writers *alphin*, *ausin*, &c. from an Arabic word, signifying an elephant; sometimes it was named an *archer*; by the Germans the *bound* or *runner*; by Russians and Swedes the *elephant*, by Poles the *priest*; and by the French at a very early period the *fon* or *fool*. The reason of this last appellation seems to be, that as this piece stands on the sides of the King and Queen, some wag of the times, Mr. Barrington suggests, from this circumstance, styled it the fool, because anciently royal personages were commonly thus attended, from want of other means of thus amusing themselves. But it is not so easy to account for our term *Bishop*, as our kings and queens have never had any such constant attendants. When it was first introduced cannot be exactly ascertained; as in Caxton's time this piece was styled the *Elphyn*. Probably the change of name took place after the reformation. The top of this piece which was exhibited to the Antiquarian Society by Mr. Barrington, among those chess-pieces that belonged to Charles I. somewhat resembles a bishop's mitre. The *Knight* has always retained this distinction, says Mr. Douce, on the French and English chess-board: the Germans, from the nature of their motion, give them the appellation of *leapers*, and the Russians call them *horses*. The *Pawns* are supposed to receive their name from *pedones*, a barbarous Latin term for foot-soldiers. The Germans, Danes, and Swedes have converted

converted them into *peasants*. The writers of the middle ages, in speaking of the chess men, universally style them *familia*. In this game each player has eight dignified pieces, viz. a king, a queen, two bishops, two knights, and two rooks, and also eight pawns, which were anciently called *scachi*, q. d. *milites*, and made in different figures, and of various materials, mostly of wood or ivory. These pieces are distinguished by being painted in white and black colours.

As to their disposition on the board, the white king is to be placed on the fourth black house from the corner of the board, in the first and lower rank: and the black king is to be placed on the fourth white house on the opposite, or adversary's side of the board. The queens are placed next to the kings, on houses of their own colour. Next to the king and queen, on each hand, place the two bishops; next to them, the two knights; and last of all, on the corners of the board, the two rooks. As to the pawns, they are placed, without distinction, on the second rank of the house one before each of the dignified pieces.

Having thus disposed the men, the onset is commonly begun by the pawns, which march straight forward in their own file, one house at a time, except the first move, when they may advance two houses, but they never move backwards: the manner of their taking the adversary's men is sideways, in the next house forwards; where, having captured the enemy, they move forward as before. The rook goes forward or cross-ways through the whole file, and back again. The knight skips backward and forward to the next house, save one, of a different colour, with a sidling march, or alope, and thus kills his enemies that fall in his way, or guards his friends that may be exposed on that side. The bishop walks always in the same colour of the field which he is placed in at first, forward or backward, alope or diagonally, as far as he pleases. The queen's walk is more universal, as she takes all the steps of the fore-mentioned pieces, excepting that of the knight; and as to the king's motion, it is one house at a time, and that in any direction. As to the value of the different pieces, next to the king is the queen, after her the rooks, then the bishops, and last of all the knights. The difference of the worth of pawns is not so great as that of noblemen; however, the king's bishop's pawn is the best, and therefore particular care is taken of him. It ought also to be observed, that, whereas any man may be taken, when he falls within the reach of any of the adversary's pieces, it is otherwise with the king, who, in such a case, is only to be saluted with the word *check* (*back*), warning him of his danger, out of which he must move; and if he cannot move without exposing himself to a similar inconvenience, it is *check-mate*, and the game is lost.

CHESS-trees, or *CHEST-trees*, in *Ship-Building*, are two small pieces of timber with a hole in them, bolted on each side of the ship, and placed as far before the main-mast as the length of the main-beam; their use is to confine the clue of the main-sail, and for this purpose a rope passes through, that usually extends the clue of the sail to windward.

CHEST, in *Anatomy*, that part of the body which contains the heart and lungs. See *BREAST* and *THORAX*.

CHEST, in *Commerce*, a kind of measure, containing an uncertain quantity of several commodities.

A *chest of sugar*, v. g. contains from ten to fifteen hundred weight; a *chest of glass*, from 200 to 300 feet; of *Castile soap*, from two and a half to three hundred weight; of *indigo*, from one and a half to two hundred weight; five score to the hundred.

CHEST at Chatham was established in 1588, for the benefit

of maimed and superannuated English mariners, out of which pensions are paid to such for their lives. This fund was at first raised by a voluntary monthly contribution of the mariners out of their pay, and afterwards made perpetual by queen Elizabeth.

By 43 Geo. III. c. 119. this institution was removed from Chatham to Greenwich, denominated "The Chest at Greenwich," and committed to the management of a body corporate, consisting of the lord high admiral of Great Britain and Ireland, the comptroller of his majesty's navy, the governor of the Greenwich hospital, and the auditor of the same hospital, and denominated "The Supervisors of the Chest at Greenwich." These supervisors are empowered to appoint five persons out of the lieutenant governor, captains and lieutenants belonging to the Greenwich hospital, to be directors of the said chest, together with subordinate officers and clerks, with suitable salaries. This act contains several provisions, for the management of the funds of the institution, and ameliorating the condition of the pensioners.

CHEST of viols. See *BASE-VIOL*, *SIX-STRINGED BASE*, and *VIOL di Gamba*.

CHESTER, or *WEST-CHESTER*, in *Geography*, an ancient city of Cheshire in England. From its proximity to the Welsh principality, and its peculiar local character, its annals embrace much curious history: and hence we shall find it necessary to give a more copious account of this, than of the generality of topographical articles. This respectable city is situated near the southern boundary of the county, on a rocky eminence, above the river Dee, and is half encircled by a sweep of that river; a circumstance that occasioned the Roman geographers to name it *Deva* or *Deunana*; an appellation that has been relinquished by later historians for that of *Cestria*, or *Ceaſter*; from *castrum*, a camp or military station, which it seems to have been made previous to Agricola's expedition to Scotland. That commander made it the head-quarters of the twentieth Roman legion, whence the Britons gave it the name *Caer Lleon vawr*, or the camp of the great legion on the Dee. The Saxons styled it *Legaceaster*, and *Legeceſter*; but its denomination *West-Chester* was obtained through its relative situation to other places which have the name of *Chester* with some addition. Its Roman occupation is illustrated by the frequent discoveries that have been made of remains of antiquity belonging to that nation, such as coins, statues, altars, and hypocausts, and many of them with correlative inscriptions. The walls of the present city determine the limits of the ancient; and the form in which the buildings are disposed is evidently the same as that of the Roman camp. *Chester* principally consists of four streets, running from a centre towards the points of the compass, and each was formerly terminated by a gate. These streets were excavated from a stratum of rock, and are sunk several feet beneath the surface, a circumstance that has been the cause of a singular construction in the houses. On the level of the streets are low shops or warehouses, and above them a gallery on each side, reaching from street to street, open in front, and ballustraded. These galleries, called the *rows* by the inhabitants, appear exceedingly curious to strangers, who, when walking in them, can hardly divest themselves of the idea of their being up one pair of stairs. Along the rows are ranges of shops, and above them the higher stories, which project to the streets, and form a line with the warehouses beneath. The whole appears as if the first stories of the fronts of all the houses were laid open and made to communicate with each other; pillars only being left for the support of the super-structure. "These rows," says Mr. Pennant, "appear to me to have been the same with the ancient vestibules, and to have been a form

a form of building preserved from the time that the city was possessed by the Romans. They were built before the doors, midway between the streets and the houses, and were the place where dependents waited for the coming out of their patrons, and under which they might waste away the tedious minutes of expectation. Plautus, in the third act of his *Mossella*, describes both their situation and use :

—Viden' vestibulum ante ædēs et ambulacrum ejusmodi.

The shops beneath the rows were the *crypte* and *apothecæ*; magazines for the various necessities of the owners of the houses. The streets were once considerably deeper, as is apparent from the shops, whose floors lie far below the present pavement; and in digging foundations for houses, the Roman pavement is often discovered at the depth of four feet below the modern." The Roman modes of fortification are still evident in the remains of military architecture which surround the city. The walls are in many parts guarded by towers, mostly of a round form, and so placed as not to be beyond bow-shot of each other, that the arrows might reach the enemy who should attempt to scale the walls. From Domesday Book it appears, that in the reign of Edward the Confessor, Chester contained 431 houses that were taxable, besides 56 that belonged to the bishop. It had a *guild mercatory*, analogous to a modern corporation; so that no person that was not of that society, could exercise any trade, or carry on any commerce, within its precincts. The privileges of the guild were maintained by two overseers, who were selected from the principal citizens, and who received, for the use of the city, the customs paid by strangers. A supreme officer, called the *prestus regis*, or provost, had the superintendence both of the civil and commercial interests. Some peculiar usages prevailed in this city at that period, among which, whenever the king came there, he claimed from every ploughland 200 *heshas* or capons; one *cuna* or vat of ale; and one *rusca* of butter: and whoever made bad ale, were either to pay four shillings, or sit in a tumbrel or dung-cart. The commerce of Chester, according to Lucian the monk, who lived near the time of the Norman conquest, was even then very considerable. "The beautiful river on the south side," he remarks, "serves as an harbour for ships from Gascoign, Spain, Ireland, and Germany, who, by the guidance of Christ, and the industry and prudence of the merchants, supply and refresh the heart of the city with abundance of goods; so that, through the various consolations of the divine favour, we have wine in profusion from the plentiful vintages of those countries." The principal exports were horses and slaves: to the latter inhuman traffic the Saxons were much addicted; and the situation of Chester, and the frequent wars carried on with the Welsh, caused it greatly to flourish in this city. The chief of the other commodities exported were lead, copper, hides, horns, and cheese, which the people of Cheshire had been celebrated for making even from the time of the Romans. Chester, for two or three centuries from the conquest, was the place of rendezvous for troops employed in the Welsh expeditions, and frequently suffered during the contest between the two nations. Llewelyn ap Gryffydd, in revenge for the cruel insults his subjects had received from Geoffrey Langley, who acted as lieutenant to prince Edward, (afterwards Edward I.), carried fire and sword to the gates of the city, and destroyed every thing round it. These ravages were committed in 1255; and within two years, king Henry summoned his nobility to attend him at Chester with their vassals, that he might invade Wales, and repay the injuries sustained by his people. This city also was appointed by Edward I. in 1275, to receive the homage of Llewelyn; a degradation to which that high-

spirited prince refused to submit, and was in consequence involved in the war which proved so fatal to him and to his country: his subjects being obliged to acknowledge the sovereignty of England, and make personal homage and fealty of their lands to Edward of Caernarvon, prince of Wales, who received their submission in this city in 1300. Richard II. converted Chester into a principality; and having annexed to it the castle of Holt, with several lordships in Wales, and on the borders, made an act that it should only be held by the king's eldest son; but this was rescinded by Henry IV., who, in 1399, seized the city and castle, when on his way to Flint, where Richard was then imprisoned, through the treachery of those in whom he had confided. The ravages of the plague and sweating-sickness rendered the sixteenth century memorable in this city. During the unhappy civil war in the time of Charles I. Chester was particularly distinguished for its loyalty, and consequently sustained many sieges, bravely resisting the parliamentary forces for three years, till the siege being converted into a regular blockade, and the garrison reduced by famine to the utmost distress, and compelled to feed on horses, dogs, cats, &c. they surrendered on honourable terms February 3, 1645-6. Within two years the city was visited by a dreadful pestilence, which carried off more than 2000 persons, and reduced the place almost to a desert. In the reign of William III., Chester was one of the six cities appointed for the residence of an assay-master, and permitted to issue a coinage of silver.

In reviewing the ecclesiastical state of this ancient city, it may be necessary to premise, that the kingdom of Mercia was divided into the five bishoprics of Litchfield, Worcester, Lyndesale, Dorchester, and Chester. About the year 785 the latter became incorporated with Litchfield, though its annual payments to the pope amounted to 5000 florins, while that see only advanced 3000. This, and other evidences of its prosperity, attracted the attention of Peter, bishop of Litchfield, who removed his episcopal seat to Chester, in 1075, and during the remainder of his life made use of the church of St. John for his cathedral. This translation was but of short continuance; for his successor established himself in the former diocese, and Chester remained without a bishop till after the suppression of the monasteries, when it was restored to its pristine honour by Henry VIII. who, in 1541, made it one of the six new sees that were then formed. At this period, the church of the dissolved abbey of St. Werburgh was converted into a cathedral. A very important alteration in the concerns of this diocese was effected by the first of the new bishops, John Bird, whose vehement opposition to papal supremacy had recommended him to the favour of the rapacious Henry, who removed him from Bangor, the see he had before occupied. His disposition harmonized with the spirit of the times; in 1546 he granted the manors and demesnes of the bishopric to the king, and accepted impropriations and rectories in exchange. The see was thus deprived of all its possessions; and, with the exception of the single acre on "which the palace stands, and the court before it; another house adjacent, a little orchard called the Woodyard, two houses near St. John's church, a few small tenements in the city of York, and some lands in Boughton and Childer Thornton, bequeathed in 1703," is completely divested of its temporalities, and though the greatest in extent of any in England, is of the smallest value. *St. Werburgh's abbey*, from whose possessions this see was formed, was of great and unquestionable antiquity, but its origin is enveloped in the obscurity of tradition. It is generally supposed to have been a nunnery, founded in 660 by Wulpherus, king of Mercia, in accordance with the wishes of his daughter St. Werburgh; and it seems probable

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probable that it was ruined by the Danes, when they possessed themselves of Chester, in 895. In place of the nuns, a society of canons regular was established in the reign of Athelstan, by Ethelfleda, the heroic daughter of Alfred. These were suppressed by Hugh Lupus, on his accession to the earldom of Chester, and a colony of Benedictines introduced in their stead. Liberal grants were made to the abbey, which continued to flourish till the general dissolution. Various remains of its buildings are yet standing.

The *cathedral* is a spacious irregular pile, become ragged through the decay of the mouldering stone with which it is built. The lower part of the wall has a row of arches now filled up, and appears to be the oldest part of the present building; though not any of it can boast of a remote date. All the labours of the Saxons, and almost all of its refounder, Hugh Lupus, are now lost. Simon Ripley, elected abbot in 1485, finished the middle aisle and the tower, and the initials of his name are interlaid in cyphers on the capitals of some of the pillars. The columns are thick, surrounded by pilasters, with small rounded arches. Above is a gallery, with a neat stone balustrade in the parts where it is entire, and a row of large and broad pointed windows, which is the general style. With the exception of these slight fragments, most of the present structure seems to have been built in the reign of the three last Henrys. The beautiful west end was begun in 1508, and the first stone laid with much ceremony. The window over the door is filled with elegant tracery; and the door-case enriched with figures and other sculpture. The descent into the church is by several steps, whence it is reasonably inferred that the present was erected on the foundation of the ancient church, which was originally on a level with the old streets. Besides the cathedral and St. Oswald's which forms a part of it, Chester contains *eight parish churches*; but St. John's only is entitled to particular notice. This structure stands without the walls, on the east side of the city, and is reported to have been founded by king Ethelred in 689, on being admonished in a vision to erect it on a spot where he should find a white hind. It was a collegiate church, and, at the dissolution, was possessed by a dean, seven canons, seven vicars, two clerks, four choristers, and various servants.

Chester *castle*, which stands within the walls on the south-west, seems to have been rebuilt by the Conqueror, and enlarged considerably beyond the space it occupied when possessed by the Saxons. It consists of an upper and lower ward; the entrance to each is defended by a gate and round tower.

Within the castle precincts is the new *county gaol*, which is scarcely exceeded by any other in the kingdom. It is built with white free-stone, and contains five yards, with a working-room and two day-rooms in each. The apartments for the women and debtors are separate from the others. The number of solitary cells for condemned criminals is fourteen. The principal charge incurred in building this fabric was defrayed by the income arising from the river Weaver navigation. The castle is garrisoned by two companies of invalids; and has a governor, lieutenant-governor, and constable. The latter holds his place for life, and is the keeper of the prison, but appoints a deputy. The punishment of pressing to death, or the *peine forte et dure*, for standing mute when arraigned, is said, by Mr. Pennant, to have originated within the walls of the old gaol. The statute for the purpose was made by Edward II. in whose fourth year, Adam, son of John, of the Woodhouses, was charged with burning his own houses, and carrying away the goods. He stood mute; and, a jury having decided that he could speak if he thought proper, he was imprisoned *ad dietam*. This was an ironical term, expressive of the sustenance allowed, which, on the first day, was three morsels of the worst bread; on the second three

draughts of water out of the next puddle; and so alternately till the sufferer died. This Adam's death being certified, the statute for pressing was made, as being less horrible than starving. The superior wisdom and humanity of modern times have again altered the law, and a refusal to plead is now considered the same as pleading guilty. The walls round Chester are, in circuit, one mile three quarters, and one hundred and one yards. They are the only entire specimens of ancient fortification, those of Carlisle excepted, in Great Britain, but are now only preserved for the purposes of recreations. The continued walk on the top affords a great variety of prospect. "The Welsh mountains, the Cheshire hills of Broxton, and the insulated rock of Beekton, crowned with its castle, the rich flat interposed, and the perpetually changing views of the river," are the most prominent and striking objects in this favourite tour. The expence of the repairs is defrayed by certain imposts, called *murage-duties*, collected at the custom-house, on all merchandize brought from beyond sea into the port of Chester. The whole annual duty is about 200*l.*, great part of which arises from Irish liens, though the sum levied is only two-pence for one hundred yards. The gates were anciently under the protection of the Earls of Shrewsbury, Oxford, and Derby, and the principal magistrates of the city: the guard was maintained by tolls, exacted from strangers at each entrance. The Norman earls invested Chester with great privileges, which were confirmed by Henry III. in whose reign its government assumed the form of a regular corporation. The succeeding sovereigns granted various charters and immunities. The date of the last charter is 1676, temp. Charles II. The corporation of Chester consists of a mayor, recorder, two sheriffs, twenty-four aldermen, and forty common-councilmen, two of whom are *leave-lookers*, whose office it is to inform of all persons exercising trades within the city without being freemen. The two senior officers are *muengers*, or receivers of the *murage-duties*, for repairing the walls; and two are *treasurers*, who are generally next in succession to the mayor. There are likewise a sword-bearer, mace-bearer, and other inferior officers. The principal charitable institution is the *Blue-coat School*, which is situated near the north gate, and was founded, in 1706, by Bishop Stratford, and endowed for the complete maintenance of thirty-five boys for four years: a sufficient sum was allowed to bind them apprentices at the expiration of that time. Various alms-houses are dispersed through the city: the chief of these is for forty decayed freemen, aged sixty years or upwards, who are allowed 4*l.* annually, and a gown every third year. The infirmary is a handsome structure, situated in an airy spot, on the west side of the city. Chester is distinguished as a sort of provincial metropolis, being a place of occasional residence to many of the gentry of the neighbouring counties. The only manufacture of consequence is that of gloves, which are made in vast numbers, chiefly by women. Additional employment is supplied by a small manufactory of tobacco-pipes, an iron-foundry, snuff-mills, and some establishments for ship-building. The latter business is carried on to great advantage; many vessels, from 100 to 500 tons, being built yearly. These, in point of strength and beauty, are reckoned as complete and durable as those built in any port in the kingdom: the materials are entirely of British oak. A shot manufactory was likewise established in 1801. The maritime business of Chester chiefly consists of the Irish and coasting trades. Great quantities of linen cloth are imported from Ireland; and, for the better accommodation of the merchants, a new hall was erected in the year 1778: this is a handsome square brick building, inclosing a spacious area, and containing 111 shops. Besides linen, the com-

modities imported are, wood, hides, tallow, feathers, butter, provisions, and other articles, from Ireland; groceries, from London; timber, hemp, flax, iron, and tallow, from the Baltic; kid and lamb-skins, from Leghorn; fruit, oil, barilla, and cork, from Spain and Portugal; and from the latter, a large quantity of wine. The exports are, coal, lead, lead-ore, calamine, copper-plates, cast-iron, and vast quantities of cheese, with which vessels are laden at stated times for London from the large cheese warehouse on the river. The limits of the port extend, on the Cheshire side of the Dee, to the end of the Wirral; and on the Flintshire side to the mouth of the river Clwyd; yet the number of ships is but small in proportion to the extent of the commerce. The port of Chester was much improved during the last century. The great breadth of the estuary of the Dee, and the comparative smallness of the body of water flowing through it, rendered it liable to be choked up with the sand brought in by the tide; and this gradually so increased, that in the year 1674, vessels of twenty tons could scarcely reach the town; and ships of burthen were obliged to lie under Neston, ten miles lower, which was the origin of that assemblage of houses on the adjacent shore, called Park-Gate. In that year a plan was formed by Mr. Andrew Yarranton, to make a new channel for the river, and at the same time to recover, by embankment, a large tract of land from the sea. Between the years 1730 and 1750, a company was established to execute this project; and different powers were granted from time to time by parliament; but the first operations were so expensive, that many subscribers were obliged to sell their shares at 90 per cent. loss: but the concern, by that means falling into the hands of fewer and wealthier persons, was at length nearly effected. A fine canal was made, protected by vast banks, in which the river is confined for the space of ten miles, with such a depth of water as to allow vessels of 350 tons to come up to the quays at spring tide. The cross embankments made at the same time, have preserved a considerable quantity of land from the sea; and flourishing farms now occupy the space that was formerly bare sand, covered every tide by the water. Two ferries across the canal, or New River, preserve the communication with the opposite counties of Wales. The population of this city, in 1781, was found to be 14,860; of which 6339 were males, and 8521 females: and, by various calculations from the bills of mortality, its proportional healthiness appears considerably to exceed that of most other towns in England: for which, independent of the salubrity of the air, two especial causes may be assigned; the situation of the buildings on a dry sand-stone rock, and the far less proportion of poor inhabitants, than that of places where manufactures are the chief support. Under the act of 1801, the number of inhabitants returned was 15,052, of houses 3194. Chester is situated 184 miles N.W. from London; has markets on Wednesdays and Saturdays. Among the more eminent natives of this city, were Dr. William Cowper, a physician, who made some collections towards a history of Chester, and published a few tracts on the subject: the Rev. John Downham, author of the *Christian Warfare*; and those distinguished mathematicians, Edward Brerewood and Samuel Molyneux; the former, born 1565, had the honour of being the first Gresham professor of astronomy; the latter, born 1689, devoted great attention to the same science, and to the improvement of telescopes; he was also secretary to George II. when Prince of Wales, and afterwards a commissioner of the admiralty. Two newspapers are published weekly at Chester. A concise History of the County and City of Chester, 12mo. 1791. Aikin's Description of the

Country round Manchester, 4to. Pennant's *Tours in Wales*, and *Tour from Chester to London*.

CHESTER, a township of Nova Scotia, in Lunenburg county, in Mahone bay, first settled by a few families from New England. The road from this place to Windfor is 25 miles.—Also, a small plantation of Lincoln county, in the district of Maine; 9 miles from Titcomb.—Also, a township of Hampshire county, in the state of Massachusetts, adjoining Westfield on the E. and about 20 miles N.W. of Springfield. It contains 177 houses, and 1119 inhabitants.—Also, a large and pleasant township of Rockingham county, in New Hampshire; 21 miles in length, with a lake on the west side, the waters of which flow into Merrimack river. This township was incorporated in 1722, and contains 1902 inhabitants, chiefly farmers. It is situated on the E. side of Merrimack river, 14 miles N.W. of Haverhill; 35 W. by S. from Portsmouth, and 6 N. from Londonderry. This is a post town, and contains about 60 houses and a congregational church.—Also, a township of Windfor county, in the state of Vermont, 11 miles W. by S. from Charlestown, in New Hampshire, containing 981 inhabitants.—Also, a borough and post-town in Pennsylvania, and the capital of Delaware county; pleasantly situated on the west side of Delaware river, near Marcus hook, and 13 miles N.E. of Wilmington, and contains about 60 houses, a court-house, and a gaol. The first colonial assembly was convened here in December, 1682. This place is the resort of much company from Philadelphia, the metropolis, distant 20 miles by water, and 15 N.E. by land, in the summer season. It was incorporated in December, 1795, and is governed by two burgesses, a constable, a town-clerk, and three assistants.—Also, a county in Pennsylvania, W. of Delaware county, and S.W. of Philadelphia; about 45 miles long, and 30 broad; containing 33 townships, of which West-Chester is the shire town, and 27,937 inhabitants, of whom 145 are slaves. In the northern parts of this county is found iron ore, which employs six forges, and producing about 1000 tons of bar-iron annually.—Also, a court-house in South Carolina, 22 miles S. of Pinckney court-house, and 58 N.W. of Columbia.—Also, a navigable river on the eastern shore of Maryland; rising two miles within the Delaware state from two sources, Cyprus and Andover creeks, which unite at Bridge-town; pursuing its course nearly S.W. after passing Chester S. nearly three miles, when it receives S.E. creek, and 15 miles further in a S.W. direction; and discharging itself into Chesapeake bay, at Love point. At its mouth it forms an island, and by a channel on the E. side of Kent island communicates with Eastern bay. It is proposed to cut a canal, about 11 miles long, from Andover creek, $1\frac{1}{2}$ mile from Bridge-town, to Salisbury, on Upper Duck creek, which falls into the Delaware at Hook island.—Also, a small town in the county of Shannandoah and state of Virginia, situate on the point of land that is formed by the junction of Allen's, or North river, and South river, which form the Shannandoah; 16 miles S. by W. from Winchester. N. lat $39^{\circ} 2'$. W. long. $78^{\circ} 22'$.—Also, a county of Pinckney district, in South Carolina, lying in the S.E. corner of the district on Wateree river, and containing 6866 inhabitants, of whom 5866 are whites, and 938 slaves. It sends two representatives, but no senator, to the state legislature.—Also, a town in Cum- in Cumberland county, Virginia, situate on the S.W. bank of James river; 15 miles N. of Blandford, and 6 S. of Richmond.

CHESTERFIELD is a large but irregularly built town, situated on the west side of the river Rother, in Derbyshire, England. Its name decidedly implies that it originated

originated from a Roman station; as all places whose appellations begin or terminate with "Chester" were occupied by the Romans during their residence in Britain. The Rev. Mr. Pegge, in the 12th vol. of the "Archæologia," observes, that the Roman road from Derby to York passed this way; and that the fortress, or camp, was on the hill called Tapton or Topton, but distinguished in several ancient writings by the name of Castle-hill. Chesterfield, at the time of the Norman Survey, appears to have been of so small importance as to be noticed in Domesday Book only as a bailiwick, belonging to Newbold, which is now a small hamlet at a short distance to the north. After this period, it rapidly increased, both in size and population: a church, erected here towards the end of the eleventh century, was given by William Rufus to the cathedral at Lincoln. In the reign of king John, the manor was granted to William de Briwere, or Bruere, his particular favourite, through whose influence with the king the town was incorporated, and an annual fair of eight days continuance and two weekly markets obtained. The Stanhopes derive the title of earl from this town. Chesterfield has been particularly distinguished from a battle fought here in 1266, temp. Hen. III. between Henry, the king's nephew, and Robert de Ferrers, earl of Derby. After the discomfiture of the barons at Evesham, this earl bound himself by an oath to a forfeiture of his estate and honours, if ever he joined their party again: but after some proceedings in the parliament held at Northampton in 1265, which were obnoxious to the barons, he, in the spring of the ensuing year, again assembled his followers in his castle at Duffield, and, being strengthened by several dissaffected nobles, advanced and took post at Chesterfield; where he was surprised by the forces of Henry, and, after a severe conflict, defeated and taken prisoner. The church, which is said to have been dedicated in the year 1232, is a spacious handsome building, in the form of a cross, but more particularly remarkable for the appearance of its spire, which rises to the height of 230 feet; and is so singularly twisted and distorted, that it seems to lean in whatever direction it may be viewed. An hospital for lepers was founded in this town previous to the tenth of Richard I., and continued till the time of Henry VIII. Here was also a guild, dedicated to St. Mary and the Holy Cross: several other guilds are mentioned in ancient writings belonging to the corporation: from the chapel of one of them, called St. Helen's, the grammar-school is supposed to have received the name Chapel-school, by which it is generally known. This school was founded in the reign of queen Elizabeth, and was formerly the largest in the north of England: both the master and usher are clergymen. The present school-house was erected in 1710. In the market-place, a neat town-hall was built a few years ago, under the direction of Mr. Carr of York: on the ground-floor of which is a gaol for debtors, and a residence for a goaler; and on the second floor a large room for holding the sessions, &c. Several alms-houses have been endowed in different parts of the town. The charter, granted by king John, has been confirmed and enlarged by several succeeding sovereigns. The government of the town till the reign of Elizabeth appears to have been exercised by an alderman and twelve brethren; but the charter of incorporation granted by her, vests it in a mayor, six aldermen, six brethren, and twelve capital burgesses; who are assisted by a town clerk. By an enumeration made in 1788, it was found that Chesterfield contained 801 houses, and 3626 inhabitants. Since that time its size and population have increased, as appears from the returns under the late act, by which the number of houses was ascertained to amount to 920, and of residents to 4267. The support of the lat-

ter is principally derived from the iron-works of the town and vicinity, and the manufacture of stockings. Some additional employment arises from three potteries for coarse earthen-ware; from a carpet manufactory; and from the making of shoes, of which a large quantity is annually sent to the metropolis. Chesterfield is 150 miles N.W. from London.

CHESTERFIELD, a township of America, in the county of Hampshire, and state of Massachusetts, 14 miles N.W. of Northampton, containing 180 houses, and 1183 inhabitants.—Also, a township in Cheshire county, New Hampshire, on the east bank of Connecticut river, having Westmoreland to the north, and Hinsdale to the south. This township was incorporated in 1752, and contains 1905 inhabitants. It lies about 25 miles S. by W. from Charlestown, and about 90 or 100 W. from Portsmouth. West river mountain in this township has frequently alarmed the inhabitants with explosions and columns of fire and smoke; and in two places the rocks bear marks of having been heated and calcined.—Also, a county in South Carolina, in the district of Cheraws, in the N. Carolina line; 30 miles long, and 29 broad.—Also, a county in Virginia, situated between James and Appamatox rivers, about 30 miles long, and 25 broad; containing 14,214 inhabitants, of whom 7487 are slaves.—Also, an inlet on the western side of Hudson bay, in New South Wales, upwards of 200 miles in length, and from 10 to 30 in breadth; full of islands.

CHESTER-LE-STREET is pleasantly situated in a valley to the west of the river Wear, and on the Roman military way leading to Newcastle. It is supposed by Camden to be Condercum of the Romans; by the Saxons it was called Cuneagester, and under that name became the parent of the see of Durham; as it is only 5 miles north of Durham, and 10 south of Newcastle, lying immediately on the high road, and in the neighbourhood of numerous coal works, it has risen to importance, and promises to become still more important: its ancient and modern history will, therefore, be not uninteresting.

In 882 the body of St. Cuthbert was first removed from Holy Island, the ancient Lindisfarne, and, after a variety of misfortunes to his followers, was carried to a settlement appointed for them by the interposition of such miracles as a conjurer of the present date would refuse to own. These, however, bishop Eardulf pretended were sufficient to stop the wanderings of the religious party which attended the body, and whilst the place afforded a secure asylum to the sacred remains, these, in their turn, procured a respectability and reverence for the situation. Eardulf died in 900. Eighteen of the last years of his life were spent in Chester-le-street. The saint becoming afterwards an object of more general devotion, Athelstan, in the 10th year of the pontificate of Wigred, who succeeded Eardulf, visited the tomb in his expedition to Scotland, enriched the church by a multitude of gifts, and ordered, should he fall in the undertaking he was entering upon, that his body might be buried as near the relics as possible. In 947 Sexhelme usurped the bishopric; but so addicted was he to the love of riches, that he oppressed not only the people, but the very persons who were officiating in the sacred duties. We are told by Symeon, that the bishop was admonished by dreams against practices so debasing to his holy functions, and those visions were so deeply impressed upon his mind, and were attended with such afflictions of body, that at length he retired from the see in the greatest distress, and was not restored till he got without the limits of St. Cuthbert's "circle of power." In the year 995, the see, which had been enjoyed by Chester, was removed from it, perhaps for ever; the remains of St. Cuthbert, with every

other sacred relic, as well as all other kinds of riches, were removed. The incessant troubles which disturbed the province of Northumberland from the time the see was settled at Chester, gave little opportunity for the progress of literature, arts, sciences, or manufactures. The bishops too, whilst they were studious of miracles, appear to have left good works and real piety out of their view. Architecture had made few improvements, for the cathedral of Lindisfarne, from whence the relics of St. Cuthbert had been originally transported, was built of stone, though the monasteries of Jarrow and Monkwearmouth were also erected with the same materials. Yet with all its splendour of priestly miracles, and princely homage, that of our present subject still remained of wood. All the lands between the Tyne and the Wear, comprehending the present county of Durham, were in the possession of these ecclesiastics, and obtained the title of "Saint Cuthbert's Patrimony," (after the example of St. Peter's Patrimony at Rome) and the inhabitants were reconciled to the claim, by the idea that they were consequently freed from every sort of military duty except that of fighting in defence of their patron saint. Nothing particular in the history of this place occurs, until the re-assumption of the bishopric by Egelric, at which time it is said by Symeon, that when the workmen were digging a deep foundation for the new church of Chester, a very great treasure was discovered, hidden, it was presumed, by the officers of the avaricious Sexhelme, who being obliged to abscond, left it there; but it is very probable it was a more ancient concealment; be that as it may, the bishop removed it to Peterborough, and withdrew himself from the see to that place. Unlike, however, the generality of priests of that day, he employed the treasure upon objects, not of munificence only, but of general utility, as bridges, causeways, and other public accommodations; it is therefore no wonder this good man should be persecuted by the rest of the clergy. In 995, the see being removed to Durham, this place lost its consideration and weight, and it is only lately that it has obtained a new importance. The present church is a handsome stone edifice, with a nave, side aisles, and tower; the base of the latter is of a square form, but above the roof of the church it assumes an octagonal shape apparently more modern, and is terminated by a very elegant stone spire, second only to that of Reyton, (a village up the Tyne) in the north of England. The entire height is 156 feet. The interior of the church is neat, and well preserved; it contains a singular arrangement of monuments, with effigies of the deceased ancestors of the noble family of the Lumleys. The deanery house, now the seat of the ancient family of Hedworth, commands a fine view of Lumley castle, and is surrounded by excellent meadow grounds. The manor of Chester deanery is copyhold, belonging to the bishop, and its jurisdiction is very extensive: it has a coroner, and gives name to the ward. The township, as returned under the late act, contains 1662 inhabitants, and 259 houses; most of the latter are of stone, and they are chiefly arranged in one street, nearly a mile in length.

CHESTERTOWN, a port town of America, and the capital of the county of Kent, in Maryland, seated on the west side of Chester river, 16 miles S.W. of George town, 38 E. by S. from Baltimore, and 81 S.W. of Philadelphia; and containing about 140 houses, a church, college, courthouse, and gaol. The college was incorporated in 1782, by the name of Washington; and in 1787, it had a permanent fund of 1250*l.* a year settled upon it by law. N. lat. 39° 12'. W. long. 75° 57'.

CHESTNUT. See **CHEENUT**.

CHEST-ROPE, in a ship, is the same with the guest or gift-rope, and is added to the boat-rope when the boat is

towed at the stern of the ship, to keep her from sheering, i. e. from swinging to and fro.

CHEST-TREES. See **CHESS-trees**.

CHESSULLOTH, in *Ancient Geography*. See **CHESELETH**.

CHETA, in *Geography*, a river of Siberia, which runs into the Charanga. N. lat. 70° 20'. E. long. 107° 29'.—Also, a river of Russia which runs into the Enisei. N. lat. 69° 40'. E. long. 85° 14'.

CHET-CHEOU-OUEI, a town of China, in the province of Hou-quang; 700 miles S.S.W. of Peking. N. lat. 30° 16'. E. long. 108° 54'.

CHE-TCHING, a town of China, in the province of Quang-tong; 8 leagues W.S.W. of Hoa.—Also, a town of China, of the third rank, in the province of Kiang-si; 30 leagues S.E. of Ki-ngan.

CHETECAN-HEAD, a cape on the west coast of the island of Cape-Breton. N. lat. 46° 40'. W. long. 60° 45'.

CHETIB and **KERI**, in *Biblical Literature*, the one derived from כתב, to write, and the other from קריא, to read, are terms frequently used by Jewish authors to express the difference between the reading of the MSS. and that of the printed copies of the Old Testament. The Chetib is the word adopted in the text, and is marked with a small circle above it, which refers to a different reading in the margin, named the Keri, commonly distinguished by the letter *koph* p. and sometimes written in Rabbinical characters. These different readings are supposed to have been inserted by Ezra and the other 119 men of the great synagogue. With regard to the introduction of the *keri* and *chetib*, the celebrated R. Dav. Kimchi observes, that during the captivity, the sacred books were lost or dispersed, and wise men, who excelled in the knowledge of scripture, were dead. Hence it happened, that the men of the great synagogue, who restored the law to its former state, found varieties in different books, and employed the knowledge they possessed in adjusting them. But in those instances, with regard to which their knowledge failed, they wrote one word, without pointing it, or wrote it in the margin, without inserting it in the text; and they wrote one word in the margin, and another in the text. Kennicott's *Dissert.* General. p. 10.

CHETIMACHAS FORK, in *Geography*, an outlet of the river Mississippi in Louisiana, about 30 leagues above New Orleans, which, after running in a southerly direction about 8 leagues from that river, divides into two branches, one of which runs south-westerly, and the other south-easterly, to the distance of 7 leagues, when they both discharge their waters into the Mexican gulf. On the Chetimachas, six leagues from the Mississippi, there is a settlement of Indians of the same name; and thus far it is uniformly 100 yards broad and from two to four fathoms deep, when the water is lowest. At its mouth in the Mississippi some drifted logs have formed a shoal which it would not be difficult to remove; and the Indians say that no impediment to navigation occurs between their village and the gulf. The banks are higher than those of the Mississippi, and so elevated in some places as never to be overflowed. The productions are the same as those of the banks of the Mississippi; but the soil, from the extraordinary size and compactness of the canes, is superior. By proper attention the most prosperous and important settlements in that colony might be formed upon its banks.

CHETIMACHAS, grand lake of, a lake of Louisiana, near the mouth of the Mississippi, 24 miles long, and 9 broad. Lake de Portage, which is 13 miles long, and 1½ broad, communicates with this lake at the northern end, by a *Arat* ¼ of a mile wide. The country bordering on these lakes

Lakes is low and flat, producing cypresses, live and other kinds of oak; and on the eastern side the land between it and the Chafalaya river is divided by a great number of navigable streams, occasioning as many islands. Nearly opposite to an island, at a small distance from the south-eastern shore of the lake of Chetimachas, there is an opening which leads to the sea, about 150 yards wide, and having 16 or 17 fathoms of water.

CETRAN, a town of Arabia, 6 miles south of Kalaba.

CHE-TSIEN, a city of China, of the first rank, in the province of Koci-tcheou, 875 miles S.S.W. of Peking. N. lat. $27^{\circ} 30'$. E. long. $107^{\circ} 44'$.

CHE-TSUEN, a town of China of the third rank in the province of Se-tchuen; 30 miles N.E. of Mao.

CHE-TSUNG, a city of China, of the second rank, in the province of Yun-nan; 340 leagues S.S.W. of Peking. N. lat. $24^{\circ} 56'$. E. long. $103^{\circ} 38'$.

CHETTÆA, in *Ancient Geography*, a maritime town of Africa, in Marmarica; situate, according to Ptolemy, in the nome of Libya.

CHETTENHAM, in *Geography*, a township of America, in the county of Montgomery, and state of Pennsylvania.

CHEVAGE, or **CHIEFAGE**, in *Law*, formed of the French, *chef*, *head*, according to Bracton, signifies a tribute by the head; or a kind of poll money, anciently paid by such as held lands in villainage, or otherwise, to their lords, in acknowledgment.

The word seems also to have been used for a sum of money yearly given to a man of power, for his patronage and protection, as to a chief, head, or leader: but lord Coke says, that it is a great misprision for a subject to take sums of money, or other gifts, under the name of chevage, in this sense of the term. Co. Litt. 140.

In the first sense, Coke observes, there is still a kind of chevage subsisting in Wales, called *amabyr*; paid to the prince of Wales for the marriage of his daughters; anciently by all, now only by some. Lambard writes it *chivage*.

The Jews allowed to live in England, long paid at Easter chevage, or poll-money: viz. threepence per head, as appears by Pat. 8 Ed. I. par. 1.

CHEVAGNES, in *Geography*, a town of France, in the department of the Allier, and chief place of a canton, in the district of Moulins, 9 miles east of it. The place contains 850, and the canton 6873 inhabitants: the territory includes 370 kilometres, and 11 communes.

CHEVAL, in *Zoology*. See *Equus Caballus*, horse.

CHEVAL marin. See *HIPOPOOTAMUS amphibius*. Cheval marin is also the name given to the *Syngnathus hippocampus*, by Bellon.

CHEVAL de Bois, in *Military Language*, a wooden horse. It is commonly formed of two planks nailed to trestles, on which the French used to put their horsemen when they wished to punish them for some slight offence, as well as girls of a debauched and bad life, when they were found with the soldiers.

CHEVAL de Frise, in *Fortification*, a large piece of wood, or beams, generally from 15 to 18 feet long, stuck full and traversed with wooden pins or stakes from 5 to 6 feet long, pointed and armed each of them with iron at both ends. Chevaux de frise are made use of for stopping up breaches, and securing the avenues or passages to a camp against the roads both of infantry and cavalry; for rendering the passage along gullies, ravines, and narrow places impracticable. They are sometimes mounted on wheels with artificial fires to roll down in an assault on the assailants, and at other times they are used instead of retrenchments, as also in front of ditches in lieu of *abatis*. On the medal of Licinius, is found a kind of cheval de frise, made with spikes interposed; serving to express a fortified camp.

CHEVALER, in the *Manege*. A horse is said to chevaler, when, in passing, upon a walk or a trot, his far fore-leg crosses or over-laps the other fore-leg, every second time or motion.

CHEVALERIE. This word signified formerly what was afterwards and is now called noblesse, and took its origin from this circumstance, that the principal exercises of the nobles were war, jousts, and tournaments, which were carried on or performed by them on horseback. Chevalerie has, perhaps properly enough, been distinguished into four kinds; namely, *La militaire*, *La regulaire*, *L'honoraire*, and *La sociale*.

La chevalerie militaire, was that which was acquired by arms, and was a mark of distinction that was conferred with the observance of several military ceremonies, as the girding of a sword on him who was honoured with the title of chevalier, the putting of gilded spurs on him, the recommending to him the punctual and manly fulfilment of the duties and functions of his profession, and so forth.

La chevalerie regulaire was that order of chivalry or knighthood in which one engaged to wear a certain habit, and to carry arms for the defence of religion, and the protection of pilgrimages to holy places, &c.

La chevalerie honoraire was that order of chivalry or knighthood which princes bestowed on each other, and on the first and favourite seigniors of their courts.

La chevalerie sociale was only a particular constitution of people who associated themselves under that title for different purposes.

CHEVALET, in *Fortification*, an assemblage of several pieces of timber for supporting a bridge of fascines or planks, to enable a body of troops to cross a small river. *Chevalets* are also used for bridges of communication in the ditch of a fortified place between detached works.

CHEVALET d'armes, in *Military Language*, a sort of bell tent, that was formerly used in the French service. It was conical and somewhat resembled the wigwag of an Indian.

CHEVALIER, ANTONY-RODOLPH, LE, in *Biography*, a learned French Protestant, was born in 1507, at Montchamps, near Vire in Normandy, and studied Hebrew first at Paris under Vatable, and then at Oxford under Fagius. He was tutor in the French language to princesses, afterwards queen Elizabeth, and remained in England till the death of Edward VI. He then removed to Germany, and having married the daughter-in-law of Tremellius, he perfected himself in the oriental language under his direction. From Strasburg, whither he was invited in 1559, he went to Geneva; where he taught Hebrew, and published an improved edition of Pagninus's *Thesaurus*. He afterwards settled at Caen, but the civil wars obliged him to take refuge in England, and was kindly received by queen Elizabeth. However, as soon as the termination of the religious differences at Caen allowed of it, he returned thither; but the fatal day of St. Bartholomew again expelled him; and in his voyage to England he was seized with a disorder, which terminated his life at Guernsey, where he was landed, in 1572, at the age of 65. He translated from Syriac into Latin the "*Targum Hierosolymitanum*," and St. Paul's epistle to the Galatians; and his accurate Hebrew grammar, entitled "*Rudimenta Hebraicæ Linguae*," 4to., was printed at Wittemberg in 1574. He had undertaken a bible in four languages, but died before it was finished. Moreri. Gen. Biog.

CHEVALIER, formed of the French *cheval*, horse, and that of the Latin *cavallus*, in a general acceptation, signifies a knight or horseman.

From the most remote period of modern history the title of chevalier has been very eminent and of high consideration. The noviciate necessary for arriving at it was long and troublesome.

blesome. It was requisite, in order to obtain it, to pass through the first or principal degrees that conferred nobility, and to be irreproachable in point of morals and behaviour, as well as in point of bravery and courage. The admission or reception of a chevalier was very august and magnificent; it was accompanied by a degree of pomp altogether extraordinary. It even attracted the presence of stranger kings and emperors, whose children were not born chevaliers, and could not be received as such, but subject to the formalities prescribed for esquires and gentlemen. When all these things began to decline and get into disuse, sovereigns established different orders of chivalry. See the articles *ECUYER*, and *ORDRES de chevalerie militaire*.

It is used, in *Heraldry*, to signify any *cavalier*, or horseman armed at all points; by the Romans called *cataphractus eques*, now out of use, and only to be seen in coat armour.

CHEVALIER, in *Ornithology*, *chevalier aux pieds rouges* of Buffon. See *SCOLOPAX calidris*, the red-shank.

CHEVALIER of *Ferm. Surin*, the spur-winged waterhen. See *PARRA jacana*.

CHEVALIER *vert*, of Buffon. See *RALLUS bengalensis*, Bengal water-rail.

CHEVALIERS *d'armes*, ou *chevaliers servants*, form the third rank in the order of Malta. See the article *SERVANS d'armes*.

CHEVALIERS *errans*, knights errant. These were worthies, who were constantly wandering along the roads and ways in search of fine adventures and giving challenges and defiance.

CHEVAN. See *CHIAN*.

CHEVANCY LE CHATEAU, in *Geography*, a town of the Netherlands, in the duchy of Luxemburg, about 12 miles from Montmedy.

CHEVANTIA, in our *Old Law Writers*, is used for a loan or advance of money upon credit.

CHEVAUX *de Frise*. See *CHEVAL de Frise*.

CHEVAUX *bien dressés*, in *Military Language*, horses well broken. See *CAVALIER* and *CAVALRY*.

CHEVAUX *de troupes légères*, the horses of light troops. They ought to be as well conditioned as the horses of the heavy cavalry, though they may not be so tall and powerful. They should however be neat, active, and light, as the duty and employment of those, who mount them, are to harass the enemy incessantly, and to drive him before them when they have an advantage over him; as also to render a retreat long and troublesome when the enemy is superior.

CHEVAUX *legers*. This was a corps of cavalry consisting of 200 men called *maîtres* (masters), who formed part of the guard of the kings of France. It is remarked, to the honour of this corps, that they never lost either their kettle-drums or standards. It owed its formation to Henry IV., and was originally composed of men of arms of Navarre.

CHEVÊCHE, in *Ornithology*, Grande Chevêche of Buffon, one of the synonymous names of the Short-eared Owl, *STRIX brachyotos*. The great Brown Owl, *STRIX Ulula*, is also called Grande Chevêche by some French authors.

CHEVELLE, a term used by the *French Herald*s to express a head where the hair is of a different colour from the rest of the head.

CHEVERNY, in *Geography*, a town of France, in the department of the Loire and Cher; 7 miles S. of Blois.

CHEVET *du canon*, in *Gunnery*, a billet, block, or quoin, sufficiently strong for supporting the breech of a cannon.

CHEVET *du mortier*, a wedge placed between a mortar and its bed or carriage for elevating it with.

CHEVETAINE, a *Military Term*. The French cavalry as well as infantry were anciently conducted by *chevetaines*,

that is to say, captains or *connetables*, who held not their commands for life, but by commission during the continuance of a war or of a particular expedition.

CHEVILLE *d'assut*, in *Gunnery*, an iron bolt or pin, which serves to bind together the whole of a gun-carriage by traversing or running across through it. Those that have iron buckles, hasps, or staples, are called *chevilles à oreilles*.

CHEVILLE *Ouvrière*, a large nail or bolt, by means of which the limber is placed below the carriage of a piece of artillery.

CHEVILLES *de travaux militaires*, artillery nails of different sizes, to suit the purposes for which they are used.

CHEVILLON, in *Geography*, a town of France, in the department of the Upper Marne, and chief place of a canton in the district of Wassy. The place contains 856 and the canton 5108 inhabitants; the territory includes 137½ kilometres and 15 communes.

CHEVILLY, a town of France.

CHEVILS, or KEVELS, in *Ship-building*. See *KEVELS*.

CHEVIN, a name used in some parts of England for the chubb. See *CAPITO*, and *FISHING*.

CHEVIOT HILLS, in *Geography*, hills of England in the county of Northumberland, near which was a tree chase, called Cheviot, curruptly "Chevy Chase," the scene of the encounter between the Piercies and the Douglasses, celebrated in the ancient popular song: 6 miles from the borders of Scotland, and 18 S. of Berwick. These hills form a regular ridge, running from the S.W. where they join those of Galloway on the N.E., and stretching from near Berwick to the Solway frith, constitute a kind of natural rampart between the two kingdoms.

CHEVIRE, a town of France, in the department of the Mayne and Loire; 5 miles N.W. of Baugé.

CHEVISANCE, in the *Law of England*, is said to be an agreement, or composition, or bargain between a creditor and debtor; but it seems chiefly to denote an indirect gain, in point of usury, &c. In our statutes it is often mentioned, and most commonly used for an unlawful bargain or contract. See the statutes against usury, anno 12 Annæ. In the stat. 13 Eliz. c. 7. it is used simply in the sense explained by Dufresne, for making contracts.

The word is said to be derived from the law French *chevir*, to come to the end, or finish any thing; in the same sense as the modern French use *achever*.

CHEVITIÆ and CHEVISEÆ, denote in Mem. Angl. heads of ploughed lands.

CHEVRE, a crab or gin. A machine for raising stones, large pieces of timber, and pieces of artillery. See *CRAV* and *GIN*.

CHEVRE, in *Zoology*, the goat among French writers: *CHEVRE sauvage* of Tavenier is the Caucasian Ibex. See *CAPRA Egagrus*.

CHEVREGNY, in *Geography*, a town of France, in the department of the Aisne, and district of Laon; 5 miles S. of it.

CHEVRES, a town of France, in the department of the Charente; 18 miles E. of Angoulême.

CHEVRETTE, in *Artillery*, an engine to raise guns or mortars into their carriages; it is made of two pieces of wood of about four feet long, standing upright upon a third, which is square: they are about a foot asunder, and parallel, and are pierced with holes exactly opposite to one another, having a bolt of iron, which being put through these holes, higher or lower at pleasure, serves with a hand-spike, which takes its poise over this bolt, to raise any thing by force.

CHEVRETTE, and CHEVREUM, in *Zoology*, the name given by French writers to the Roe. See *CERVUS Capreolus*.

CHEVREUIL, the name under which Du Pratz describes

preface to his "*Essay on Health and long Life*," for having treated their censures with rudeness. This was followed soon after by his "*Philosophical Principles of Natural Religion*," containing the elements of natural philosophy, and the proofs for natural religion, arising from them. This was dedicated to the earl of Roxburgh, for whose use it appears to have been written.

As Cheyne was a voluptuary, the disposition to corpulency, which he inherited from nature, had so increased, by the time he attained a middle age, that he was become unwieldy, short-breathed, and lethargic; alarmed at these appearances of a broken constitution, he determined on altering his mode of living, to which he justly attributed the evil; accordingly he confined himself to a milk and vegetable diet, and submitted to a total abstinence from fermented liquors. The experiment succeeded, and he was soon relieved from the most distressing symptoms of his complaints. Struck with the benefit he had received, he published in 1722, an "*Essay on the true Nature and due Method of treating the Gout*," together with the nature and quality of Bath waters, and the nature and cure of most chronic diseases. As he had resided for some years, during the summers, at Bath, and drank the waters, he attributed much of the benefit he had received to them.

His next publication, which appeared in 1724, was his famed "*Essay on Health and long Life*," 8vo. In this he inculcates the necessity of a strict regimen, particularly in the article of diet, both in preventing and in curing diseases. It was dedicated to Sir Joseph Jekyll, master of the rolls, who had been under the author's care. In the preface the author gives an account of his former works, which he censures, where faulty, with great freedom. He is particularly severe on his own conduct, wherever he has treated other writers with levity or disrespect.

Although so much benefited by an abstemious course of living, he had not been able, it seems, to continue it, after his complaints were subdued; he once more therefore became a free liver, and indulged himself in wine, and other luxuries, but finding his complaints returning, he had again recourse to a milk and vegetable diet, and with such manifest advantage, that he continued it for the remainder of his life, which was extended to the year 1742, when he died at Bath, being 72 years of age. He had several years before, viz. in 1733, published his "*English Malady*," or treatise on nervous diseases of every kind, as spleen, vapours, lowness of spirits, hysseric and hypochondriac diseases, which he thought were more frequent, if not confined, to this country. This work became very popular. In it is contained a candid and judicious narrative of the author's case, which may be read with advantage, particularly by persons who, by intemperance, have impaired their health. For the titles and accounts of a few other productions, see Haller's Bib. Med. and the Gen. Biog. from which much of the above is taken.

CHEZE, LA, in *Geography*, a town of France, in the department of the North Coasts, and district of Loudeac; $1\frac{1}{2}$ league S.E. of it.

CHEZERY, a town of Savoy, ceded to France in the year 1760.

CHEZY L'ABBAYE, or CHEZY-SUR-MARNE, a town of France, in the department of the Aisne, and chief place of a canton in the district of Chateau Thiery; $1\frac{1}{2}$ league S.S.W. of it. The place contains 1286 and the canton 11,938 inhabitants; the territory includes $25\frac{1}{2}$ kilometres and 20 communes.

CHIA TERRA. See TERRA *Chia*.

CHIABRERA, GABRIEL, in *Biography*, a celebrated

Italian poet, was born at Savona in 1552. He passed his elementary studies at Rome, and was received into the Roman college. He was a youth of unbounded passions, and was concerned in many disputes, one of which forced him to become an exile for many months. He at length found means to appease all animosities, and devoted himself to his literary pursuits. He was first noticed on account of some Latin verses, but he afterwards turned his talents to Italian poetry, of which he became a voluminous and highly admired author. His reputation as a poet caused him to be invited to the courts of several princes. By Ferdinand I. grand duke of Tuscany, he was munificently rewarded on account of verses composed for a dramatic exhibition given to the prince of Spain, and for others written in honour of the marriage of the princess Mary, who became queen of France. Charles Emanuel, duke of Savoy, pressed him to reside at Turin; and on his refusal, made him magnificent presents, and liberally paid his expences whenever he visited that capital. Vincent Gonzaga, duke of Mantua, was another of his patrons, and assigned him an annual pension. But nothing conducted so much to his reputation as the notice taken of him by the cardinal Barberini, himself a poet; who not only addressed to him an ode, but when pope, under the title of Urban VIII. honoured him with a brief filled with praises and high compliments. The republic of Genoa, of which he was a subject, conferred on him many honours and privileges, one of which was that of being covered when he addressed the serene college. Chiabrera lived universally respected to the age of 86; he married a wife at 50, but left no children. As a poet he filled up the interval between the most flourishing and declining ages of Italian poetry. He aimed at originality, and used to declare, that, like his countryman Columbus, "he was resolved to find a new world, or perish in the pursuit." This is perhaps to be chiefly understood of his lyrical productions, in which, it is said, that he naturalized the graces of Anacreon and the sublime flights of Pindar. He enriched the Italian verse by the introduction of various new measures. He was likewise an elegant prose writer; his "*Familiar Letters*" possess the graceful ease fitted to that species of composition. A collection of his most esteemed poems was published at Rome, in 3 vols. in 1718.

CHIACA, or CIACA, in *Ancient Geography*, a place of Asia in Armenia, between Dascusa and Méntène. It had a Roman garrison, according to the *Notitia Imperii*.

CHIAGORAS, a river of Africa, considered by the ancients as one of those which contributed to form the Nile.

CHIAJA-BECH, or KIAYA-bey, among the Turks, an officer whose duty or business is to serve the Aga of the Janizaries in quality of first *maitre d'hôtel* in the name of all the corps. See KIAYA-bey.

CHIAJA-Boch, or second lieutenant general, is the third general officer of the Janizaries. He yields in nothing to the second general officer or first lieutenant general, who is called *Seymer Bassy*, in point of privilege, authority, and command. Some judgment may be formed of the great power of the Aga, or chief of the Janizaries, from the rights and authority of this second lieutenant general, who is captain of the richest company, namely that of *Boluc-Dary's*, and governs it despotically. He is heir to such of his soldiers as die without children and parents, and he bestows at his pleasure on his subaltern or subordinate officers the governments of the cities of war or the offices called *Kellars*.

CHIAIS, a sect of Monguls or Moors, inhabiting Surat in the East Indies, w.^o, as well as the modern Persians

Persians belonging to the same class, do not consider Abubeker, Omar, and Osmyn as the lawful successors of Mahomet, but as usurpers; esteeming Ali, the son-in-law of Mahomet, as the person who ought to have immediately succeeded to the place of the prophet; whereas the Turks, who are called "Sunnites," or "Sonmites," believe the contrary. This difference of belief is the cause of an irreconcilable hatred between these people, which is encouraged and cherished by the princes on both sides. See SHIITES.

CHIALISH, in *Geography*, called also Yulduz, and by the Turks Karashar, or the black city, a town of Little Bucharia.

CHIAMETLAN, a province of North America in Mexico, bounded on the north by Culican, on the east by the Zacatecas, on the south by Xalasco, and on the west by the Pacific ocean. It is said to be 37 leagues from north to south, and as wide from east to west. The soil is fertile; many mines of silver are found in the country; and it produces a great quantity of honey and wax. The native Indians are well made and warlike. The river St. Jago discharges itself into the sea here; N.W. from the point of St. Blas. The chief town is St. Sebastian.—Also, a town of Mexico in the province of the same name; 325 miles N.W. of Mexico. N. lat. 23° 40'. W. long. 105° 1'.

CHIAMETLAN-Islands, a cluster of small islands in the Pacific Ocean, near the coast of Mexico. N. lat. 22° 20'. W. long. 104° 26'.

CHIAMPÀ, a small maritime country of Asia, bounded on the north by the desert of Cochinchina, on the east and south by the Indian sea, and on the west by Cambodia, from which it is separated by a ridge of mountains. Mr. Pennant, after M. d'Anville, calls this tract Ciampa; and Sir George Staunton (*Emb. vol. i. p. 364.*) substitutes Tfiampa, and says that it appears from the sea, as a sandy tract intersected with rocks. Mr. Pennant informs us from an old French narrative, that the people of this country are called Loyes; and are large, muscular and well made, and have a reddish complexion, rather flat nose, and long black hair; their dress is very slight. The king resides at Feneri, the capital: and was tributary to Cochin-china. The productions of the country are cotton, indigo, and bad silk. Their junks are well built, and much employed in fishing.

CHIAN *Marble*. See MARBLE.

CHIANA, in *Geography*, a river of Italy, which joins the Tiber, about 10 miles S. of Orvieto.

CHIANNI, a town of Italy, in the duchy of Tuscany; 16 miles E.S.E. of Leghorn.

CHIANTLA, a town of Mexico, in the province of Chiapa; 100 miles S.E. of Chiapa dos Espagnols.

CHIAOUS, among the Turks, are officers in the corps of Janizaries. They are of three kinds or descriptions, and are distinguished by different surnames. The first of these is the *bas-chiaous*, who as captain of the second *Oda*, or company, has the charge of registering those who enter into the corps of Janizaries. He receives them by taking them by the ear and giving them a cuff. He inflicts punishments on the guilty, and ranges the soldiers in a line, when the Aga is going to pass, in order that each of them may have it in his power to bless him, by repeating some words of the Alcoran. This *bas-chiaous* commands two others, who are subordinate to him, each of whom is called *l'orta-chiaous*. Neither of these is a captain, but rather a sort of lieutenant or captain-lieutenant. But their duty is to cause the sentences of the captains against delinquent soldiers to be carried into execution. For the soldiers of that corps have the singular privilege of being judged by their own proper officers, or those of their own companies. It is also the

duty of the *l'orta-chiaous* to direct the order of march for the infantry, and more especially to salute the first with hands joined when it passes before the general. Every *bas-chiaous* then, or captain of a company of janizaries, has two captain-lieutenants, or lieutenants under his orders.

CHIAOUS, an officer in the grand signior's court, doing the business of an usher.

The word, in the original Turkish, signifies *envoy*.

He bears arms offensive and defensive, and has the care of prisoners of distinction. His badge is a staff covered with silver; and he is armed with a scimitar, bow, and arrows. The emperor usually chooses one of this rank to send as ambassador to other princes. The chiaous are under the direction of the *chiaous-bajchi*, an officer who sits at the divan, and introduces those who have business there.

CHIAPA, in *Geography*, a province of Mexico or New Spain in North America; bounded on the north by the province of Tabasco, on the south-east by Vera-paz, on the south by Guatemala, on the south-west by Soconusco, and on the west by Guaxaca. It is about 85 leagues from east to west, and its breadth, where it is narrowest, is about 30, and in some parts nearly 100. This country abounds with forests of pine, cypress, cedar, oak, walnut, and wood vines; with aromatic gums, balsam, liquid amber, tacamahaca, copal, and other articles, that yield excellent balsams; and also with corn, cocoa, cotton, and wild cochineal; together with fruits of various kinds, as pears, apples, quinces, &c.; and achiotte with which the natives colour their chocolate. Chiapa has also a great variety of cattle; and it is particularly famous for a fine breed of horses, in such estimation, that they send their colts to Mexico, at the distance of 500 miles. This province teems with beasts of prey, and also with foxes, rabbits, and wild hogs. In the hilly parts, more especially, are snakes of different sorts, some of which are said to be 20 feet long, others of a red colour, and streaked with white and black; which the Indians tame and even coil round their necks. The inhabitants of this province are of a fair complexion, courteous in their disposition and manners, well skilled in music, painting and mechanics, and respectful to their superiors. The country is well watered; its principal river is Chiapa, which running from the north through the country of the Quelenes, falls into the sea at Tabasco. This river enables the Chiapese to carry on a considerable trade with the neighbouring provinces, which consists chiefly in cochineal and silk; and of the last commodity the wives of the Indians manufacture handkerchiefs of all colours; which are purchased by the Spaniards and sent to Europe. Chiapa is reckoned by the Spaniards as one of their poorest provinces, because it has no mines or sand of gold, nor any harbour on the South sea, yet in size it is inferior to none except Guatemala. To the Spaniards it is of great importance, because the strength of their empire in America very much depends upon it; and it may be easily entered by the river Tabasco, Puerto Real, and its vicinity to Yucatan.

CHIAPA, the name of two towns in the above province: the one is sometimes called "Cidad Real," or the royal city, and the other "Chiapa de los Indos," inhabited by Spaniards. The former is a bishop's see, and the seat of the judicial courts. It is delightfully situated in a plain, surrounded with mountains, and almost equally distant from the North and South seas, and 100 leagues N. from Guatemala. The bishop's revenue is 8000 ducats a year. The town is neither populous nor rich; and the Spanish gentry who reside in it are proverbially proud, poor, and ignorant. It has several monasteries, a cathedral of elegant structure, about 400 Spanish families, and a faubourg, containing about 100 Indian families. The city is governed by magis-

trates chosen among the burgesſes of the town, in confequence of a peculiar privilege granted to them by the king of Spain. The principal commerce of this place is cocoa, cotton, and cochineal. N. lat. 17°. W. long. 96° 40'.

The other town, called "Chiapa de los Indos," belonging to the Indians, is the laſteſt they have in this country, and lies in a valley near the river Tabasco, about 12 leagues N.W. of "Civdad Real." The celebrated Bartholomew de las Caſas was the firſt biſhop of Chiapa. See the biographical article CASAS. The town is large and rich, with many cloiſters and churches; and no town has a greater number of Indians valuing themſelves on their rank than Chiapa. On the river they have ſeveral boats, with which they often exhibit ſea-fights and ſieges. In the environs are ſeveral farms well ſtocked with cattle, and ſome ſugar plantations. Wheat is brought hither from the Spaniſh Chiapa; and of this they make hard biſcuit, which the poorer Spaniards and Indians carry about and exchange for cotton, wool, and ſuch trifling things as they want. In this town there are about 20,000 Indians. The heat of the day is extreme, but the nights are cool.

CHIAPPEN, in *Mythology*, an idol of the ſavages in the valley of Tunia, near Panama; being their Mars, or god of war. Before they ſet out for battle, they ſacrifice ſlaves and priſoners in honour of him, and beſmear the body of the idol with the blood of the victims. In moſt of their enterpriſes they conſult Chiappen; and they previously undergo a penance for two months, abſtaining from the uſe of ſalt and all commerce with women.

CHIARENZA, or CLARENCE, in *Geography*, a town of European Turkey, on the weſt coaſt of the Morea, not far from the Mediterranean, near the river Sillus; once a conſiderable place, but now almoſt ruined; 84 miles S.W. of Livadia, and 80 W. of Corinth.

CHIAREZZA, *Ital.* Clearneſs; a *Muſical Term*, one of the moſt eſſential requiſites in a muſical compoſition. The definition of good *muſic*, by that ſpirited and inventive vocal compoſer, *Galuppi*, more frequently called *Buranello*, though ſhort, is very comprehensive. it conſiſts (he told the author of the Preſent State of Muſic in France and Italy) in *vaghezza, chiarezza, e buona modulazione*.

Clearneſs in muſic is a very different quality from *clearneſs* in literature. In proſe, verſe, or reaſoning, *vivâ voce*, when a thought has been preſented in the moſt appropriate terms, exempt from all extraneous matter, but accompanied with the acceſſories neceſſary to its developement, and intelligibility, it is clear; endeavouring to be too concise occasions obſcurity, and in trying to be clear, we become diffuſed:

— *Breviſ eſſe laboro,*

Obſcurus ſio.

In literature, the greateſt ſecret of the art, is not the ſaying all that *may* be ſaid, but to let that be *clearly* conceived which is not ſaid. It is totally different in muſic: the moment we become diffuſed, we ceaſe to be *clear*; ſo that as the oppoſite to *clearneſs* in literature, is obſcurity; the oppoſite to *clearneſs* in muſic, is conſuſion.

A muſical idea, apart from all expreſſion, is not an operation of the mind. It ariſes from a kind of inſtinct, or, if you pleaſe, from a ſentiment which taſte only directs; and juſt as it ſprings from the head of the muſician, it is received by the audience, without the leaſt obſcurity. We ſpeak here of ſimple melody. But if harmony is added to it, each part increaſes complication, obſcures the principal idea, and it is then that *clearneſs* is wanted.

Each phraſe in muſic ſhould have a character, and this character ariſes from the melody. If the accompaniment

to this melody forms another melody of a different character from the principal part, and is intereſting, to which ſhould we attend? there will then be a conſuſion.

To make uſe of a term in painting, upon theſe occaſions, when there are many melodies in motion at once, we ſhould aim at *tranſparency*; the ſeveral parts ſhould be heard through each other.

M. Framery, in the *Encycl. Meth.*, has extended this article, and pointed out the ſeveral cauſes of conſuſion and obſcurity; one of which he ſays, and perhaps with truth, is the preſent rage for *modulation*, which deſtroys the *unity of melody*, and calls off the attention from the melody to the harmony; breaks the chain of thought, and drives from the mind the original *motive*, and like ſauce that is too acid, or too ſweet, totally deſtroys the flavour of the principal viand. See TRANSPARENCY, MELODY, MODULATION, CHARGÉ, and LABOURED ACCOMPANIMENT.

Though *clearneſs* is a common epithet, and well underſtood in common things, it is peculiarly neceſſary to be explained as applied to muſic. In compoſitions of many parts, when the principal melody is not diſturbed by the too great complication or activity of the ſubordinate parts; when not only the principal melody is heard through the reſt, but that every part carrying on a particular deſign, can be diſtinguiſhed without conſuſion; here it is that the word *tranſparent* might be uſefully admitted into the muſical technica. However numerous the parts, the principal, the beſt or moſt intereſting melody ſhould be reſpected, to whatever part it may be aſſigned. When many deſigns are carried on at the ſame time, as in double fugues with counter ſubjects, in writing which, as the compoſer's taſk is different, ſo is that of the hearer; as the ſcience of the one is on the ſtretch, ſo is the attention of the other.

The compoſer ſhould never forget the place and the audience for which he is at work. In productions for the church, where tranquillity and profound attention are ſuppoſed to reign, learning and complication are more likely to be underſtood than in a theatre, where the intereſt of the drama, the beauty of the poetry, the geſtures of the actors, and the pomp of representation, all conſpire to attract the attention of the audience from the labours of the muſical compoſer. Theſe conſiderations not only furniſh an apology for a thin ſcore in opera ſongs, but render it an object of praiſe. *Clearneſs* in dramatic muſic is ſo much more neceſſary than in that of the church or even chamber, as the objects that diſtract the attention of the audience are more numerous.

CHIARI, FABRIZIO, in *Biography*, a painter and engraver of conſiderable reputation in his profeſſion, was born at Rome in 1621, and died in 1695. He made ſeveral etchings from Pouſſin, which, though ſlightly executed and incorrectly drawn, maniſeſt the hand of a maſter; among others are the following, viz. "Mars and Venus in a Landſcape," "Venus and Adonis," and "Venus with Mercury and ſeveral children." Strutt.

CHIARI, GIUSEPPE or JOSEPH, an eminent hiſtorical painter, was born at Rome, in 1654, and having ſtudied the arts of deſign under Galliani, placed himſelf under the celebrated Carlo Maratta, whoſe ſtyle he copied and with whom he ſo ingratiated himſelf, that he was entruſted to finiſh ſeveral of his pictures and deſigns, and recommended to other employment. As he advanced in reputation, he was engaged in many great hiſtorical works for churches and palaces, while he exerciſed himſelf in fancy compoſitions. His pictures, in which he exhibited delicacy of touch, an agreeable tone of colouring, and elegance and correſtneſs of drawing, have been held in high

high estimation. What he wanted in genius, says Mr. Fufeli, he ftrove to fupply by induftry, moderation, and judgment. He died at Rome in 1727.

CHIARI, in *Geography*, a town of Italy, in the Brefian, between Brefcia and Crema; 12 miles W. of Brefcia.

CHIARO SCURO, & OBSCURO, among *Painters*. See *CLAIR obscure*.

CHIAROMONTE, in *Geography*, a town of Sicily, in the valley of Noto; 25 miles W. of Syracufe.

CHIASCIO, a river of Italy, which runs into the Tiber, near Torfciano.

CHIASSELLIS, a town of Italy, in the country of Friuli, belonging to the ftate of Venice; 7 miles W. of Palma-la-Nuova.

CHIASMOS, in *Ancient Greek Medical Writers*, is the concurrence or meeting of any two things under the form and figure of a crofs, or the letter X *chi*, whence it is named. The adverbs *χιαστί*, and *χιαστικώς*, fignify the fame thing: thus the optic nerves are faid to meet *χιαστικώς*, fo as to crofs each other.

CHIASTOS, the name of a bandage in Oribafius, fo called from its refembling a crofs, or the letter X.

CHIASTOS, in *Rhetoric*, the fame with what is otherwife called *diallelos*.

CHIAVAN, in *Geography*, a town of Perfia, in the province of Ghilan; 120 miles N.W. of Refhd.

CHIAVARI, a town of Genoa; 15 miles W.N.W. of Brugnato.

CHIAVENNA, COUNTY OF, a country of Swifferland, in alliance with the Grifons, fituated at the foot of the Rhætian Alps, N. of the lake of Como; about 8 leagues long and 6 wide. This county is fertile in wine and paffures; the inhabitants raife a confiderable quantity of filk, but not corn fufficient for their wants, which they procure of their neighbours for cattle, wine, and filk. The inhabitants are Catholics, and dependent in fpiritual matters on the bifhop of Como. The county of Chiavenna came under the fovereignty of the Grifons at the fame time and in the fame manner with the Valteline. During the war of the Valteline, it frequently changed its mafters; but at the peace of Milan, was finally reftored to the Grifons. It is ruled, like the other provinces, by a Grifon governor, under the name of commiffary, whose power in fome instances is lefs limited than that of the judges of the Valteline. The criminal court of juftice is formed by the commiffary and the affeffor, who is appointed by the commiffary, from three candidates nominated by the county. He muft attend all examinations, concur in ordering torture for the conviction of a criminal, be prefent when it is inflicted, and ratify the final fentence; but as the affeffor owes his place to the commiffary, and fhares in his exactions, he is a mere cypher, and feldom ventures to exert his right of interpofting a negative. This circumftance renders the courts of juftice in Chiavenna more uniformly iniquitous than even thofe of the Valteline; for the clofe union between the commiffary and affeffor almoft precludes a chance of redrefs, and gives unbounded fcope to oppreffion. The mode of proceeding eftablifhed in this court of juftice is fimilar to that of the *Valteline*, which fee. In civil caufes the commiffary receives 5 per cent. of the contefted property, and an appeal from his decifion may be fubmitted to the fyndicate.

CHIAVENNA, the capital of the above county, is fituated at the foot and upon the fide of a mountain, and contains about 3000 perfons. The inhabitants carry on but little commerce. The principal article of exportation, excepting the ftone-pots called "Lavezzi," is raw filk, of which the whole country produces about 3600 pounds. A manufacture of filk ftockings, the only one in the town, has been

latefy eftablifhed. The neighbouring country is covered with vineyards; but the wine is of a meagre fort, and only a fmall quantity of it is exported. The great fupport of Chiavenna is the tranfport of merchandife;—this town being the principal communication between the Milanefe and Germany, and from hence the goods are fent either by Coire into Germany, or through Pregalia and the Engadinas into the Tyrol. A duty is laid by the Grifons upon all the merchandife which paffes through Chiavenna; but it is fo fmall, that the whole cuftoms, including thofe in the Valteline, are farmed for 17,000 florins, or about 1260*l.* per annum.

The principal object of curiofity in the environs is the fortrefs in ruins, feated upon the fummits of a rock, which overlooks the town, once celebrated for its almoft impregnable ftrength. The ftrongeft part of the fortrefs was conftituted upon an insulated rock, rent, as fome fuppofe, from the contiguous mountain, by a violent convulfion of nature. Others fuppofe that the feparation of this rock was the work of art, and afcribe it to the order of Galeazzo Vifconti, in 1343. The length is above 250 feet, the height about 200, and the greateft diftance from the adjoining rock about 20. Clofe to Chiavenna is a rock of *afbestos*. Coxe's Travels, &c. vol. iii.

CHIAULSA, a town of Mexico, in the province of Tlafcala; 20 miles S. W. of Puebla de los Angeles.

CHIAVORIO, a town of Germany, in the duchy of Carinthia; 8 miles S. of Tarvis.

CHIAUSI, among the Turks, officers employed in executing the vizirs, bashaws, and other great men; the orders for doing which the grand feignior fends them wrapped up in a black cloth, on the reception of which they immediately perform their office. See CHIAOUS.

CHIBARA TAI KIAMEN, in *Geography*, a poft of Chinefe Tartary; 6 leagues N. of Geho.

CHIBI, in *Zoology*, the name of the domeftic cat in Paraguay, according to Mr. d'Azara, in his hiftory of the quadrupeds of that country. It is alfo called by others *mbaracaya*.

CHIBIGOUAZON, or MBARACAYA-GOUAZOU, the great cat, the name by which the people of Paraguay diftinguifh the ocelot, according to M. d'Azara.

CHICA, or CHICHA, liquor ufed by the Indians of South America, in the provinces of Quito, Peru, &c. in the times of the Incas, and ftill very common. The method of making it is this: they fteep the maize in water till it begins to fprout, and then fpread it in the fun, where it is thoroughly dried; after which they roaft and grind it, and of the flour they make a decoction of any ftrength at pleafure. It is then put into jars or casks, with a proportional quantity of water. On the fecond or third day it begins to ferment, and when that fermentation is completed, about two or three days more, they deem it fit for drinking. It is reckoned very cooling; and it is alfo inebriating. Among other medical properties that are afcribed to it, they fay it is diuretic; and to the ufe of this liquor the Indians are fuppofed to be indebted for their being ftangers to the ftangury or gravel.

CHICABEE, in *Geography*, a mountain of N. America, in the ftate of New England.

CHICAL, in *Zoology*. According to Haffelquift this is the name of the common jackal in Turkey.

CHICALY, or CHICALY-CHICALY, in *Ornithology*, a bird very common in the woods of the ifthmus of Panama. It is defcribed by Wafer, (*Dampier's Voyage*) as a bird of great beauty. Bachelier alfo fpeaks of it (*Voy. aux Indes Occidentales*). The note of this bird, according to thefe writers, approaches that of the cuckow; but fharper,

and more rapid. The plumage is elegantly diversified with a variety of lively colours, as red, blue, &c.: the tail is long, and the bird carries it in a straight direction like the cock. It lives on wild fruits, inhabits trees, and is rarely seen on the ground. Some ornithologists have imagined this to be a species of *Ara*, but the true genus does not appear to be correctly ascertained.

CHICAMA, in *Geography*, a river of South America in the kingdom of Peru, and jurisdiction or intendency of Truxillo; the water of which is distributed to the adjacent country by canals, and serves to render them productive, in great plenty of sugar-canes, grapes, and fruits of different kinds, both European and Creole, and particularly maize. From the banks of the river Lambayeque to Choco, sugar-canes flourish near all the other rivers; but none of them equal in goodness or quantity those near the river Chicama.

CHICANE, or **CHICANERY**, in *Law*, an abuse of judiciary proceeding, tending to delay the cause, and deceive or impose on the judge, or the parties.

Some derive the word from *cicum*, the skin of a pomegranate; whence the Spaniards formed their *chico*, little, slender; *chicane* being conversant about trifles.

The French call solicitors, attorneys, &c. *gens de chicane*.

CHICANE is also applied in the schools, to vain sophisms, distinctions, and subtilties, which immortalize disputes, and obscure the truth: as, the *chicane* of courts does justice.

CHICANES de fosse, chicanery of the ditch or fossée, in *Military Language*, very serious and sometimes very bloody contrivances, stratagems, and attempts between the besiegers and the besieged, when the former endeavour to make themselves masters of the covert-way and the ditches. Besides intrepidity and resolution on the part of both, a good deal of coolness, intelligence, and invention is required in those who conduct, on such occasions, either the attack or defence. The night is generally chosen for such enterprises.

CHICANGA, or **CHACANGA**, in *Geography*, a kingdom of Africa, which was formerly a part of the country of Monomotapa, rich in gold mines. It is called "Manica" from the principal town, which is situated on the river Sofala, in S. lat. $20^{\circ} 15'$. E. long. 28° .

CHICAPEE, or **CHICKABEE**, a small river of North America, in the state of Massachusetts, which rises from several ponds in Worcester county, and running S.W. unites with Ware river, and 6 miles farther it discharges itself into the Connecticut at Springfield.

CHICAS, **CHICHAS**, or **TARIJA**, a jurisdiction of South America, in the audience of Charcas, and belonging to the archbishopric of Plata, about 30 leagues S. of Plata; the greatest extent of which is about 35 leagues. This is now a province of the new viceroyalty of Buenos Ayres. The temperature of this district is various, some parts of it being hot and others cold; and hence it has the advantage of producing corn, fruits, and cattle. This country every where abounds in mines of gold and silver; and especially that part called Chocayas. Between this province and the country inhabited by wild Indians, runs the large river Tipuanys, the sands of which, being mixed with gold, are washed like those of the river Caravaga. The gold mines in Chicas and Tarija, by the statement of Helms, are 4; the silver mines 5; and it has 1 lead mine.

CHICCAMOGGA, a large creek of North America, which runs north-westerly into Tennessee river. Its mouth is 6 miles above the Whirl, and about 27° S.W. from the

mouth of the Hiwassee. N. lat. $35^{\circ} 18'$. The Chiccamogga Indian towns lie on this creek and on the bank of the Tennessee. See **CHICKAMAGES**.

CHICHA. See **JESSO**.

CHICHACOTTA, a post on the frontier of Bootan, in the track from Bengal to Tibet; which was rendered famous by being an object of contest between the British troops, and the people of Bootan, in the war carried on upon their frontier in the year 1772. As a fortification, it was then, as it is at this day, a large oblong square encompassed by a high bank, and thick stockade. The Bootans defended it with obstinacy, and a battle was fought in its vicinity, in which they displayed much personal courage; though it was impossible they could long contend against the superior advantage of firelocks and cannon over matchlocks, the sabre, and the bow. But though they were compelled to give way, they made Chichacotta, for a considerable time after, a post of danger and alarm, which the British troops were obliged alternately to possess and relinquish, till they were finally driven back, and pursued beyond Buxadewar or Passaka. It was restored at the close of the war, and now constitutes the Bootan frontier. The house in the fort, to which captain Turner was conducted in his embassy to Tibet, was of a totally different construction from any in Bengal. The first apartment, to which the ascent was by a wooden ladder, was elevated about 8 feet from the ground, and supported on forked props: bamboos, resting on the forks, served as beams: the floor of one room was formed by mats of split bamboo, that of the other by pieces of plank from 3 to 6 feet long, and 1, or $1\frac{1}{2}$ broad, hewn by the axe, and laid on beams of fir. A prop rose from the center of the ground-floor to the roof, which was of thatch; and the sides of the room were encompassed by split bamboos, interwoven lattice-wise, so as to leave interstices for the admission of light and air. The apartments were divided by reeds placed upright, confined at top between two flat pieces of bamboo, and resting at bottom in a groove. In the whole fabric there was no iron; the thatch was very low, projecting considerably beyond the walls; so that the rooms were equally defended from the rain and sun. N. lat. $26^{\circ} 35'$. E. long. $89^{\circ} 35'$. Turner's Embassy, &c. p. 19.

CHICHE, a town of France, in the department of the Two Sevres, and the district of Thouars; 6 miles S.E. of Bressuire.

CHICHEROBE, a town of America in the state of Georgia; 20 miles N. of Tugeloo.

CHICHESTER, a city of Suffex in England, is raised on the site of a Roman station, on ground a little elevated in the midst of a very level tract of country. The four principal streets, which are tolerably wide, and paved, branch off at right angles from the center of the city, in lines bearing direct towards the four cardinal points of the compass. At the end of each of these streets was formerly a fortified gateway: but these have been destroyed, and of the ancient embattled wall which formerly environed the city, only some portions remain. The principal of them is on the north side, where a spacious terrace was raised about the year 1725. This being covered with fine gravel and shaded by a row of lofty elm trees, affords an ornament to the city, and a pleasant promenade to the inhabitants. The whole circumference of this place within the walls is about 422 perches, or 6963 feet, embracing an area of between 100 and 101 acres of land.

That Chichester was a Roman station appears evident from the termination of its present name, and from several relics peculiar to the Romans that have been found here at different times. In the year 1727 a tessellated pavement

was

was discovered near the episcopal palace; and Mr. Hay, in his recent History of Chichester, says it was the residence of the Roman proprætor, and that a heathen temple was erected here. On a place called the Revile, near the city, are the vestiges of a large encampment, the earth-works of which, according to Mr. Hay, extend about three miles in length, by one in breadth; but the Chichester guide states with more probability that it is an oblong square, of about half a mile in length, and half as much in breadth. The Roman name of this station was Regni or Regnum.

During the Saxon dynasty the name was changed to Cissa-cester, from Cissa, a king of the South Saxons, who, after a long reign of 74 years, died A.D. 577. From this period Cissa-cester continued the seat of the monarchs of this district for above 300 years, and was attacked at different times, by the kings of Wessex, and by the piratical Danes. At the Roman conquest, there were, according to the dome-day book, one church and above 100 dwelling houses within the walls; and soon after that event, Hugh de Montgomery was created by the conqueror, earl of Chichester and Arundel. To secure himself in these possessions he raised castles, and augmented the fortifications of the former place. Camden states that Chichester was taxed at this time with 15 l. per annum for the king, and 10 l. for the earl. The latter having obtained leave of his monarch to establish a see in his newly acquired town, granted the whole south west quarter of it to Stigandus, who was the twenty-second abbot or bishop of Selsea, and the first of Chichester. It appears that two or three churches were erected here, and successively destroyed, before the present cathedral was founded. This is stated by Mr. Hay to have taken place during the prelacy of Bishop Seffrid, who, "assisted by six other prelates, consecrated the church on the second of the ides (i. e. the 12th day) of September A. D. 1189." (*History of Chichester*, 8vo. p. 417). Judging from the styles of architecture which prevail in this building, and from some auxiliary circumstances, we should rather coincide with dean Litleton, in attributing to bishop Ralph the "greatest part of the inside walls of the nave, choir, and transept." This bishop was installed in 1091; he began the church in 1115, and died in 1123. He signalized himself not so much for his build-ings, as for his energy and spirit in resisting the papal encroachments which were then attempted to be made under the legation of Cardinal de Cresna, whose shameful exit from this kingdom is noticed, and justly reprobated by Hume, Henry, &c. in their histories of England. Bishop Ralph appears to have been liberally assisted in the progress of his cathedral by Henry I. In the year 1187, a devastating fire destroyed nearly the whole city of Chichester; and the wood work with some other parts of the cathedral was consumed, or considerably injured. This damage was, however, repaired by Bishop Seffrid and his immediate successors; one of whom was the famous bishop Poore, who was translated from this see to that of Sarum in 1217, where he exerted and displayed his knowledge of, and taste for, architectural science in designing the present magnificent fabric at the latter city. It is extremely probable that the principal additions of Chichester cathedral, which are easily distinguishable by pointed arches and their corresponding decorations, were completed about this time. The spires of this, and that at Salisbury are traditionally said to have been built by the same person, and their general resemblance seems to justify the conclusion. Both of these are, however, of a date much later than any other parts of the fabrics, but are both trifling variations of that style which prevailed during the long and pious reign of Henry III. when the artificers and ecclesiastics were animated by the same enthusiastic ardour

of emulation. The ornaments of the interior of this cathedral, the stalls of the choir, and the tasteless paintings on the ceilings, appear to have been executed in the time of bishop Sherburn, who was translated to this see in 1508. This prelate was employed many years by Henry VII. in a diplomatic capacity, and he is said to have brought into England an Italian artist of the name of Bernardo, who was commissioned to produce an historical painting on large panels of oak, and which were to occupy both sides of the south transept of Chichester cathedral. It was intended to represent the founders and benefactors of the church. This picture, or these pictures, though extremely bad as works of art, are very curious specimens of early portrait painting, and may perhaps be considered among the earliest examples of the kind in this country. The east end of this cathedral has totally lost its original character: as the chapel of the virgin is converted into a library beneath which are large vaults for the Richmond family, and for that of Waddington; also a cemetery for that of Millar. A large number of monuments is affixed to different parts of the cathedral, many of which are not only ugly in themselves, but are highly injurious to the stability and beauty of the building. One monument among these deserves particular notice, as a memorial to genius, and a specimen of English talent. This was erected by a subscription raised among the citizens, to commemorate the name and character of Collins the poet, who was a native of this place. The monument is by Mr. Flaxman, who has displayed his usual taste and talent in its design and execution. Here are some other marble monuments by the same artist. The size, &c. of Chichester cathedral may be estimated by the following measurements. From east to west, 410 feet; cross aisles, or transept from north to south, 131 feet; breadth of body and aisles at the west end 91 feet; height of the central tower and steeple 270 feet, which is 134 feet less than that of Salisbury; height of towers at west end 95 feet, and of another tower, which stands on the N.W. side of the church, 107 feet; height of the roof, or vaulting 61 feet. The four sides of the cloisters are respectively 120, 100, and 108 feet.

The walls of the city inclose six parishes: and without the walls are two other parishes. Besides the churches here is a fine ancient *market cross*, a guildhall, a market-house, and council chamber, a work-house, a theatre, a custom-house, the bishop's palace, a free school-house, and some chapels. The cross, an elegant octangular structure, highly ornamented, was built by bishop Story, who was advanced to this see in 1475. "There is a degree of grandeur in the design, and elegance of execution in this cross, superior to any other structure of the same class in England." A Plan with details, &c. of it is given in the *Architectural Antiquities of Great Britain*, vol. i. 4to. The guildhall is a spacious ancient building, situated in a retired part of the city: here was a nunnery, founded by William dean of Chichester, in the reign of Henry II. It is now converted into an hospital under the patronage of the dean and chapter, and is supported by revenues from several valuable estates. Within its walls is a neat chapel. The bishop's palace is a large pile of building, and the gardens are spacious. The river Havant nearly encircles the city, and is navigable for small vessels: but the quay or harbour is about two miles from the city walls. In the reign of king James I. an act was obtained to widen and deepen the river up to the city; but this has not yet been effected.

Chichester sent members to parliament in the twenty-third year of Edward I.; and by charter granted, in the reign of James II. A.D. 1685, it is governed by a mayor, recorder,

recorder, and 33 common councilmen. It sends two members to parliament, who are elected by the inhabitants paying scot and lot, and certain freemen, in all amounting to about 620 voters. Besides the mayor, who is elected from the aldermen, here are four justices of the peace, before whom and the mayor most of the petty causes and litigations are tried.

Here are two weekly markets, on Wednesday and Saturday: and every Wednesday fortnight the market is very large. Here are also five annual fairs. This city is 62 miles S.W. from London: and contains 831 houses, and 4744 inhabitants. Hay's History of Chichester, 8vo. 1804.

About two miles and half N. of Chichester is the village of *Lavant*, near which is a seat belonging to the duke of Richmond, who has another at Rawmere, and another at *Goodwood*, about 4 miles from the city. Four miles N.E. of Chichester is *West Stoke*, the cheerful residence of lord George Lenox. A short distance hence is *West Dean* the seat of Lord Selfe.

CHICHESTER, *Upper and Lower*, two townships of America, in the state of Pennsylvania, and county of Delaware.

CHICHESTER, a small township of Rockingham county in New Hampshire, about 35 miles N.W. of Exeter, and 45 from Portsmouth. It lies on Suncook river; was incorporated in 1727, and contains 491 inhabitants.

CHICHICHOCO, a mountain of South America, in the province of Quito, being a branch of the snowy mountain of Carguiralo, and one of the stations in the Cordilleras of the Andes, where the Spanish astronomers fixed a signal in measuring the degree of a meridian. Whilst they were in this station, an earthquake occurred, which reached 4 leagues round the country.

CHICHICTLI, in *Ornithology*. See *STRIX chichictli*. Lam.

CHICHILTOTOTL, the Mexican name of the silver-beaked tanager, *tanagra bec d'argent* of Sonnini.

CHICHOW, in *Geography*, an island of the China sea, not far from Formosa, which in reality consists of two small islands close to each other. The south coast of this island, on Dalrymple's chart, is in N. lat. $22^{\circ} 13'$, but by the observations of captain Marchand, who anchored in the Solide under this island, its S. coast is in N. lat. $22^{\circ} 4'$ or $5'$.

CHICHLEY, HENRY, in *Biography*, an English bishop, born of obscure parents at Higham Ferrers, in Northamptonshire. He was educated at Winchester school, from whence he was admitted at New college, Oxford, where he took the degree of doctor in civil and canon law. He was afterwards chaplain to Robert Medford, bishop of Salisbury, by whom, in the year 1402, he was promoted first to the archdeaconry of Salisbury, and in two years afterwards to the chancellorship of that diocese. His various talents brought him into notice, and he was employed by Henry IV. and V. in various important negotiations. He was sent ambassador to pope Gregory XII. to congratulate him on his advancement to the papacy; the bishopric of St. David's becoming vacant during his absence, he was promoted to that see by the pope, who consecrated him with his own hands. In 1414, he was translated to the see of Canterbury. The commons having addressed the king to seize upon the revenues of the church, archbishop Chichley employed his talents to divert the storm. He advised the clergy to grant the king a large subsidy, and then enflamed the ambition of the monarch to lay claim to the provinces of France which had belonged to his predecessor. He went over to France with the king, and on his return before his sovereign,

he caused abundance of processions to be made for obtaining the favour of heaven upon his arms, and, at the many synods which he held, exhorted his brethren to open their purses freely in support of so just and necessary a war. He was frequently with the king in his camp, and was present with him at Paris after the surrender of that capital. In 1421, he crowned queen Catherine in London, and during that year he baptized prince Henry, who, when he came to the crown, ever treated him with a sort of filial respect. During the minority of that prince he was nominated first privy-counsellor, but never exhibited any inclination to engage in matters of state, confining himself to his ecclesiastical functions. He founded a noble college and large hospital at his birth-place, and endowed them with ample revenues, which were considerably augmented by his two brothers, who were aldermen of London. In 1426, pope Martin V. exhibited some tokens of displeasure against the archbishop for having vigorously opposed certain encroachments made by the see of Rome. The prelate was obliged to make his concessions before he could be restored to favour. He was a liberal benefactor to the university of Oxford, and was the founder of the college of All-Souls, one of the noblest foundations in the university. He likewise displayed much munificence by contributing large sums in adorning and improving the cathedral at Canterbury, and for building Croydon church, and the bridge at Rochester. This prelate, who was greatly respected, died in 1443, and was buried in a monument which he had himself erected in Canterbury cathedral.

CHICINCE, in *Geography*, a town of Lithuania; 8 miles N. of Rohaczow.

CHICK *Pea*, in *Botany*. See *CICER*.

CHICKAHOMINY, in *Geography*, a small navigable river of America, in Virginia. At its mouth in James river, 37 miles from Point Comfort, in Chesapeake bay, is a bar, which has only 12 feet water at common flood-time. Vessels of six tons burden may go 32 miles up the river.

CHICKAMACOMICO, a creek of America, in the state of Maryland, and county of Dorchester, which runs southerly between the towns of Middle-town and Vienna, and discharges itself into Fishing bay.

CHICKAMAGES, a denomination given to part of the Cherokee nation of Indians in America, which occupies five villages on the Tennessee river. See *CHICKAMOGGA*.

CHICKASAW, an American creek, which falls from the East into the Wabash, a little below fort St. Vincent. —Also, a river which discharges itself into the Mississippi, on the east side, 104 miles N. from the mouth of Margot and 67 S.W. of Mine-au-fer. The lands here are excellent, and covered with a variety of useful timber, canes, &c. This river may be ascended, during high floods, upwards of 30 miles, with boats of several tons burden.

CHICKASAW *Bluff* lies on the eastern bank of the Mississippi, within the territories of the United States, in N. lat. 35° . In 1795, the Spaniards suddenly built a strong fort in this place; but it was given up by a treaty of 1796.

CHICKASAWS, a famous nation of Indians, who inhabit the country on the east side of the Mississippi, on the head branches of the Tombigbee, Mobile, and Yazoo rivers, in the N.W. corner of the state of Georgia, and N. of the country of the Chactaws. This territory is an extensive plain, tolerably well watered from springs, and of a pretty good soil. They have seven towns, the central one of which is in N. lat. $34^{\circ} 23'$. W. long. $89^{\circ} 30'$. The number of persons, formerly occupying this district, was reckoned to be 1725; and of these 575 are said to have been warriors.

CHICKEN,

CHICKEN, in *Ornithology*, the young of the gallinaceous order of birds, and especially of the common hen. Chickens require no meat for two days after they are hatched: and they are first fed with small oat meal, dry or steeped in milk, and the crumbs of white bread: and as they acquire strength, with curds, cheese-parings, &c. Green chives chopped with their food will preserve them from the rye, and other diseases of the head: and care should be taken to furnish them with a proper supply of clean water. In order to have fat crammed chickens, they should be cooped up when the hen forsakes them, and fed with wheat-meal mixed with milk, and made into a paste: this diet will fatten them in about a fortnight. See **COCK**, **FOWL**, and **HATCHING**.

CHICKEN-POX, in *Medicine*. See **VARICELLA**.

CHICKWEED, in *Botany*. See **ALSINE** and **ARENARIA**.

CHICKWEED, *Bastard*. See **BUFONIA**.

CHICKWEED, *Water*. See **CALLITRICHE**.

CHICLANA, in *Geography*, a town of Spain, in the province of La Mancha; 22 miles N. of Ubeda.

CHICOCKA, in *Mythology*, an idol of the African negroes, supposed to be the guardian of the dead. His statue, composed of wood, is erected near their burial-places.

CHICOMUZELO, in *Geography*, a town of Mexico, in the province of Chiapa; remarkable for a cave which has a narrow entrance, but is spacious within, having a stagnant lake, of clear water, two fathoms deep towards the banks.

CHICOMXEN, a town of America, in the state of Maryland; 38 miles S.S.W. of Annapolis.

CHICORACEOUS, in *Botany*. M. Vaillant divides plants with composite flowers into three classes or families; the *cynarocephalous*, the *corymbiferous*, and the *chicoraceous*.

CHICOREE, in *Conchology*, the name given by the French collectors to a variety of shells which are furnished with foliated processes, as in the *Murex ramosus* of Linnæus. The collectors in this country distinguish the same kind of shells by the general appellation of *endives*, which literally have the same meaning as the French *chicorée*. With scientific collectors such indefinite terms are not however adopted, as shells of very different genera are comprehended under this title, although the greater number of them are murices.

CHICOVA, in *Geography*, a kingdom or district of Africa, having on the north, Butua; on the west, Bororos; and on the south Mocaranga, called Monomotapa. This kingdom is reported by travellers to abound with silver mines. The capital of the same name is seated on the river Zambezi, which inundates the country like the Nile, except in the month of April. S. lat. 15° 40'. E. long. 29° 30'.

CHICOYNEAU, MICHEL, in *Biography*, a native of Blois, studied medicine at Montpellier, and was admitted doctor in that faculty on the 6th of October, 1652. In 1659, on the death of James Durant, he succeeded to the professorship of medicine; to this post was soon afterwards added, those of anatomy and botany, with the superintendence of the royal botanical garden, much to the regret of his brethren, who were sufficiently mortified, Astruc relates, to find a young man occupying such important posts, which had hitherto been bestowed as rewards for age and merit. Their opposition however did not prevent his being soon after made chancellor and counsellor of state. Knowing the enmity of his opponents he was careful, by diligence in the discharge of his duties, to render their efforts to get him dispossessed of his offices, ineffectual. Chicoyneau became blind towards the latter part of his life, which was extended to the year 1702. He had three sons, one of whom only, his second son, survived him.

CHICOYNEAU, FRANCIS, was born at Montpellier, in

1672. In March, 1693, he was made doctor in medicine, and his father had interest sufficient to procure him the reversion of the several offices he held on his death, and get him appointed his substitute, to perform the duties of them, when from loss of sight he was rendered incapable of executing them. The diligence he used in performing the duties imposed on him, and the suavity of his manners, gained him the esteem both of his colleagues and pupils. As he had distinguished himself equally as a practitioner and teacher in medicine, he was appointed one of the physicians who were sent to Marseilles, in the year 1720, to assist in putting a stop to the dreadful ravages of the plague, which in the end almost depopulated that city; M. Chirac, his father-in-law, who was first physician to the regent, having recommended him as qualified for that office. The attention and zeal he shewed in this situation, gave complete satisfaction to the inhabitants, and was rewarded on his return to Montpellier, by a pension; and in 1731, on the death of M. Chirac, he was chosen to succeed him as first physician to the king; he was also made counsellor of state, and honorary member of the Academy of Sciences. He died in 1752, being 80 years of age. In 1721 he published "Observations et Réflexions touchant la Nature, les Evénements, et le Traitement de la Peste de Marseilles," 12mo. It was the joint work of himself, and Messrs. Verny and Deidier, who had been joined with him in the commission. Its principal trait is the opinion contained in it, that the plague is not contagious. Influenced by that opinion they had boldly entered the apartments of the diseased, and fortunately escaped infection; but the confidence thence inspired, probably contributed in spreading the disease, and making it more general, by inducing the inhabitants to neglect separating the sick from the healthy. Having received orders from the king to collect the opinions of different physicians on the plague, and particularly all the facts and observations that had been published on the subject of the plague at Marseilles, he published his collection under the title of "Traite des Causes, des Accidens, et de la Cure de la Peste, avec un recueil d'observations, et un détail circonstancié des précautions qu'on a prises pour le souvenir aux besoins des peuples affligés de cette maladie, ou pour le prévenir dans les lieux qui en font menaces." Paris, 1744, 4to. This work is drawn up with candour, and is valuable from the number of useful facts contained. His son,

CHICOYNEAU, AIME FRANÇOIS, born in 1699, was made doctor in medicine at Montpellier in 1722. After receiving the rudiments of his education under his father, he went to Paris, and was farther instructed by his grandfather, Chirac, Du Verney, Winslow, and Vaillant. Returning to Montpellier, he was first made demonstrator in botany, an office he filled with such credit, that he obtained the reversion of the places occupied by his father, and supplied his place when he was at Marseilles, and afterwards, on his being appointed physician to the king. As he was particularly attached to botany, which he cultivated with zeal, he set himself with diligence to repair and almost renew the botanical garden, which had been founded by Henry IV. His father having procured him the office of counsellor in the court of aids, he applied himself to the study of the law, and with such success that he was soon enabled to discourse on the subjects which came before him in that department as readily as on those in medicine. He was an elegant Latin scholar, and his orations were admired for the purity of the language, as well as for their neatness and peripatuity. But all these good qualities were soon lost to the world, as he died in 1740, aged only 38 years. Haller's Bib. Eloy. Dict. Hist. Gen. Biog.

CHICQUERA,

CHICQUERA, in *Ornithology*. See *FALCO Chiquera*.

CHICUALTI, the name of a kind of snipe found in the mountainous parts of India; the exact species is not distinctly known: perhaps the same with the *Noctua canora* of Nierenberg, the Indian name of which according to that author is Chicuatli. Its beak, he says, is long, black, and slender; its head is marked with undulated streaks of yellow near the eyes; the breast and belly of a whitish colour, and the throat with some black feathers intermixed with white ones; the back variegated with black, yellow, and grey. This bird is found principally among the mountains, where it generally runs on the ground. It is easily bred in cages, and feeds indiscriminately on various kinds of food.

CHIDNEI, in *Ancient Geography*, the name of an ancient people who inhabited the vicinity of the Euxine sea.

CHIDRIA, a place in the Thracian Chersonesus, whither some of the Athenians, after the defeat at Ægos-Potamos, made their escape.

CHIEF, a term denoting head, or a principal thing or person. The word is formed of the French, *chef*, head.

We say the *chief* of a party; the *chief* of a family, &c.

Agamemnon was the *chief* of the Greeks who besieged Troy. The Romans sometimes refused triumphs to their victorious general, because the conduct of the *chief* was not answerable to his success. The abbots that are *chiefs* of their order are all regular; and it is there the general chapters are held.

CHIEF baron. See BARONS and COURT of *exchequer*.

CHIEF, in *Heraldry*, is the upper part of the escutcheon, reaching quite across, from side to side.

The arms of France are three golden fleurs de lys, in a field azure; two in *chief* and one in point.

CHIEF is more particularly used for one of the honourable ordinaries, drawn horizontally across the face of the shield, and containing the uppermost third part of the escutcheon. *Plate, Heraldry*. When the escutcheon is cut in stone, or in relief, the chief stands out prominent beyond the rest; and is supposed to represent the diadem of the ancient kings and prelates; or the casque of the knights.

It is frequently without any ornament; sometimes it is charged with other bearings; sometimes it is of a colour of metal different from that of the coat.

The line that bounds it at the bottom is sometimes straight, sometimes indented, engrailed, embattled, lozenged, &c. Thus, say they, the field is gules, a *chief* argent, &c. Again, he bears, gules, a *chief* crenelle, or embattled, argent.

Sometimes one chief is borne on another; expressed by a line drawn along the upper part of the chief; when the line is along the under part, it is called a fillet. The first is an addition of honour, the second a diminution.

The chief is said to be *abased*, when it is detached from the upper edge of the coat, by the colour of the field which is over it; and which retrenches from it one-third of its height. We also say a chief is *chevroned*, *paled*, or *bended*, when it has a chevron, pale, or bend, contiguous to it, and of the same colour with itself. A chief is said to be *supported*, when the two thirds at top are of the colour of the field, and that at bottom of a different colour.

CHIEF, *in*. By this is understood any thing borne in the chief part, or top of the escutcheon.

CHIEF justice, in *Law*. See JUSTICE.

CHIEF justiciary of England. See JUSTICIARY.

CHIEF lord, denotes the feudal lord, or lord of an honour, on whom others depend.

CHIEF, holding in, or tenants in. See CAPITE and TENURE.

CHIEF pledge, is the same as *headborough*, which see.

CHIEF point. See POINT.

CHIEF rents, *Reditus capitales*, in *Law*, denote the rents of freeholders of manors; called also *quit rents*, *quieti reditus*, because by them the tenant gets quit and free of all other services. See *QUIT-rents* and *RENTS*.

CHIEFTAIN, the chief leader, or general of an army; or the like.

CHIELEFA, in *Geography*, a town of European Turkey, in the Morea, near the gulf of Coron. It was taken by the Venetians in the year 1685.

CHIEELSEVISCH, in *Ichthyology*, one of the names under which Renard describes the *chadon dux*, which see.

CHIEM-SEE, in *Geography*, a lake of Germany, in upper Bavaria, about 14 miles long and 5 broad; sometimes styled the sea of Bavaria. It contains several islands, particularly Herrenward and Frawenward; the former being the see of a bishop, suffragan of Saltzburg, founded in the 17th century.

CHIEN DE MOUSQUET. See the article SERPENTIN.

CHIEN-VOLANT, in *Zoology*, the name under which Daubenton describes the great ternate bat, *vespertilio vampyrus*, which see.

CHIENG TUENDEN, the Persian name of the rhinoceros, according to Pietro della Valle.

CHIENTO, in *Geography*, a river of Italy, in the Ecclesiastical State, which runs into the Adriatic, between Fermo and Recanati.

CHIERI, a town of Piedmont, seated on the declivity of a hill, in a pleasant country, where the air is soft and salubrious: the hills on the north and east are covered with vines, and those on the west and south present to view fruit-trees of various kinds: the land is fertile, and the inhabitants are industrious, and employed in manufactures of cloth and silk. The ancient name of this town was "Cherium," or "Carium;" and by the French it is called "Quiers." Frederic Barbarossa destroyed it by fire in 1154, but it was soon after rebuilt. It is encompassed by an ancient wall, defended by towers, with a fosse; and formerly had a fortress, called "Rochetta," which was demolished in the 16th century. It has six gates, and four grand squares or palaces, many churches, and religious houses, though it has only two parishes within the walls, and one without: 6 miles E. of Turin. N. lat. 44° 45'. E. long. 7° 39'.

CHIEERS, LA, a river of France, which runs into the Meuse, between Mouzon and Sedan.

CHIESA, LA, a river of Italy, which runs into the Oglio at Caneto, in the Mantuan territory.

CHIETI, a city of Naples, and capital of the province of Abruzzo Citra, the see of an archbishop, erected by pope Clement VII.; 75 miles E.N.E. of Rome. N. lat. 43° 22'. E. long. 14°.

CHIETTA, LA, a town of France, in the department of the Jura and district of Orgelat; 11 miles N.E. of it.

CHIEVRES, a town of France, in the department of Jemappe, and chief place of a canton, in the district of Mons. The place contains 2083, and the canton 12,520 inhabitants: the territory includes 130 kilometres and 21 communes.

CHIEUTI, a town of Naples, in the province of Capitanata: 13 miles S.S.E. of Termola.

CHIFFIR, or CHIFIR, according to Libavius, in the preparation of the philosopher's stone, is called *lapis animalis*, as the mineral is called *chaos minerale*. Johnson says, that the *chifir minerale* is by some interpreted *gold*, but that he rather takes it to be any sulphur of the metalline kind.

CHIFFLET,

CHIFFLET, JOHN JAMES, in *Biography*, equally celebrated for his political and for his medical lucubrations, was born at Befançon, the 12th of January, 1588. Having received such education as his native city could afford him, and been introduced to the study of medicine by his father, who was in high reputation there, he went to Paris, and, in succession, to Montpellier, Padua, and other of the principal schools, diligently attending the lectures of the professors in the different branches of medicine. In 1614 he returned to Befançon, and was appointed physician and counsellor to the city, in the place of his father, now far advanced in years. His reputation increasing, he was sent on an important mission to the arch-duchess Isabella-Clara-Eugenia, governess of the Low Countries, and performed his commission with so much skill, as to attach that princess to him, who retained him as her physician in ordinary. Some time after, he was sent by his mistress to Philip IV. of Spain, who made him his physician, and engaged him to write the History of the Order of the Golden Fleece. He also wrote the History and Antiquities of Befançon, which was published at Lyons in 1618, 4to.; but the work which has been most noticed, was his *Vindiciæ Hispanicæ*, in which he attempts to prove that the race of Hugh Capet does not descend in the male line from Charlemagne, and that the female branch of the house of Austria precedes it. This work gave great offence; the rather, that Chifflet, being a Frenchman, should set up the house of Austria before that of his native sovereign. He was answered by Blondel, Le Tanneur, and other writers, who treated him with great asperity, which he was not backward in returning. Quitting Spain, he was appointed physician to Cardinal Ferdinand, who had succeeded Isabella as governor of the Low Countries in 1633. He enjoyed the same post under the arch-duke Leopold, and his successor, and died there in 1660, aged 72 years. He wrote also *dé Ampulla Remeuri*, laughing at the fable of the holy vase of oil, used in the coronation of the kings of France, and published a collection of treaties of peace between France and Spain. His writings, in this way, were collected and published at Antwerp, in folio, in 1659. His principal works in medicine were, "*Singulares ex curationibus et cadaverum sectionibus observationes*. Paris, 8vo. 1611." He supposes many diseases to be produced by the influence of the stars. There are nevertheless some useful and valuable observations in this volume. "*Pulvis febrifugus orbis Americani ventilatus*. Lorrain, 1653, 4to." Intermitents that had been stopped by taking the Peruvian bark, frequently, he says, return, and with increased violence: he therefore dissuades from using it. He had three sons, an uncle, and three brothers, who were all writers, and distinguished for learning and abilities. Haller, Bib. Med. General Biog.

CHIFFRER, French, in *Musée*, to figure a base, to indicate the chords in thorough base, and point out the harmony of a composition to an accompaniment on a harp, lute, or keyed instrument.

CHIFUNG, among the Chinese, the name of an herb found about Canton, by which the sailors pretend to know how many storms will happen every year. This they compute from the number of knots or joints; and from the distances of the knots from the root, they determine what month the storms will fall in.

CHIGGARON, in *Geography*, a river of Asia, which rises in Persia, and runs into the Caspian sea, a little to the north of Amol.

CHIGGRE, a small narrow valley of Africa, in the desert of Nubia, closely covered up and surrounded with barren and pointed rocks. The wells in this valley are ten in
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number; and the narrow gorge which opens to them is not ten yards broad. The springs, however, are very abundant, and furnish a grateful supply to those who travel in this dreary and sandy desert, where they are found. Whenever a pit is dug five or six feet, it is immediately filled with water. The principal pool is about forty yards square, and five feet deep; but the best tasted water issues from the cleft of a rock, about thirty yards higher, on the west side of the narrow outlet. This valley is the haunt of the wandering Arabs; particularly of the Bihareen of the tribe of Abou Bertran, who, though they do not make it a station, because there is no pasture in the neighbourhood, yet find it one of the most valuable places of refreshment, on account of its great quantity of water; being also nearly half way, when they drive their cattle from the borders of the Red sea to the banks of the Nile; as well as in their expeditions from south to north, when they leave their encampments in Barbary to rob the Ababbé Arabs on the frontiers of Egypt. N. lat. 20° 58' 30". E. long. 34° 30'.

CHIGNAC, *Saint-Pierre de*, a town of France, in the department of the Dordogne, and chief place of a canton, in the district of Périgueux. The place contains 536, and the canton 8547 inhabitants: the territory includes 242½ kilometres and 16 communes.

CHIGNECTO, a town of Nova Scotia, on the coast of the bay of Fundy.

CHIGNECTO Channel, the north-western arm of the bay of Fundy, into which Petitcodiac river falls. The spring tides rise here 60 feet.

CHIGY-sur-Vame, a town of France, in the department of the Yonac; 2½ leagues E.S.E. of Sens.

CHICHEMECOMET, or CHICK-MINOCK-CUMINOCK, an island on the coast of North Carolina, between Roanoke island and the northern entrance into Pamlico sound.

CHI-HING, a town of China of the third rank, in the province of Quang-tong; 6 leagues S.W. of Nanyong.

CHIHOOEKI, an Indian nation confederate with the Lenopi or Delawares, who inhabited the western banks of Delaware river, anciently called by their name. Their southern boundary was Duck creek, in Newcastle county.

CHIKAGO, a river that discharges itself into the S.W. end of lake Michigan, where a fort formerly stood. Here the Indians have ceded to the United States, by the treaty of Greenville, a tract of land six miles square.

CHILACOTHAC, a town of America, in the territory N.W. of the Ohio, beautifully seated on the Scioto river, about 40 miles from its junction with the Ohio. This town, though it began to be established about the year 1797, is already become a considerable place. Scioto used to be the most dangerous part of the western country for Indians, and travellers passed it with terror. The settlements are now wonderfully extended and scattered over the whole country.

CHILAN, or **CHILLAN**, a jurisdiction of South America in the kingdom of Chili. The capital, of the same name, is a small place, though it has the title of city; the number of families not exceeding two or three hundred, consisting mostly of Indians, as there are few Spaniards among them. Chilan is 75 miles N. of Concepcion.

CHILAPAN, a town of New Spain, in the country of the Colhuixcas. Between this and Tcoitlylan is an entire mountain of loadstone.

CHILARA, a river of Naples, which runs into the Candelaro.

CHILBLAIN, in *Surgery*, is a local disorder arising from cold. When the body is exposed to cold, it acts in a more
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CHILBLAIN.

immediate manner upon its surface, where it first excites a kind of erysipelatous inflammation of the skin, which becomes red and painful. When the operation of the cold is violent and long continued, the skin becomes pale and insensible, an uncommon degree of anxiety and languor is produced, and at last an unconquerable inclination to fall asleep; which, if the patient does not resist it with all his powers, brings on a complete asphyxia and insensibility, that finally terminates in death. Persons, who are obliged to expose themselves to extreme cold, ought, therefore, in order to avoid the impending danger, particularly to shun the immoderate use of spirituous liquors, to keep themselves constantly in motion, never stand or sit still, or rest themselves in any manner whatever; and as soon as they perceive languor and inclination to sleep come on, they should exert their strength to the utmost, in order to accelerate their motions, and preserve the circulation of blood in the extreme arteries.

As a frozen limb may be recovered and revived by warming it, the same may also be done with the whole body, when it has been apparently deprived of life by the operation of cold. In the latter case, however, it is not sufficient to warm the body, but the vital motions must also be restored. When, therefore, any of these actions still subsist in the heart and larger vessels of a body that has been frozen, they communicate themselves, as soon as the body is warmed, to the other parts of the system, and the patient is restored to life. But when all the vital actions have entirely ceased, and the blood in the heart itself is congealed, the body may indeed be thawed, but scarcely restored to life. And as this circumstance can never be foreseen, by the surgeon, he ought never to omit trying every possible means for restoring the patient's life; nor should he be induced to relinquish the attempt by the long duration of the asphyxia (or state of insensibility) as frozen bodies, that have remained for four and even six days apparently lifeless, have in some instances been restored to life. See article ASPHYXIA.

It is necessary however, that the warming of a frozen body or limb should be performed in a very gradual manner. For when a limb that has only been exposed to a violent degree of cold, (without being actually frozen,) is suddenly warmed, it becomes affected with the most violent inflammation, swells to a great degree, becomes red and blue; and intolerable pungent and throbbing pains are produced in it. The consequences, when in a slighter degree, are chilblains: in a more violent degree, real inflammation, effusion of the fluids into the cellular substance, and suppuration: suppose it be in the lungs, for example, a cough and catarrh will ensue; in the fingers, paronychia or whitlow, &c. But when a limb that is actually frozen is suddenly warmed, the same symptoms appear in a more violent degree, and mortification speedily and inevitably ensues. Of a similar kind and origin are the changes that take place in the whole body of a person who suddenly goes into a very warm place after having been previously exposed to extreme cold. The skin swells and becomes red; a burning and pricking sensation is felt; red spots appear, which proceed from small extravasations of blood; languor, vertigo, syncope, hæmoptysis, anxiety, inflammation of the lungs, &c. are produced, all in consequence of the sudden relaxation of the surface of the body and lungs, and the violent influx of the fluids into the vessels of those parts. When a person frozen to death is suddenly warmed, all hopes of restoring him to life are annihilated, and putrefaction speedily ensues.

The best method of warming a frozen limb gradually is to rub it with snow, till it recovers its powers of sensation and motion; but this must be done with caution, for fear of destroying its continuity, which may easily happen when

the part is not supported by a bone, for example, the tip of the nose and ears. Or it may be sufficient to plunge the frozen part into ice-cold-water; and in order to keep the water sufficiently cold, lumps of ice should now and then be thrown into it. When the powers of sensation and motion have been completely restored, we may wash the part with cold brandy, or oil of turpentine, camphorated spirits, hartshorn drops, and such like stimulating fluids; or we may apply electrical sparks, upon which it generally soon recovers its natural warmth. When this has been done, it is very serviceable to administer some gentle diaphoretic remedy, such as warm tea or wine- whey; to lay the patient in bed in a chamber without a fire, and to let him remain there for two or three hours, till a gentle perspiration takes place.

When a frozen limb has been too suddenly warmed, and is very much swelled, painful, red, blue, nay even black, and to all appearance already gangrenous in several places; it may nevertheless sometimes still be completely restored, and all the above mentioned symptoms removed, by plunging it immediately into ice-cold water. But it must be suffered to remain in the water, till after all the symptoms have disappeared; upon which we may rub it, as above-mentioned, with brandy, &c. and gradually warm it. This treatment now and then succeeds in cases where it could scarcely have been hoped for. No benefit, however, can be expected from it, when it has been so long deferred, that mortification has already actually taken place, which must then be treated in the usual manner. See GANGRENE.

The body of a person who has been frozen must be treated in the same manner as a single member. He must be brought into a cold chamber, laid in snow, or in a vessel filled with ice-cold water, with his nose and mouth above the surface: the necessary caution should be also used, lest any frozen part might break; and in this situation he is suffered to remain till he begins to exhibit signs of life. As soon as these are observed, strong stimulants and sternutatories are to be applied to his nose; air must be blown into his mouth; tobacco-smoke should be injected into the rectum; the fauces are to be irritated with a feather, a cloth dipped in cold vinegar and camphorated spirits is to be laid over the pit of the stomach, &c. If the jaws are firmly closed, they must be rubbed with the above mentioned spirituous and stimulating remedies. When the body has thawed, and more signs of life appear, the patient must be taken out of the water, rubbed with water or brandy, less cold than the former, and brought gradually into a warmer atmosphere; gentle sudorifics are also to be administered, for example, an infusion of lemon and orange-peel with a little vinegar; and after he has been carefully wiped dry, he must be laid in bed, where he should remain till a gentle perspiration comes on. If, after he has been revived, a violent inflammatory fever comes on, it is necessary to draw blood from the arm. When the patient still remains insensible; when his face and the veins of the neck are swelled, so that an apoplexy is to be apprehended, the jugular vein must be opened. If after he has been revived, any part of the body exhibits appearances of being still frozen, continuing rigid, hard, inflexible and without sensation; we must cover or rub such part with snow, or with cloths dipped in cold water, till its powers of sensation and motion are restored; but on no account, use hot applications to it.

Chilblains are topical inflammations, which produce symptoms more or less troublesome in proportion to the violence of the inflammation. In its slighter degree, a chilblain is a swelling attended with a moderate redness of the skin, which produces a sensation of heat and itching, and after some

some time spontaneously disappears. In a more violent degree, the swelling is larger, redder, and sometimes of a dark blue colour; and the heat, itching, and pain are so violent, that the patient cannot use the part. In the third degree, small vesicles arise upon the tumour, which burst and produce an excoaration; soon becoming an ill-conditioned ulcer that sometimes penetrates as deep as the bone, discharges a thin acrid fluid, and generally proves very obstinate. In the most violent degree, the inflammation goes on to mortification, which is frequently distinguished by vesicles filled with blood that appear upon the tumour.

Chilblains seem most frequently to arise from the sudden application of heat to a part that has been exposed to cold; and, *vice versa*, from the sudden exposure of a part, that has previously been heated, to the cold. Hence they frequently appear upon those parts which are most exposed to sudden transitions from one degree of temperature to another; for example, the nose, ears, lips, hands, and feet. They are more certainly produced, when the part which is suddenly exposed to cold is not only warm, but at the same time moist and sweating. Sometimes appearances much resembling chilblains, are left behind in limbs that, after having been frozen, have been restored to sensation and motion; especially if they have not been treated with proper caution. Chilblains are more apt to be produced, the more sensible and tender the skin is, and the less it is used to the cold: hence the people most frequently afflicted with them are children, young persons, women, those who have been bred up in a delicate manner, and are used to keep themselves unnaturally warm; or those who avoid exposure to the free air, and sweat much on the feet. But even when none of these causes are present, some weakly persons are extremely subject to chilblains, and in them their production seems to be favoured by some peculiar morbid predisposition.

Chilblains almost always make their appearance in the winter. During the summer they disappear, but return the succeeding winter. Some persons are attacked with them in the autumn, and some not till the spring. With some they continue only a few weeks, with others during the whole winter. When they are violent, they frequently deprive the patient of the use of the affected limb; and even excite a fever, by which the patient is confined to his bed. Suppurating chilblains frequently penetrate to the bone, and produce caries, and sometimes death. Suppurating chilblains are (from long habit) converted into a kind of issues; nature thus accustoms herself to the discharge and irritation, which at length are supposed to be necessary to health.

The most certain means of guarding against chilblains, consists in using the skin to a moderate degree of friction, and hardening it; in not exposing oneself to heated rooms, or keeping the body too warm; in adapting the quantity and kind of cloathing to the state of constitution, so as to avoid extremes, either in summer or winter; in washing the body frequently with cold water; in using oneself to regular exercise in the open air, even in all weathers; and in taking especial care not to go suddenly into a warm chamber, or very near the fire, out of the cold atmosphere.

A chilblain, in the first and second degrees, is a pure topical inflammation; which, however, cannot be removed by the general antiphlogistic remedies, but requires means adapted to its peculiar nature. Amongst the various remedies of this kind, there is none which always proves successful: one remedy cures one patient, another remedy succeeds with another. In relaxed and feeble habits, spirituous applications are generally serviceable; and in rigid constitutions oily and emollient substances. All these remedies, indeed, only re-

move the chilblains for the time, and do not prevent their return the ensuing winter. When the inflammation is so violent as to excite feverish symptoms, the application of leeches and internal antiphlogistic medicines are often necessary; but leeches applied to the affected part are particularly serviceable in such cases.

One of the most effectual remedies against chilblains in the milder degrees, is water reduced to the freezing point of temperature. The affected part should be dipped in it several times in the day, and kept there till the heat and itching abate, or the chilblain entirely disappears. After the part has been bathed in this manner, it should be well dried by rubbing it with a coarse cloth; then covered with leather or flannel, or a diachylon plaster, and carefully guarded against the external air. Instead of water, we may also use snow, with which the affected limb should likewise be rubbed for some minutes several times in the day, till the chilblain disappears. With some persons, who are not used to exposure to the cold, who have very irritable skins, or who are much inclined to cough and colic pains, the application of cold water and snow does not agree, and with some it even increases the inflammation; so that we must be guided in a certain measure by its effects. Exposing the part affected to an extreme heat and actually scorching it, has now and then proved efficacious; but it is too painful to be prudently adopted, as a general practice.

In one case, in which the pains were not relieved by the application of cold water, (see Richter's Chirurg. Bibliothek.) Mr. Schneider used a bath of quick-lime, in which the patient was directed to hold his hands for the space of half an hour every morning and evening; after which the ulcerated hands and fingers were dressed with an ointment, consisting of *sev. cervin. ol. laur. & ol. terebinth.* spread upon linen. As soon as the mortified part had separated, and the remaining ulcer was clean and sensible, he dressed it with Goulard's cerate, till the cure was completely accomplished. The bath was prepared by plunging a piece of quick-lime, about the size of a man's fist, into four quarts of boiling water, and stirring it till the water was reduced to a lukewarm temperature.

In some cases, *ol. petræ. ol. terebinth. butter of cacao, sev. cervin. bals. Peruvian. bals. capaiva*, either alone or mixed with the yolk of eggs; a cataplasm of rotten apples, or bruised house-leek, or fresh turnips bruised with eggs and myrrh; or an ointment of hog's lard, olive oil, yellow wax, and pitch melted together; or frozen turnips, scraped and fried with linseed oil; or squill's applied with hot oil or soft turpentine, &c. have been found very serviceable. These remedies are partly applied fresh twice a day, and partly rubbed into the affected limb, if it be not ulcerated.

In other cases, strengthening and astringent remedies prove more serviceable; and in Germany it is common to employ Theden's vulnerary wash, which is particularly serviceable when the chilblains swell as the frost sets in. This remedy is applied cold to the part, which is kept for some days constantly moistened with it. Persons who are subject to annual attacks of chilblains, may guard themselves against them by washing their feet and hands every morning and evening, during the autumn, with this mixture; only it is said to be inadmissible with those who have arthritic tumours upon their limbs, as these might thereby be repelled. It has also been recommended to wash the chilblains with water boiled with flour and mustard-seed; also with marine acid, diluted in water; with hot salt water; spirits of wine, or soap liniment; the fumes of hot vinegar, a decoction of turnip peel in water with a sixth part vinegar: the lower orders of people employ hot urine, either alone or with lime-water,

&c. These remedies are to be applied to the affected part several times in the day: after they have been used, the part must always be well dried, and guarded against the external air, by means of gloves, or socks of thin leather, worited, or flannel. Sometimes all these remedies are of no service, unless the patient abstains from using the affected limb.

For the cure of suppurating chilblains, an appropriate strengthening regimen, and a course of medicines, will be generally required. See **ULCER** and **GANGRENE**.

CHILBY, in *Ichthyology*, sometimes *schilby*, the Arabian name of a fish found in the Nile, which is figured and described by Sonnini in his Travels in Upper Egypt. This is a fish of the silure genus, *Silurus mytus* of Forskal; *Silurus mylus*, pinna *falut unica*, radiis *sex*, *cirrhis octo*, Artedi and Linn. Hasselquist also describes it. Sonnini observes, that it is not such bad eating as some other fishes of the Nile. This writer has nothing to add to the Linnæan description above quoted, and for which Linnæus was indebted to Hasselquist, except that the upper jaw of the chilby has two rows of little sharp-hooked teeth; that the lower jaw has but one row of those recurved teeth; and that it is all over of a pretty uniform blackish grey colour, deeper above the lateral line than below, with a few tinges of red on the nose, and at the base of the pectoral, anal, and caudal fins; and lastly, that the iris of the eye is of a golden colour. See **SILURUS mylus**.

CHILCA, in *Geography*, a town of South America, in the vice-royalty of Peru, archbishopric of Lima, and jurisdiction of Canete, is situated about 10 leagues from Lima, and celebrated for its saltpetre, of which gunpowder is made in that city. It has also a good fishery, together with plenty of fruits, pulse, and poultry, which supply a large trade between the jurisdiction of Canete and the capital. S. lat. 12° 31'. W. long. 76° 5'.

CHILCANAUTHLI, in *Ornithology*, the Mexican name of the St. Domingo teal, *anas dominica*: called also *colcanaubtli*.

CHILD, a word of Saxon origin, meaning the young offspring of the human species, and expressing relation to parent.

We say **NATURAL** child, **LEGITIMATE** child, **PUTATIVE** child, **BASTARD** child, **ADOPTIVE** child, **POSTHUMOUS** child, &c.

Dr. Derham computes, that marriages, one with another, produce four children, not only in England, but in other parts also. See **MARRIAGE**.

It is well known that children, for some time after they are born, see but very imperfectly; and M. Petit, (Ac. Paris, 1727. H. p. 14.) after taking a great deal of pains to investigate the cause of it, found it to be owing in part to the thickness of their cornea, and the small quantity of their aqueous humour. Not that the mere thickness of the cornea could have this effect; but because the thickness is owing to its not being well stretched, and consequently, having wrinkles and inequalities on its surface, which occasion an irregular refraction of the light. On the same account also the cornea has not a sufficient degree of convexity to bring the pencils of rays to a focus soon enough. All these defects, he shews, are remedied by the increase of the aqueous humour. M. Petit ascribes this imperfection of sight in infants to their eyes being compressed by the fluid in which they are immersed in the womb. He also gratified his curiosity by inquiring into this circumstance respecting various new-born animals, as dogs, cats, rabbits, calves, and hogs; and he found in all of them that the cornea was thick and flaccid, and the aqueous humour not sufficiently copious. It is possible, that, besides the small quantity,

and want of transparency, which some writers also mention in the aqueous humour, vision in new-born infants may be obstructed by the remains of the *membrana pupillaris*, which is a production of the *uvea*, and closes the pupil in the fœtus.

Dr. Jurin observes, (see Essay upon Distinct and Indistinct Vision), that in children the pupil is usually more dilated than in grown persons. This is easily seen; for in grown persons the pupil seldom appears equal to the breadth of the ring of the uvea on either side of it; that is, is seldom equal to one-third of the breadth of the cornea, and is often much less, especially in a good light. But in children the diameter of the pupil scarcely ever appears so little as one-third of the breadth of the cornea, and often exceeds half that breadth. The reason of this, Dr. Jurin apprehends to be, that in children the cornea is extremely flexible, so as to be very easily bent by its muscular ring into any curvature that is necessary for seeing distinctly in reading, and consequently, their pupil has less occasion to contract for distinct vision. Children can read at a much nearer distance than grown persons; for which two reasons are assigned; viz. that their eyes are smaller, and the least distance at which any eye can see distinctly is proportional to the length of the eye; and also their cornea, being very flexible, is easily accommodated to a less distance; and at a less distance the print appears larger, and is more easily read than at a greater.

Bartholine, Paré, Licetus, and many other writers, give an account of a *petrified child*, which has seemed wholly incredible to some people. The child, however, which they describe, is still in being, and is kept as a great rarity in the king of Denmark's museum at Copenhagen. The woman who went big with this, lived at Sens in Champagne in the year 1582; it was cut out of her belly, and was universally supposed to have lain there about twenty years. That it is a real human *fœtus*, and not artificial, is evident to the eye of any observer; and the upper part of it, when examined, is found to be of a substance resembling the gypsum or stone of which they make the plaster of Paris; the lower part is much harder; the thighs and buttocks being perfect stone, of a reddish colour, and as hard as common quarry-stone: the grain and surface of this part appear exactly like that of the calculi, or stones taken out of human bladders: and the whole substance examined ever so nearly, and felt ever so carefully, appears to be absolute stone. It was carried from Sens to Paris, and there purchased by a goldsmith of Venice; and Frederick III., king of Denmark, purchased it at Venice of this man for a very large sum, and added it to his collection of rarities. See Dr. Priestley's Hist. of Vision, &c. 4to. p. 187. Phil. Trans. N° 285. p. 1400. See **INFANTS**.

Child, as we have already observed, is a term that denotes relation to a parent; and this relation devolves on children corresponding duties. There is an interval of eight or nine years, between the dawning and maturity of reason, in which it is necessary to subject the inclination of children to many restraints, and direct their application to many employments, of the tendency and use of which they cannot judge: for which cause, the submission of children during this period must be ready and implicit, with an exception, however, of any manifest crime which may be commanded them. After they have attained to manhood, if they continue in their father's family, they are bound, beside the general duty of gratitude to their parents, to observe such regulations of the family as the father shall appoint; contribute their labour to its support, if required; and confine themselves to such expences as he shall allow.

After

After children have attained to manhood, and have left their father's family, their duty to parents is simply that of gratitude; in kind not different from that which we owe to any other benefactor, but in degree so much exceeding other obligations, as a parent has been a greater benefactor than any other friend. The services and attentions, by which filial gratitude may be testified, cannot be distinctly enumerated. It will shew itself in compliances with the will of parents, however contrary to the child's own taste or judgment, provided it be neither criminal nor totally inconsistent with his happiness: in a constant endeavour to promote their enjoyments, prevent their wishes, and soften their anxieties, in small matters, as well as in great; in assisting them in their business; in contributing to their support, ease, or better accommodation, when their circumstances require it; in affording them our company, in preference to more amusing engagements; in waiting upon their sickness or decrepitude; in bearing with the infirmities of their health or temper, with the peevishness and complaints, the unfashionable, negligent, austere manner, and offensive habits, which often attend upon advanced years: for where must old age find indulgences, if it do not meet with it in the piety and partiality of children? In all contests between parents and children, and more especially those that occur in relation to marriage, or the choice of a profession or business, it is the parent's duty to represent to the child the consequences of his choice and conduct; and this should be done with fidelity, moderation, and candour. Parents, however, are forbidden to interfere, where a trust is reposed personally in the son; and where, consequently, the son was expected, and by virtue of that expectation is obliged, to pursue his own judgment, and not that of any other; as is the case with judicial magistrates in the execution of their office; with members of the legislature in their votes; and with electors, where preference is to be given to certain prescribed qualifications. In these and similar cases the son may assist his own judgment by the opinion and advice of his father; but his own judgment ought finally to determine his conduct.

The duties of children to their parents arises from a principle of natural justice and retribution. For to those, who gave us existence, we naturally owe subjection and obedience during our minority, and honour and reverence ever after: they, who protected the weakness of our infancy, are entitled to our protection in the infirmity of their age; they who by sustenance and education have enabled their offspring to prosper, ought in return to be supported by that offspring, in case they need assistance. The Athenian laws carried this principle into practice with a scrupulous kind of nicety; obliging all children to provide for their father, when fallen into poverty: with an exception to spurious children, to those whose chastity had been prostituted by consent of the father, and to those whom he had not put in any way of gaining a livelihood. Our laws agree with those of Athens with regard to the first only of these particulars, the case of spurious issue. In other cases the law does not hold the tie of nature to be dissolved by any misbehaviour of the parent; and, therefore, the child is equally justifiable in defending the person, or maintaining the cause or suit of a bad parent as a good one; and is equally compellable, (stat. 43 Eliz. c. 2.) if of sufficient ability, to maintain and provide for a wicked and unnatural progenitor, as for one who has shewn the greatest tenderness and parental piety.

The duty of children to their parents was thought worthy to be made the subject of one of the ten commandments; and, as such, is recognized by Christ, together with the rest of the moral precepts of the decalogue, in various places of the gospel. The same divine teacher's sentiments concern-

ing the relief of indigent parents appear sufficiently from that manly and deserved indignation, with which he reprehended the wretched casuistry of the Jewish expositors, who, under the name of a tradition, had contrived a method of evading this duty, by converting, or pretending to convert, to the treasury of the temple, so much of their property, as their distressed parent might be entitled by their law to demand.

Obedience to parents is enjoined by St. Paul to the Ephesians (ch. vi. 1.), and also to the Colossians (ch. iii. 20.) upon two principles, the distinct statement of which shews that moral rectitude and conformity to the divine will were, in his apprehension, the same. By the Jewish law, disobedience to parents was, in some extreme cases, capital. Deut. xxi. 18. Paley's Principles of Moral, &c. Philosophy, vol. i. ch. 11. Blackst. Comm. vol. i. p. 453, &c. See PARENT. See also EDUCATION.

CHILD, DR. WILLIAM, in *Biography*, according to Ant. Wood, was a native of Bristol, and disciple of Elway Bevin. In 1631, being then of Christ-church College, Oxford, he took his degree of bachelor in music; and, in 1636, was appointed one of the organists of St. George's Chapel at Windsor, in the room of Dr John Munday, and soon after one of the organists of the Royal Chapel at Whitehall. After the restoration he was appointed chanter of the King's Chapel, and one of the chamber musicians to Charles II. In 1663, the university of Oxford conferred on him the degree of doctor in music, at an act celebrated in St. Mary's church. Dr. Child, after having been organist of Windsor chapel 65 years, died in that town, 1697, at 90 years of age. In the inscription on his grave-stone, in the same chapel, it is recorded that he paved the body of that choir at his own expence; he likewise gave 20*l.* towards building the town-hall at Windsor, and 50*l.* to the corporation to be disposed of in charitable uses, at their discretion.

The following epitaph is also on his grave-stone in St. George's chapel:

Go happy soul, and in thy seat above
Sing endless hymns of thy great Maker's love.
How fit in heavenly songs to bear a part!
Before well practis'd in the sacred art;
Whilst hearing us, sometimes the choir divine,
Will sure descend, and in our consort join;
So much the music thou to us hast given,
Has made our earth to represent their heaven.

His works are "Psalms for Three Voices," &c. with a continued base either for the organ or theorbo, composed after the Italian way, London, 1639. "Catches, Rounds, and Canons," published in Hilton's "Catch that Catch can," 1652. "Divine Anthems and Compositions to several Pieces of Poetry," some of which were written by Dr. Thomas Pierce of Oxford. Some of his secular compositions likewise appeared in a book entitled "Court Ayres," printed 1655, which will be mentioned hereafter. But his principal productions are his services and full anthems, printed in Dr. Boyce's collection. His service in E minor has something more varied and interesting, in the modulation, than there is in most of his other works; and in his celebrated service in D major, there is a glow of rich harmony, which, without any great compass of genius or science, is extremely pleasing, the more so, perhaps, from being composed in a key which is more perfectly in tune than most others on the organ. His full anthems are not without imagination and fire, p. 97, (Boyce. vol. ii.) "and upon our solemn feast-day, &c." the modulation and contrivance are admirable to the end of the anthem. His style was so remarkably easy and natural, compared with that to which choirmen had been accustomed, that it was frequently treated by them with derision.

rision. Indeed, his modulation, at present, is so nearly modern, as not to produce that solemn, and, seemingly, new effect on our ears, which we now experience from the productions of the sixteenth century.

There are several inedited and valuable compositions by Dr. Child preserved in Dr. Tudway's manuscript "Collection of English Church Music," Brit. Museum.

CHILD-birth, the act of bearing a child. See **BIRTH** and **LABOUR**.

CHILD-wit, a power to take a fine of a bond-woman unlawfully gotten with child; that is, without consent of her lord. Every reputed father of a base child, got within the manor of Writtel in Essex, pays to the lord, for a fine, 3s. 4d. where it seems, *child-wit* extends to free, as well as bond-women.—*Quicumque fecerit child-wit, archiepiscopus aut totam, aut dimidiam emendationis partem habebit, quietum esse de child-wit.* Du-Cange.

CHIDERMASS Day, called also *Innocents' Day*, an anniversary feast of the church, held on the 28th of December, in memory of the children of Bethlehem, massacred by the order of Herod.

CHILDREN, Charity. See **CHARITY-school** and **HOSPITAL**.

CHILDREN, exposing of. See **EXPOSING**.

CHILDREN, naming of. See **NAME**.

CHILDREN, overlaying of. This is a misfortune which frequently happens; to prevent which, the Florentines have contrived an instrument called *arcutio*.

CHILHOOEE, in *Geography*, a town of America, in the Tennessee government; 25 miles S. of Knoxville.

CHILI, an extensive, rich, and fertile country of South America, reaching from the frontiers of Peru to the straits of Magellan, terminating towards the east partly on the frontiers of Paraguay, from which it is separated by uninhabited deserts, and partly on the government of Buenos Ayres with the intervening pampas, or extensive and level plains, and bounded on the west by the Pacific ocean. On the north its boundary is the desert of Atacama, or Attacama (which see), extending 80 leagues between the province of the same name, being the last of Peru, and the valley of Copoyapo, or Copiapo, the first in Chili: on the east it is separated by the eastern branch of the Andes from Cuyo, in the vice-royalty of La Plata, and the savage tribes; on the south, by barren mountains and regions covered with sand and snow; and on the west, as we have already said, by the South Sea, extending from 27° nearly, the latitude of Copiapo, to 53° 30'. Its length is computed at 1260 geographical miles, and its breadth, which depends on the distance of the Andes from the ocean, is from 24° to 32° about 210 miles, from 32° to 37° 120 miles, and thence to the island or islands of Chiloe, about 300 miles. If we comprehend within its extent the Andes, Chili may be supposed to contain about 378,000 square miles. Of this extensive and interesting country little or nothing was known till about the middle of the 15th century. At that period the native Chilese were divided into 15 tribes, each of which was governed by its own chief. About the year 1450, the Inca Yupanqui, the 10th emperor, allured by the enchanting account given of this country, undertook the conquest of it, and prosecuted the enterprize with such success, that he subdued the several nations inhabiting the vallies of Copiapo, Coquimbo, and Chili; but having established his dominion in some of the northern districts, his progress farther southward was vigorously opposed by a confederacy on the part of the gallant and high-spirited inhabitants, who were determined to maintain their independence; and the Peruvian army was defeated. The Chilese, however, who were subdued, and those who remained free and independent,

pursued the same mode of life. They cultivated their lands with maize, potatoes, yucas, and other native plants; they encouraged the breed of the camel and sheep, which supplied them with flesh for food, and with wool for cloathing; and they are said to have had at this time bogs and hens, besides other beasts and birds, which belonged to their country. But though they seemed to have advanced from a pastoral to an agricultural state, their instruments of husbandry were mean and unwieldy. Their villages consisted of scattered huts; and their chiefs, who were probably raised to this dignity on account of their wealth, possessed merely a power of direction, and not of coercion. The right of property was acknowledged; the field that was cultivated belonged to him who bestowed labour on it, and descended to his children. Their looms resembled those of the Europeans, though of ruder fabric, and they were acquainted with the process of manufacturing earthen ware. From their mountains they extracted gold, silver, copper, tin, and lead; and of a mixture, like bell-metal, they formed axes and other instruments; although those in more general use were made of basalt. It has been suggested that they were acquainted with the use of iron; but this fact seems to be doubtful. They were not strangers to salt; both fossil and that produced from water by evaporation: they fixed their dyes by means of an aluminous stone, called "polauva;" they prepared thread for cords and nets from one of their plants; and they possessed canoes of different sorts. In numbers, it is said, they could express one thousand, and they had *prons* or the Peruvian *quipos*, a bundle of threads of various colours, with different knots to express contracts or events. The native Chilese, being generally of a mild character, as Molina cited by Mr. Pinkerton suggests, may probably have proceeded from the isles of Polynesia; though their colour is brown, tinged with red or copper, whereas that of the Polynesiens is generally olive. The language of the Chilese, which is said radically to differ from the *Quechua*, or Peruvian, is remarkably rich and harmonious, and from the vocabulary, formed by Molina, it is capable of expressing most natural objects, and even abstract terms. It essentially differs, however, from the other American languages, not less in its words than in its structure. The Araucans, the present possessors of nearly one half of Chili, and celebrated for their valour in resisting the progress of the Spaniards, may be considered as the genuine representatives of the ancient Chilese. The beautiful tract of country which they inhabit extends from the river Biobio north to that of Valdivia south, and is bounded on the east by the Andes, and on the west by the ocean. These people derive their name from the province Arauca, which is the smallest of their state; and they are also distinguished by the appellation of "Aucas," or freemen. Without surpassing the usual size, they are generally robust, well-formed, and of a warlike aspect. The face is nearly round; the eyes small, but lively and expressive; the nose somewhat flat; the mouth well made, with white and uniform teeth; the legs muscular and elegant, and the feet small and flat. They have naturally little beard, and take pains to extract it: and they also eradicate the hair from other parts of the body. The hair of the head, which they preserve, is black and abundant, and they bind it up in a knot. Many of their women are handsome; particularly those of Boroa. They live to the advanced age of 70, 80, and even 100 years, without any perceptible decay of mind or body. Their mental qualities correspond to their bodily vigour; and they are characterised as intrepid, patient of the fatigues of war, prodigal of their lives in defence of their country, ardent lovers of liberty, in defence of which they are ready to make any sacrifice, jealous of honour, courteous,

curteous, hospitable, faithful to their engagements, grateful for benefits, generous, and humane towards the vanquished. These excellent qualities, however, are tarnished with the vices incident to savage life; such as drunkenness, sloth, self-confidence, and a pride which leads them to treat other nations with contempt. The dress of the Araucans, who are a military people, is short, wholly made of wool, and generally of a blue colour. The cloathing of the women is modest and simple; though sometimes set off with artificial ornaments. Their hair is parted into flowing tresses, and the head adorned with false emeralds, or with the green stone called "gliauca," which they highly value. They also use necklaces and bracelets of glass beads, earrings of silver in a square form, and numerous silver rings on the fingers. Polygamy is almost universal; and their houses are constructed so as to admit the number of wives which the owner can entertain: but their furniture is plain, and such as is merely adapted for use. Their habitations are generally dispersed over the country, and situated near the rivers; but cities are regarded by them as prisons.

Their political arrangements are suited to their discriminating character. The whole territory of Araucana, from north to south, is divided into four parallel tetrarchies; almost equal in size, and denominated the maritime, the plain, the upland, and the mountainous. Each of these is subdivided into five provinces, and each province contains nine districts. The mountainous tetrarchy is possessed by the Puelches, formerly allies to the Araucans, but now united with them. The government is aristocratical; and they have three orders of chiefs, viz. "Toquis," from *toqui*, a judge, who presides over each tetrarchy, and are independent of each other, except that they confederate for the general good; "Apo-ulmens," or grand chiefs, who govern the provinces; and "Ulmens," who preside over the districts, and acknowledge no superior, except on occasions of war. The distinction of a *toqui* is an axe of porphyry or basalt. Those of the other two orders have staves headed with silver; the *apo-ulmens* being distinguished by a ring of the same metal round the middle of the staff. All these dignities are hereditary, in the male line, and sole order of primogeniture. The absolute power is vested with the barons, who decide important business in a general diet, called the "Aucacoyag," or assembly of freemen. This congress is commonly held in a spacious meadow. Their laws, descending to them by tradition, are called "Admapu," or customs of the country. No two dignities are allowed to concentrate in the same head; and if a family fail, the vassals exercise the right of electing another: nor are they attached to the glebe, as in the feudal system, or constrained to any personal service, except in time of war. Tributes and taxes are unknown, as each chief lives on his own estate; nor are they respected as superiors, but merely as the first among equals. Although many crimes are punished with death, yet a composition may be entered into with the relations. The *ulmens* are the legitimate judges of their vassals. Whenever war is resolved on by the great council, the commander in chief is selected from the *toquis*; who instantly assumes the axe of stone, as the symbol of his authority: all the other chiefs take oaths of obedience; and the people, though at other times unruly, become submissive to their military sovereign. Heraldry is sent to the confederate tribes, and to the Indians in the adjacent districts of the Spaniards; and the badges of these heralds are bundles of small arrows bound with a red thread, and their secrecy is equal to their dispatch. The general signifies to the tetrarchs the number of troops that are requisite, and it is divided among the *apo-ulmens*, who demand the contin-

gent from each *ulmen*. As every Araucan is a soldier, the levy is easily raised: and the army generally amounts to 5 or 6000, exclusive of a body of reserve. It consists both of cavalry and infantry: the former are armed with lances and sabres, the latter with pikes, or clubs having iron spikes. Each regiment of infantry is composed of 1000, and each company consists of 100: and they have all their particular banners, besides the common badge of the nation, which is a star. Under their usual dress they wear a cuirass of leather; and of this leather, which they have a peculiar mode of hardening, they make helmets and shields. They have not discovered the art of making gun-powder. On the march the infantry is mounted, but they dismount before a battle. Each soldier carries his provision of parched maize, which is steeped in water. Their camp is well formed and guarded. In battle, the cavalry forms two wings, and the infantry occupy the centre, in distinct battalions or divisions; a clubman and a pikeman placed alternately composing the files. The *toqui* addresses a pathetic discourse to the army, exhorting them not to permit the sacred flame of freedom, bequeathed by their ancestors, to expire. They then advance with loud shouts, generally attacking the Spanish centre, and, with their clubs, notwithstanding the enemy's artillery, they often make terrible havoc. The booty is equally divided among the captors, without any preference of the officers, or even of the general. The prisoners remain slaves, till exchanged or ransomed; and sometimes, though very seldom, one is sacrificed, to pacify the manes of the slain. Treaties are formed in a kind of council, held in a meadow near the river Biobio. The symbol of peace is a branch of the cinnamon tree; and an Araucan orator discusses, in the Chilese language, the motives of the war, and the means of future harmony. As soon as this speech is interpreted, the Spanish governor or president replies; and the articles being revised, are ratified with a sacrifice of Chilese camels. The president then dines in company with the *toqui* and chief *ulmens*, to whom he makes the usual presents, in the name of his sovereign; and these are repeated on the arrival of every new president.

The Araucans acknowledge a supreme being, the author of all things, who is called "Pillan," or the Spirit; and they express, by various epithets, his residence in heaven; his being the soul of all creation; dreadful from his thunder: the architect of the universe; omnipotent, eternal, and infinite. They also hold, that the affairs of worlds are administered by inferior spirits, of various rank and power. The Mars of the Araucans is Epunameen; and Meulen is a beneficent god, and lover of the human race. They admit an evil principle, Guecubu, the author of calamity and death; and subordinate to Meulen are many genii, who attempt to counteract the machinations of Guecubu. These genii are male and female; and the latter are supposed to serve the men. Conceiving that the spiritual lords resemble the *ulmens*, and would despise any attempts of mortals to praise and honour them, they have neither temples, idols, nor priests: and they offer no sacrifices, except during endemic maladies, or on a treaty of peace. However, they often address prayers to Pillan and Meulen. Christianity is tolerated in the country of the Araucans, and the missionaries are well received; but the number of profelytes is small. These people are very attentive to omens and dreams; and the bravest Araucan warrior will tremble at the sight of an owl. They consult their magicians in all affairs of moment; and are firm believers in apparitions. They admit the immortality of the soul, and suppose that, after death, the soul passes to the west, to a place or country called "Galceman," where, according to some, delights abound

for the good, and the bad are punished by privation: but, according to others, all souls will enjoy pleasures; punishments, like crimes, being short and transitory. They watch the dead all night, and, on the third day, carry the body to the cemetery of the family, which is commonly situated in a wood or upon a hill. The bier is surrounded by women, who affect to weep; and another spreads ashes behind, in order to prevent the return of the soul to the house. When the body is set down, warlike weapons are placed round it; and if it be that of a female, her ornaments; together with plenty of food, and vases of liquor, often cyder or wine, that there may be no want on the journey into the other world. After taking leave of the dead, with many lamentations, and wishing a happy journey, the body is covered with earth, or with stones, in the form of a pyramid, over which they pour copious streams of cyder. They farther believe, that an old woman soon arrives, in the form of a whale, to carry the soul across the ocean, where another old woman guards the Elysian fields, and sometimes exacts an eye, when the passenger cannot satisfy her demands. The occupation and pleasures of the future life remain the same; and the husband, if he chooses, may have his wife again; but there are no children, because it is the abode of the dead. There are also wars and battles; and armies, meeting in the air, cause thunder and lightning. The Araucans have an idea of a great deluge; during which many were saved on the mountain "Thegtheg," which can float in water. This idea, Molina suggests, has arisen from the earthquakes and volcanos, so common in their country; for, during the terrors excited by a severe earthquake, they still run to the mountains, with provisions, in hope of escaping, if the sea should overwhelm their country.

The year of the Araucans is solar, and commences on the 22d of December, immediately after their summer solstice; and it is divided by the solstice in June into two parts. They have 12 months of 30 days, and 5 intercalary days. They have 4 seasons, each of 3 months; and they divide the day into 12 parts, 6 of light and 6 of darkness. The hours of the day are distinguished by the height of the sun; and those of the night by the position of the stars. Constellations are also marked; the Pleiades being styled that of *six* from the most apparent stars, and the Antarctic that of *four*. The milky way is called the street of the fable, because the astronomers of the country reject certain popular tales concerning it. They distinguish the planets, and believe them to be inhabited. The Araucans, though they have little or no idea of the speculative sciences, cultivate rhetoric, poetry, and medicine; to the purity of their language and to the eloquence of their public speakers they pay great attention. They accustom themselves much to a figurative and allegorical style, and their discourses abound with apologues and parables. Strong and lively images, bold figures, frequent allusions and similes, novelty and force of expression, and pathetic sentiments concur to form their poetry, which is chiefly employed in celebrating the actions of their heroes. Their lines consist of 8 or 11 syllables; and their poems are all in blank verse, with an occasional, though very rare, admission of rhyme. Of physicians there are 3 classes; the empirical, who are best, have some knowledge of the pulse, and use of herbs; those who believe that all diseases proceed from insects; and others who ascribe them to witchcraft, and thus occasion the death of innocent persons; they have also persons who can set broken bones and cure wounds. With regard to their mode of carrying on trade, we shall observe, that as the use of money is not known, exchange is the only mode of commerce. Their foreign

trade consists chiefly in cloaks and cattle, which are exchanged with the Spaniards for wine and European articles. In their intercourse with Europeans they are proud and assuming; and they themselves expect to be treated with great ceremony and respect; whilst they are duly sensible of benefits, they are eager for vengeance on their enemies. In their discrimination of different families, they use names and surnames. Polygamy, as we have already said, is universal, and a man may buy as many wives as he can maintain; but an old bachelor is regarded with contempt as an enemy of the state. Marriage is a very simple rite; being a kind of amicable rape, as the husband seizes the bride unexpectedly, while she affects to cry out for assistance. Her friends then pass to his house, and after a festival, receive the nuptial present; to the first wife, however, particular honour is rendered, while the rest are regarded as mere concubines. The husband indicates his preference by ordering one, during supper, to prepare the bed; the others sleep in the same chamber, which no stranger is permitted to enter; strangers being lodged in tents at a distance. All the wives pay great respect to their husbands. The Araucan women are distinguished by neatness and cleanliness in their houses and in their own persons. The bath is universally used both by men and women; but the latter resort to separate places protected by shade and solitude. On the day of parturition, they take the new born infant to the river, wash both it and themselves, and return to their business without inconvenience; no bandages are used for their infants, they are placed in hanging cradles upon thin skins, and covered with a cloth, and they are rocked by means of a cord which hangs from the cradle, so that the mothers are not interrupted in their business; the infant is soon able to take care of itself. The education of children is restricted to horsemanship, the use of arms, and the practice of speaking their language with elegance. Faults are seldom noticed; nor do the Araucans ever chastise, because, in their opinion, punishments can only produce falsehood or cowardice. The food of the Araucans consists mostly of grain or pot-herbs variously dressed; but maize and potatoes are the most esteemed; they use little meat or fish, and instead of bread they have a kind of light cake or potatoes. Their drink consists of various kinds of beer and cyder; and they are fond of wine, which they procure from the Spaniards. The master and his family eat at the same table, which is covered with earthen-ware and goblets of horn or wood. They light their fire by turning one stick rapidly on another. Although in private they are frugal, yet on solemn occasions they spare no expence in their repasts; and then fermented liquors are freely taken. Music, dancing, and gaming, constitute their principal amusements. Their music is bad, and their songs harsh and hideous; but their dances are more cheerful and harmonious. The women, however, dance apart from the men. Their games are both sedentary and gymnastic. From time immemorial, it is said, they have known the game of chess, which they call "comican;" the young are fond of wrestling, the race, and a kind of tennis. But their favourite games of the gymnastic kind are the "puco," and the "palican;" the first representing the siege of a fortress, when 12 or more persons form a circle and place a boy in the middle of it whom the assailants endeavour to seize, but seldom succeed; the latter resembles a battle, 30 or more players attempting to drive the ball within their bounds, and this game will sometimes last half a day.

Having enlarged on the disposition and manners of the Araucans, because they are a people hitherto so little known, although Dr. Robertson in his "America," and Perouse in his voyages, and some others have very transiently mentioned

mentioned them, we shall close this part of the article Chili with observing, that the Pulches of the mountains, now united with the state of Araucana, are more rude and savage than the other inhabitants. Their name signifies eastern men: their stature is tall, and they are fond of the chase, so that they often change their habitations, and detach colonies to the eastern sides of the Andes, as far as the lake Naguelgapi, and the shores of the Atlantic, in the plains of Patagonia. By the Araucans the mountaineers are highly esteemed on account of their bold services in war, and their inviolable fidelity in adhering to the confederacy.

The valour of the Araucans, and their love of liberty and independence, have been signally manifested on a variety of occasions; not only in their early contests with the Peruvian Incas, but in their resistance to the hostile attacks of the Spanish invaders of their territory. Soon after their subjugation of Peru, the Spaniards, allured by the fame of the opulence of Chili, commissioned Diego de Almagro to attempt the conquest of it. Accordingly, in 1735, he marched from Cuzco, and, after losing many Indians and a considerable number of Spaniards, who perished with cold in passing over the Cordillera Nevada, as well as with fatigue and famine, he arrived at Copiapo, where the Indians immediately submitted. Thus encouraged, he proceeded to the conquest of other nations, which had never acknowledged the Peruvian Incas. In his progress he met with a vigorous opposition; as the Chilese soon recovered from their first surprize, and not only defended themselves with obstinacy, but attacked their new enemies with more determined valour and fierceness than any American nation had hitherto discovered. The Spaniards however continued, amidst increasing difficulties and conflicts, to penetrate into the country, and collected considerable quantities of gold; but they were so far from thinking to make any settlement amidst such formidable neighbours, that, in spite of all the experience and valour of their leader, the final issue of the expedition still remained extremely dubious, when they were recalled from it by an unexpected revolution in Peru. (See the biographical article ALMAGRO.) In the year 1541 the scheme of invading Chili was again resumed, and the command of the expedition for this purpose was conferred by Pizarro on Pedro de Valdivia; and, notwithstanding the fortitude of the natives in defending their possessions, he made such progress in the conquest of the country, that he founded the city of St. Jago or Santiago, which still remains the capital of the country, and thus commenced the establishment of the Spanish dominion in that province. In 1548 he was promoted to the government of it by the president of Peru. Valdivia, after having exhibited many displays both of courage and military skill, was cut off in 1553, together with a considerable body of troops under his command. Francisco de Villagra, Valdivia's lieutenant, by his spirited conduct, checked the natives in their career, and saved the remainder of the Spaniards from destruction. By degrees, all the champaign country along the coast was subjected to the Spanish dominion. Several colonial towns were established by the Spaniards, which the Araucans have repeatedly taken and destroyed. The frontier banks of the river Biobio are lined with fortresses. At the peace of 1773, after a war which had cost the Spanish treasury 1,700,000 dollars, the Toqui of the Araucans insisted on having a resident minister at the city of Santiago, and the Spaniards reluctantly complied. The mountainous country, however, is still possessed by the Pulches, Araucans, and other tribes of its original inhabitants, who are formidable neighbours to the Spaniards, and with whom, during the course of about three

centuries, they have been obliged to maintain almost perpetual hostility, suspended only by a few intervals of insecure peace.

That part of Chili, to which the Spaniards are restricted, and which may properly be deemed a Spanish province, is a narrow district, extending along the coast from the desert of Atacama and the river Biobio, and divided into 13 provinces, viz. Copiapo, Coquimbo, Quillota, Aconcagua, Melipilla, Santiago, Rancagua, Colchagua, Mañali, Itata, Chillan, Puciacay, and Huilquilema. The Spaniards also possess port Valdivia, in the country of the Cunchi; the archipelago of Chiloé; and the island of Juan Fernandez. Don George Juan and don Antonio de Ulloa, in their voyage to South America, inform us, that the captain-generalship of Chili comprehends four particular governments, viz. the major-generalship of the kingdom of Chili, to which belongs the military government of the frontier towns and fortresses, along the banks of Biobio, which are Arauco, the stated residence of the general, Santajuana, Puren, Los Angeles, Tucapel, and Yumbel; Valparaíso; Valdivia; and Chiloé, which see respectively: and the following 11 jurisdictions, viz. Santiago, Rancagua, Colchagua, Chillan, Aconcagua, Melipilla, Quillota, Coquimbo, Copiapo and Gualco, Mendoza, and La Concepcion; which see. The president, governor, or captain-general of Chili, to whose government Spanish Chili is subject, resides in the city of Santiago, exercising, except in time of war, independent authority, and directing all military affairs; the three great officers of the kingdom, viz. the camp-marshal, serjeant-major, and commissary, and also the four governors of Chiloé, Valdivia, Valparaíso, and Juan Fernandez, being subject to his orders; as president and governor-general, he administers justice, or presides in the court of audience in Santiago, which is divided into two halls, the civil and the criminal, with a regent, judges, fiscal or royal procurator, and a protector of the Indians. In cases where the property exceeds 10,000 dollars, an appeal lies to the supreme council of the Indies. There are also tribunals of finances, of the papal bull, and of vacant lands; and the consulate, or tribunal of commerce, which is a new institution in the Spanish colonies, is independent of all others. The provinces are governed by prefects or corregidores, commonly named by the captain-general. The inhabitants are formed into regiments of militia; besides which there is also a body of regular troops. In the town of Concepcion, there is a regiment of cavalry, and another of infantry, to watch the Araucans; and the city of Santiago maintains some troops of dragoons for its police and defence.

Spanish Chili is divided into two extensive archbishoprics, those of Santiago and Concepcion, both suffragans of the archbishop of Lima. The cathedrals are served by canons; and at Santiago the holy, or rather infamous, office of the inquisition, has a commissary and various subalterns. There are no convents, except at Santiago and Concepcion.

This province has derived considerable advantage from the liberty of commerce obtained in 1778; and its population has since that event been augmented. Before that period, the cultivation of the country, though singularly fertile and productive, had been shamefully neglected by the Spaniards. A great part of it remained unoccupied; and in its whole extent, there were not above 80,000 white inhabitants, and about three times that number of negroes and people of a mixed race. The Spanish inhabitants have, for the most part, migrated from the northern provinces; and they are intermixed with a few English, French, and Italians. They are described by Molina, cited by Pinkerton, as "well made, intrepid, incapable of treason or meanness, vain, liberal,

ral, ardent, fond of pleasure, sagacious, observant, ingenious, docile," and only wanting instructive books and scientific instruments. The noble arts, however, are neglected by them, and mechanics are imperfectly understood. The dresses of the men is generally French, and that of the ladies after the fashion of Peru; but the Chilese ladies wear longer gowns, and have a more modest air. The common people have adopted the Araucan dresses as being most convenient. Dispersed through a wide country, and unrestrained by village magistrates, they enjoy their liberty, and lead a happy and tranquil life, amidst the pleasures of the delicious climate. They are fond of gaiety, music, and poetry. The language generally spoken in Chili is Spanish; but the country people, who reside near the Araucan frontier, use the Araucan or Chilese language. As they are almost always on horse-back, and enjoy the benefit of a salubrious air, they are healthy and robust.

The midland country is plain, but the maritime part of Chili presents three chains of hills parallel to the Andes, which is here about 120 miles in breadth, abounding with stupendous breaks and precipices, but interspersed with vales and excellent pastures that are watered by streams and cascades descending from the rocks. The highest mountains of the Chilese Andes are Manfía, at $28^{\circ} 45'$; Tupungato, at $33^{\circ} 24'$; Descabedado, at 35° ; Blanquillo, at $35^{\circ} 4'$; Longavi, at $35^{\circ} 30'$; Chillan, at 36° ; and Corcobado, at 43° . Molina did not measure their height; but the Spaniards and Chilese suppose them to be more than 20,000 feet above the sea. The four seasons are as regular in this country as they are in Europe; but as it lies in the southern hemisphere, their order is inverted. Spring begins on the 21st of September, summer in December, autumn in March, and winter in June. From the beginning of spring to the middle of autumn, the sky is always serene, chiefly between 24° and 36° lat.; showers seldom falling during that period. The rains begin in the middle of April, and last till the end of August; varying in quantity and continuance in the northern and southern districts. Thunder is scarcely known, except on the Andes; snow does not fall in the maritime provinces; but on the mountains from April to November it is perpetual, and prevents the passage over them, except at Midsummer. In Chili, in general, no river is frozen, and the cold seldom exceeds the freezing mark of Reaumur's thermometer. Through the whole kingdom the dews are copious in spring, summer, and autumn. On the other side the Andes, the N.W. wind, called "Sonda," is more suffocating than the Scirocco of Italy; but in the countries of Peru and Chili no such effect is perceived.

About the middle of the day a breeze often rises from the sea, and lasts two hours, so that it is called the clock of the peasants. Fiery meteors are frequent; but the aurora borealis seldom appears. In Chili volcanoes abound. One that was terrible by the convulsions and devastation it occasioned, occurred at Petoreo on December 3d, 1762. There are only two other volcanoes in this province, which do not belong to the chain of the Andes; a small one near the river Rapel, which ejects only smoke, and the great volcano of Villarica, near a lake of that name in Araucana. This flaming mountain is seen at the distance of more than 150 miles, and appears isolated; but it is thought to be joined with the Andes, which is at a small distance. The summit, burning day and night, is covered with snow; but the sides, to the extent of 14 miles, are shaded with enchanting forests, watered by innumerable crystalline streams. Earthquakes are little known even in Copiapo and Coquimbo, where subterranean noises are often heard, as in Tucuman. Slight earthquakes are felt three or four times in the year; but

only five of any consequence have occurred since the entrance of the Spaniards: of which the most remarkable were that of 1730, which in July buried the city of Concepcion, and that of 1751, which utterly destroyed the same city, and was accompanied with a globe of fire, which darted from the Andes to the ocean: however, on this occasion, only seven persons perished; there being in Chili always a warning noise, or vibration of the air, and the shocks are horizontal, not explosive.

The rivers of this country, though sometimes considerable, have but a short course from the Andes to the ocean. There are several lakes, both fresh and salt; the two largest being in Aracauna, viz. the Lauquen or Villarica, about 72 miles in circuit, with a beautiful conic hill in the centre; and the Nahuelgapi, about 80 miles in circumference, having an island in the centre, crowned with beautiful trees, and giving rise to a river of the same name, which runs towards the Atlantic, while from the first springs the river Tolten, which joins the Pacific. The country abounds with mineral waters and salt rivers, ascribed by the Araucans to the beneficence of their god Meulen.

The climate of Chili is the most delicious in the New World, and is hardly equalled by that of any region on the face of the earth. Though bordering on the torrid zone, it never feels extreme heat, being screened on the east by the Andes, and refreshed on the west by cooling sea-breezes. The temperature of the air is so mild and equable, that the Spaniards give it the preference to that of the southern provinces in their native country. Instances occur in this country of surprising longevity. A Spanish knight attained the age of 106 years, without knowing sickness; and he had by two wives 28 sons. Some of the creoles have arrived at the age of 104, 107, and 115. It is also said that the women are fruitful in an extraordinary degree, and that twins are common. A Frenchman who died in 1764, left by one wife 163 descendants. The fertility of the soil corresponds with the benignity of the climate, and is wonderfully accommodated to European productions. The most valuable of these, corn, wine, and oil, abound in Chili, as if they had been native to the country. The soil, even that part of it which has been long in tillage, is so little degenerated by producing successive crops, that no manure is necessary. The grain, as some say, yields from 100 to 150; but by a more moderate and just estimate, as it is stated both by Molina and in Perouse's voyage, from 60 to 70 in the midland country, and in the maritime 40 or 50. Many of the plants of Chili are the same with those of Europe, and almost all the pot-herbs and fruits of that continent flourish there. The northern provinces produce the sugar-cane, the sweet-potatoe, and other tropical plants. Maize is common and abundant; the *magu* is a kind of rice, and the *tuca* a species of barley, both of which were cultivated before the arrival of the Spaniards. Peas and potatoes were also well known to the Chilese. Of the latter they have 30 different kinds: and it is even conjectured that this valuable root was first brought into Europe from this country. The large white strawberry of Chili is now known in English gardens. Many of its plants are valuable as dyes, and others as medicinal. The gentian is peculiar to Chili. The *vira-vira* expels the ague; the *payco* is excellent for indigestion. Wild tobacco abounds in Chili. The beautiful flowers and shrubs are infinite. Incense, not inferior to that of Arabia, is produced by a shrub, distilling tears of a whitish yellow, and of a bitter aromatic taste. The trunk of the *puvi* supplies excellent cork; the *salsola kali* is plentiful on the shores; and Chili produces seven kinds of beautiful myrtles, one of which yields an excellent stomachic wine preferred by strangers.

frangers to any muscatel. The *culen* furnishes a tea, which is known as a vermifuge. An *acacia* of the province of Quillota yields a balsam, that is used in the cure of wounds; and the *palqui* is esteemed, as a febrifuge, superior to the Peruvian bark. The *cassia fena* grows on the banks of the rivers Maypo and Salvia. Of 97 kinds of trees, that diversify the beautiful forests of Chili, only 13 lose their leaves in winter. Cypresses, pines, and red and white cedars grow in the valleys of the Andes; the red cedars, particularly in the isle of Chiloé, are of an enormous size, so that from 700 to 800 planks, 20 feet long, may be cut from one tree. The cinnamon tree, that yields what is called winter's bark, is regarded as sacred by the Araucans, who present it as a token of peace. Beautiful woods of various colours are supplied by the Chilese forests. Vines, though none appear to be native, flourish admirably well: they are found in the forests, arising from seeds deposited by the birds: on the confines of the river Maule, they are three or four feet high, and supported by stakes; but further to the south they are left loose on the sides of the hills. The best wine is that which is obtained from the banks of the river Itata, and is commonly called wine of Conception; it is red, generous, of an excellent flavour, and equal to the best in Europe. Muscatel wines are also excellent. The vintage is April and May. All the other European fruits attain the greatest perfection.

Of the zoology of Chili, Molina has given an ample account. Oysters of an excellent kind are found near Coquimbo; and the rocks of Chiloé furnish the pholas. There are also many kinds of lobsters and crabs. Among the insects is the locust of Africa. Bees abound in the southern provinces. Reptiles are rare; but the sea supplies 76 kinds of fish, all excellent and salutary. The seals, called sea-cows, appear on the shores of Araucana. Of land and aquatic birds the different species amount to 135; and the sea-fowl are innumerable. Of these several retire in spring to the forests of the Andes for propagation, and on return of winter they re-visit the plains. The American ostriches appear in great numbers in the valleys of the Andes, and especially near the grand lake Nahuelgapi. The eggs, of which the female lays from 40 to 60 in the sand, yield, each of them, about two pounds of good food; and the feathers are used for plumes, parasols, fans, &c. The condor is also found in this country. Molina reckons 36 species of quadrupeds in Chili; and it is observed, that most of the European animals have improved in this delicious climate and fertile country. The celebrated Spanish sheep have not lost any of their distinguishing qualities: the horned cattle are larger than those of Spain; and the breed of horses surpasses both in beauty and spirit the famous Andalusian race, from which they sprung.

Nor has nature exhausted her bounty on the surface of the earth: she has stored its bowels with riches. All the argillaceous earths mentioned by Wallerius are found here, exclusive of the bole of Lemnos; and Molina adds five sorts to those already described. Of metallic earths, according to his arrangement, there are mountain-blue and green, native ceruse, ore of zinc, with brown, yellow, and red ochres. Among the rocks are slate, hone, green talc, steatite, asbestos, amianthus, gold and silver mica; and the talc called Muscovy glass is found in large plates, and used for windows. Limestone, marble, and gypsum, are plentiful. Besides statuary marble, Chili affords the black, greenish, and yellow; and two mountains of Copiapo and Maule are altogether composed of marble of different colours, and disposed in regular strata from the bottom to the top. Molina also mentions a great variety of fluors, yellow,

green, and blue, called false topazes, emeralds, and sapphires. The Andes also afford fine alabaster, and large plates of selenite, used by the inhabitants of San Juan in the windows of their churches. Of siliceous stones, there are quartz, flint, and rock crystal. Here are also free-stone and grind-stone, some common agates, and jasper red, green, grey, white, and variegated. Rock crystal occurs of different colours, called false ruby, topaz, jacinth, emerald, &c. One real emerald, says this author, was found in Coquimbo, and a topaz in the province of Santiago. A little hill, N.E. of Talca, is almost wholly composed of beautiful amethysts, in a kind of grey quartz. Turquoises are found in Copiapo; and beautiful breccias, porphyries, and granites occur in the Andes. Rock-salt is abundant; and is often crystallized in cubes of various colours. Sal ammoniac is common near the volcanoes; and nitre abounds in Coquimbo. The country is supplied with different kinds of alum or bitumen, and all the vitriols. Aracuana furnishes jet; and coal is supplied by various parts of the kingdom. The province of Copiapo comprehends two mountains of crystallized sulphur; and the same substance abounds in all the Andes. Pyrites of several kinds and under various forms are found in several places. Of the semi-metals, this country yields arsenic, cobalt, bismuth, zinc, antimony, and mercury, both virgin and cinnabar. Chili contains mines, many of them very rich and productive, of lead, tin, iron, silver, and gold. The chief silver-mines are those of the provinces of Santiago, Aconcagua, Coquimbo, and Copiapo; but the most celebrated is that of Ufpallata, situated on the eastern mountains of the Andes, in the province of Aconcagua; supposed to extend to Potosi, through a space of 840 geographical miles; discovered in 1638, neglected till 1762, but since wrought to great advantage. However, of all the metals, gold is the most abundant in Chili; so that there is not a mountain or a hill, which does not more or less produce it, and accordingly, it is found in the soil of the plains and the sand of the rivers. The gold is reckoned the purest in the world, being generally found of 22 carats, and often of $23\frac{1}{2}$ carats. The most considerable mines of gold now wrought in Spanish Chili are those of Copiapo, Guasco, Coquimbo, Petorca, Ligua, Tilti, Putaendo, Caren, Alhue, Chibato, and Huillipatagua; all which, except the three last, which have been recently discovered, have, ever since the conquest of the country, yielded a constant and considerable produce. The gold of the mines of Chili, paying the royal fifth, amounts to about four millions of dollars annually; of which a million and a half are coined at the mint of Santiago.

The commerce of Chili employs 23 or 24 ships from 5 to 600 tons each, and in return for the grain, wine, fruits, provisions, tallow, leather, wood, copper, &c. sent to Peru, it receives iron, cloth, and linen made at Quito, hats, bays, of which there are manufactures in Chili, sugar, cacao, sweetmeats, tobacco, oil, earthen ware, and all kinds of European goods. A small commerce is also carried on between Chili, Paraguay, and Buenos Ayres, of which the latter is the staple. The products of Paraguay, which consist only in its herb and wax, are carried thither, then forwarded to Chili, whence the herb is exported to Peru. Large quantities of tallow are also sent to Mendoza for the manufacture of soap. In exchange for these commodities Chili sends to Buenos Ayres linen and woollen stuffs, some of which are imported from Peru, and others manufactured in the country; also sugar, snuff, wine, and brandy, which two last the traders chiefly buy at San Juan, as most convenient for transportation. Ships from Spain, in return for European goods, receive gold, silver, copper, Vicuna wool,

and dressed leather. The domestic commerce of Chili chiefly consists in the provisions sent to Valdivia, which supplies other places with cedar. Chiloe purchases from the other parts brandy, wine, honey, sugar, the Paraguay herb, salt, and Guinea pepper; and returns to Valparaíso and Concepcion several kinds of fine wood, with which the island abounds; also woollen stuffs of the country, made into cloaks, quilts, &c.; together with hams and dried pilchards. Coquimbo sends copper to Valparaíso, which in exchange returns Cordovan leather, and soap, made at Mendoza, from whence it is carried to Santiago, and thence sold to different parts of the country. The trade with the wild Indians carried on by barter, consists in hardware, as bits, spurs, and edge tools; also toys, and some wine. They return horned cattle, horses of their own breeding, &c.

Before we close this article, we shall mention as a matter of annual observation, that the sea gradually retreats from the coast of Chili; and therefore, the shore consists mostly of a plain, 5 or 6 miles broad, between the sea and the maritime mountains; their sides bearing evident marks of the sinking of the ocean, which has sometimes formed curious grottos, with different chambers, hung with shells or stalactites, where beasts take refuge in the winter. Voyage to South America, by Juan and de Ulloa, vol. ii. Robertson's America, vol. iii. Pinkerton's Geography, Ed. 2.

CHILIAD, formed of *χίλιαις*, *mille*, a thousand, an assemblage of several things ranged by thousands. The term was particularly applied to tables of logarithms, which were at first divided into thousands. Thus it was used by Mr. Briggs. See the article BRIGGS.

CHILIAGON, in *Geometry*, a regular plane figure of 1000 sides and angles. We can easily demonstrate, that the sum of all its angles is equal to 1996 right ones; for the internal angles of every plane figure are equal to twice as many right angles as the figure hath sides, except those four which are about the centre of the figure, from whence it may be resolved into as many triangles as it has sides. The author of *L'Art de Penfer*, p. 44, 45, brings this instance to shew the distinction between imagining and conceiving. See NOTION.

CHILIARCHA, or CHILIARCHUS, from *χίλιαις*, a thousand, and *αρχη*, command, an officer in the armies of the ancients, who had the command of a thousand men.

CHILIARTÆ, in *Church-History*, the same with MILLENARI.

CHILIASTS. See MILLENARI.

CHILIOCOMUS, in *Ancient Geography*, a canton of Asia, in Media; placed by Ammianus Marcellinus in the vicinity of Corduene.

CHILISQUAKE, in *Geography*, a township of Susquehannah river in Pennsylvania.

CHILKA, a lake of Hindoostan, on the sea-coast of the province of Cattack on the N.W. side of the bay of Bengal. This lake bounds the Northern Circars on the north. It seems to be produced by a breach of the sea over a flat, sandy shore, whose elevation was somewhat above the interior country. Both this, and the Pulicat lake of similar origin, communicate with the sea by a very narrow, but deep, opening; and are shallow within. The Chilka lake is about 40 miles in length from N.E. to S.W.; and in most places 12 or 15 wide; with a narrow slip of sandy ground between it and the sea. On this lake are many inhabited islands. On the N.W. it is bounded by a ridge of mountains; being a continuation of that which extends from the Mahanuddy to the Godavery river; and shuts up the Circars towards the continent. It forms a pass on each side of it towards the Cattack province, and affords an

agreeable diversity of objects; mountains, islands, and forests; and an extended surface of water, with boats and small vessels, sailing on it. To those who navigate at some distance from the coast, it has the appearance of a deep bay; the slip of land not being visible.

CHILLAKOTHE, an Indian town of America, seated on the Great Miami, which was destroyed in 1782, by a body of militia from Kentucky. This name is applied to many different places in honour of an eminent chief who formerly headed the Shawanoes. See TAWIXTWTI.

CHILLAKOTHE, *old*, an Indian town, lying about three miles S. of Little Miami river, but destroyed by the forces of the United States in 1780. The part of the adjacent country, which is beautifully chequered with meadows, is rich. See MIAMI.

CHILLAN, or CHILAN, a town of South America and capital of a district of the same name, being one of the jurisdictions of the kingdom of Chili. The place is small, but has the title of city; the number of families not exceeding 2 or 300, and having among them but few Spaniards. It is 75 miles N.E. of Concepcion.

CHILLEIROS, a town of Portugal, in the province of Estramadura; $4\frac{1}{2}$ leagues N.W. of Lisbon.

CHILLEURS, a town of France, in the department of the Loiret and district of Orleans; 14 miles N.E. from it.

CHILLIKOTHE, a town of America, in the state of Ohio and county of Ross; situated on the Scioto river, about 60 miles from the Ohio. Such has been the increase of this settlement, that though it began in 1796, and became an incorporate town in 1782, it is now the seat of government and capital of the state. The adjacent country is fertile, and the town is rapidly increasing. At present it is said to contain 150 houses. Its public buildings are a gaol, built with wood, and a court or state-house of hewn stone.

CHILLINGWORTH, WILLIAM, in *Biography*, distinguished as a theologian, was born at Oxford in October 1602. He was admitted a scholar of Trinity college in the year 1618, and after taking the usual degrees, was elected fellow of his college in 1628. He was, in very early life, characterized by a fondness for disputation; to this temper Lord Clarendon refers in his own life. "He was," says the Noble Lord, "a man of so great a subtilty of understanding, and so rare a temper in debate, that as it was impossible to provoke him into any passion, so it was very difficult to keep a man's self from being a little discomposed by his sharpness and quickness of argument; and instances in which he had a rare felicity, and a great advantage over all the men I ever knew." This turn of mind was attended with its disadvantages, for we are told he had contracted such an irresolution and habit of doubting, that by degrees he felt confident of nothing. It was probably the cause also of his conversion to popery, through the subtilty of John Fisher, a jesuit, at whose instance he went to the college of Douay. Here he made but a short stay, having, by means of a correspondence with his god-father, Laud, bishop of London, afterwards archbishop of Canterbury, seen reason to change his sentiments again. Upon his return to England he retired to Oxford, where he pursued his studies with great care and diligence. In 1634 he wrote a paper in confutation of the arguments by which he had been seduced; such, however, was the ingenuousness of his mind, and his regard for truth, that after his return to Protestantism, he made no scruple to re-examine the grounds of it, which occasioned a report that he had gone back again to the church of Rome, and he continued through life to be reviled by one party and suspected by the other; yet he felt no shame

shame on account of the candour and impartial inquiry which caused these fluctuations in his creed. Speaking of himself he says, "I know a man, that of a moderate Protestant turned a Papist, and the day he did so, was convicted in conscience, that his yesterday's opinion was an error. The same man afterwards, upon better consideration, became a doubting Papist and of a doubting Papist a confirmed Protestant. And yet this man thinks himself no more to blame for all these changes, than a traveller, who using all diligence to find the right way to some remote city, did yet mistake it, and afterwards find his error and amend it." Few persons, it is presumed, will, upon reading this, dispute Chillingworth's title to self-approbation. In the year 1637, he published a work entitled, "The Religion of Protestants a safe way to Salvation," which is one of the ablest defences of the Protestant cause. Its fundamental principle is, that the scripture is the only rule by which we can judge of controversies, and that no church of any one denomination, is, or ought to be, accounted infallible. "It is sufficient," says he, "for any man's salvation, to believe that the scripture is true, and contains all things necessary to salvation, and to do his best endeavours to find and believe the true sense of it."

Chillingworth's orthodoxy was now suspected, and he was immediately branded with the epithets of Arian and Socinian; he had previously to the publication of this work refused preferment, which was offered him by Sir Thomas Coventry, keeper of the great seal, because he could not, at that time, subscribe to the thirty-nine articles: he declares that he is ready to endure any extremity of indigence and the displeasure of his friends, rather than to make a declaration which his conscience could not thoroughly approve. These scruples were not of long continuance, for in 1638 he complied with the usual forms of subscription, on being promoted to the chancellorship of Salisbury, with the prebend of Brixworth in Northamptonshire, annexed to it. From a passage in the preface to his *Religion of Protestants*, it appears, that he now considered subscription as an offering to peace and union, not a declaration of faith, to which opinion he was probably led, by the arguments of his friend, Dr. Sheldon, afterwards archbishop of Canterbury. In addition to his other preferments he obtained the mastership of Wigstan's hospital in Leicester, and in 1640, he was deputed as proctor by the chapter of Salisbury to the convocation. At the breaking out of the civil war he adopted instantly the royal cause, and was present in the king's army at the siege of Gloucester, where he even acted as engineer, and contrived some machines for assaulting the city. Very soon after this, on account of ill health, he retired to Arundel castle in Sussex, where he was taken prisoner by Sir William Waller. His illness increasing, and not being able to go to London, he obtained leave to be conveyed to Chichester, where he was lodged in the bishop's palace, and after a short illness died in the month of January 1643-4, and was buried, according to his own desire, in the cathedral church of Chichester. Chillingworth was the author of several works besides his "Religion of Protestants a safe way to Salvation." He wrote nine sermons on special occasions, and a defence of episcopacy. His writings have always been highly esteemed by some of the most eminent persons of the nation, among whom were the great Locke, and archbishop Tillotson. His private character was marked by sincerity, candour, and benevolence: and according to Lord Clarendon "he was a man of excellent parts and of a cheerful disposition, void of all kind of vice, and endued with many notable virtues; of a public heart, and an indefatigable desire to do good; his only unhappiness proceeded from his sleeping too

little, and thinking too much, which sometimes threw him into violent fevers." "This last circumstance," says Dr. Aikin, "denotes that warmth of brain which may account for the mutability and the disputatious turn that seem to have superabounded in his nature." Biog. Brit. Gen. Biog. Blackburne's Works.

CHILLOAS, or CHILOAS, a jurisdiction of South America in the diocese of Truxillo, belonging to the viceroyalty of Peru, and the audience of Lima. See LLALLA.

CHILLON, a castle or castellated house, in the canton of Bern, 5 miles E.S.E. of Vevey. This is a large pile with round and square towers, standing on a rock in the lake of Geneva, and connected with the land by a drawbridge. The vaults are very fine; the arched roofs, and the supporting pillars, are in a neat Gothic style. This castle in 1536 was wrested from Charles III. of Savoy by the canton of Bern assisted by the Genevans, who furnished a frigate to besiege it by water. In a deep dungeon, below the level of the lake, the conqueror found Bonivard, prior of St. Victor, the intrepid antagonist of the dukes of Savoy, and the great assertor of Genevan independence. He had been imprisoned by the Savoyards for 6 years, and by constant walking within his short limits, had worn a hollow in the rock. This castle was for a short time the residence of a bailiff from Bern, until a more convenient house was purchased in Vevey. It was seized by the insurgents in January 1798; and this act of rebellion, not being punished, was followed by the separation of the Pays de Vaud from the canton of Bern.

CHILLY, a town of France, in the department of the Jura, and district of Lons-le-Saulnier; one league S. W. of it.

CHILMA, or CHILMANENSE *oppidum*, now called *Gilma*, an ancient town in the interior of Africa. Ptolemy and Pliny place it under the dominion of Carthage, and say that it was situated between the rivers Bagradas and Tricon. It is now in ruins, with scarcely any remaining vestige.

CHILMARK, a township of America on Martha's Vineyard island, in Duke's county and state of Massachusetts, containing 771 inhabitants. It lies 99 miles S.E. of Boston.

CHILMARY, a town of Hindoostan, in the country of Bengal; 110 miles N.E. of Moorshedabad.

CHILMINAR, CHELMINAR, or TCHELMINAR, the noblest and most beautiful piece of architecture remaining of all antiquity; being the ruins of the famous palace of Persepolis, to which Alexander the Great, being drunk, set fire, at the persuasion of the courtesan Thais.

Authors and travellers are exceedingly minute in their descriptions of the Chilminar; particularly Gracias de Silva Figueroa, Pietro de la Valle, Chardin, and Le Brun. A general idea thereof may be conceived as follows:

There appear the remains of near fourscore columns; the fragments whereof are at least six feet high: but there are only nineteen that can be called entire; with a twentieth all alone, 153 paces from the rest.

A rock of black hard marble serves for the foundation of the edifice. The ascent to the first plan of the building is by fourscore and fifteen steps, cut in the rock. The gate of the palace is twenty feet wide; on one side is the figure of an elephant, and on the other of a rhinoceros, each thirty feet high, and of a shining marble; near these animals are two columns; and not far off the figure of a Pegasus.

After this gate is passed, there are found a great number of columns of white marble; the remains whereof shew the magnificence of the work: the smallest of these columns is fifteen cubits high, the largest eighteen; each has forty flutings,

flutings, three inches broad; whence the height of the whole may be guessed at, with the other proportions. Near the gate is an inscription on a square piece of marble, smooth as glass, containing about twelve lines: the characters are of a very extraordinary figure, resembling triangles and pyramids.

These noble ruins are now the shelter of beasts, and birds of prey. Besides the inscription above mentioned, there are others in Arabic, Persian, and Greek. Dr. Hyde observes, that the inscriptions are very rude and unartful; and that some, if not all of them, are in praise of Alexander the Great; and therefore are later than that conqueror.

M. Le Brun took his voyage to the East Indies, merely for the sake of viewing the Chilmirar. See PERSEPOLIS.

CHILO, in *Biography*, one of the wise men of Greece, who flourished about the first year of the 56th olympiad or 556 B. C. But Diogenes Laertius says, that he was an old man in the 52d olympiad. He was one of the Lacedæmonian Ephori, and celebrated for both his sagacity and probity. In the exercise of his office as a magistrate he acted with so much integrity that in his old age, he said, that he recollected nothing in his public conduct which gave him regret, except that, in one instance, he had endeavoured to screen a friend from punishment. The highest attainment of wisdom, in his opinion, was, that sagacity which enables a person from the view of present circumstances and events to predict future occurrences. Æsop is said to have once asked him, how Jupiter employed himself? He replied, "in humbling those that exalt themselves, and exalting those that abate themselves."

He is said to have lived to a very advanced age, and to have expired through excess of joy, in the arms of his son, when he returned victorious from the Olympic games. Some of his maxims of the greatest value are the following:—Three things are difficult: to keep a secret, to bear an injury patiently, and to spend leisure well.—Visit your friend in misfortune rather than in prosperity.—Never ridicule the unfortunate.—Think before you speak.—Do not desire impossibilities.—Gold is tried by the touchstone, and men are tried by gold.—Honest loss is preferable to shameful gain; for by the one, a man is a sufferer but once; by the other, always.—In conversation use no violent motion of the hands; in walking, do not appear to be always upon business of life or death; for rapid movements indicate a kind of phrenzy.—If you are great, be condescending; for it is better to be loved than feared.—Speak no evil of the dead.—Reverence the aged.—Know thyself. Diogenes Laertius, T. i. l. i. § 68-74. Plin. H. N. T. i. l. vii. § 32. Brucker's Hist. of Philos. by Enfield. vol. i. p. 133. Rollin's Ancient Hist. vol. ii. p. 354.

CHILOE, in *Geography*, a considerable island, or rather group of islands, being one of the governments of Chili, seated on its coast in the southern Pacific ocean, in the gulf of Chonos, or the archipelago of Guaytecas, and separated in its southern part from the continent by a narrow sea, which forms a bay. It is about 140 miles in length by 30 in breadth; but almost divided, in the middle, by bays or creeks. It lies between 41° 40' and 43° 50' S. lat. The principal harbour of the island on the north coast is Chacao, which is said to be well fortified and capable of a good defence, and at Culbuco, which is larger, reside a corregidor, nominated by the president of Chili, and also regidores and alcaldes chosen annually. Besides the parish church, this place has two convents, and a college of Jesuits. The island is well peopled with Spaniards, Mulattoes, and Indian proselytes. We learn from Lequanda, cited by Pinkerton, that from the middle of the 18th century many

ships from Peru have visited the isle of Chiloe. The port of St. Carlos, (S. lat. 41° 50', and long. 303° 57' from the meridian of Teneriffe,) is capable of receiving considerable vessels, and the articles of commerce supplied by the island have given rise to a trade somewhat beneficial. The natives are robust and well disposed; but are deficient in industry. Chiloe has forests of excellent timber, particularly cedar: it abounds in wine, and its pigs, feeding on shell-fish, supply excellent hams. It has an ample fishery; its wheat is scanty, though the soil is good; but the deficiency is supplied with a kind of potatoes, called papas, and with barley and beans, of which they make flour. Cattle and sheep, introduced from Spain, are abundant, and afford good meat: the tame and wild birds are numerous; and the kind of seal, called sea-wolf, is plentiful. The flesh of the seal is salted by the Indians of the small adjacent islands called Chonos, and used as common food. The sea-otter, which is common from Chiloe to Valdivia, furnishes fur not inferior to that of the Canadian beaver, which might become a lucrative article of commerce; and the skin of a bird, called the American swan, is covered with an exquisite snowy down, and used as a delicate fur. The females of the island manufacture ponchos or Indian mantles, and other coarse woollen articles. Some few linen articles are also woven: but both these manufactures are insufficient for cloathing the inhabitants, who are estimated at 25,000, exclusively of the Chonos. They begin to import woollens and cottons from Peru; but the consumption is small. During five years, it is said, the imports from Chiloe at Lima in boards, ponchos, hams, and salt-fish, amounted to more than 280,000 dollars. The exports from Lima to Chiloe exceeded 334,000.

CHILOK, a river of Siberia, which runs into the Selenga near Selenginsk.

CHILON, among the *Greek Physiologers*, one who has great lips, called by the Latins *labeo*. Thus also among the species of fishes, under the class of *capitones*, some are called *chilonas*, that is, *labeones*.

CHILONGO, CHYLONGO, or CYLONGO, in *Geography*, a maritime province of Africa, and the largest in the kingdom of Loango. It is situated between the rivers of Quila on the S. and Combi on the N., which last separates it from Majumba, once a small kingdom of itself, but now a province of this. Its plains are spacious and fertile, and sheltered at a distance by ridges of high mountains. Its inhabitants carry on a very considerable commerce, especially of elephants' teeth, though in other respects they are extremely rude and unpolished. On the coast stands the "Cabo Negro," or black cape, so called by the Portuguese on account of its dark appearance; the whole promontory being covered with trees.

CHILOU, a village of Ceylon, S. of Putallom, where the Dutch have erected houses for the entertainment of strangers. It is situated on the banks of a broad river; and the adjacent country is wild, and dangerous for passengers, on account of the multitude of wild beasts with which it is infested. To the southward of Chilou elephants are numerous, and are hunted with considerable success.

CHILQUES, a jurisdiction of South America, in the kingdom of Peru and diocese of Cuzco; commencing at the distance of about 7 or 8 leagues S.E. of Cuzco, and extending above 30 leagues in length. The temperature of the air corresponds to the situation of its several parts; some of which are very fertile in producing grain, and others feed a great number of cows and sheep. Besides these, its commerce is much augmented by the woollen manufactures of the Indians.

CHILTERN, a ridge of hills, traversing the county of Bucks

Bucks a little to the south of its centre, and reaching from Tring in Hertfordshire, to Henly, in the county of Oxford. To these hills, called the Chiltern Hundreds, is annexed the nominal office of steward under the crown, the acceptance of which enables a member of the British parliament to vacate his seat.

CHILTOTOTL of Hernandez and Ray, in *Ornithology*, the *cardinalis* of Brisson, the *Brasilian tanager* of Latham, and the *tanagra Brasilia* of Linnaeus; which see.

CHIMÆRA, in *Ichthyology*, a genus of fishes in the *chondropterigian* order, the head of which is pointed on the upper part; spiracle single, quadripartite, and under the neck; mouth placed beneath; upper lip five-cleft; cutting teeth two in front both above and below; body elongated; dorsal spine single. Gmelin adds, the tail ending in a slender thread, and longer than the body; but we rather agree with Bloch, who considers the filiform tail of the *chimæra monstrosa* as a specific than a generical distinction.

Two species only of this singular tribe of fishes have been hitherto discovered; the first, *monstrosa*, or sea monster, was sufficiently well known to the older writers as an inhabitant of the European seas, under the names of *centrina prima*, *simia marina*, *galeas acanthias*, &c.; the other *callorhynchus*, the elephant fish of Cook's voyages, is a native of the southern hemisphere, and ranks among the more recent discoveries in *Ichthyology*.

CHIMÆRA *monstrosa* has the lower part of the snout porous and plaited, and the tail terminating in a long and slender filament. *Chimæra monstroso rostro subtus plicis pertusis*, Linn. Fn. Suec. *Chimæra cauda filiformi*, Bloch.

A fish of more remarkable appearance can scarcely be conceived. The body is of a lengthened form, compressed, and gradually tapering towards the tail, which terminates in a long and slender filament; the head is large, thick, and ascending in front into a conic or pyramidal form; the mouth is placed beneath, and is of moderate size; each jaw is furnished with a pair of broad bony laminae, which are crenulated at the tip; the upper lip is divided into five parts, and the front, from the mouth to the eyes, is marked by transverse undulations and pores; a line of this kind runs across the forehead beneath the point or tip, and is continued in a serpentine course into the lateral line, and another line passes from this beyond the eyes, which returns again towards the nostrils. The whole body is of a dark brown above, varied with yellowish brown, and silvery, and the lower parts of a bright silver colour. The eyes are large, of a greenish colour with silvery irides, and very brilliant, or shining with phosphoric splendour. The pectoral fins are of considerable magnitude. The male is distinguished by having a small fringed crest on the top of the head, and by the rough lengthened processes at the anal fin, which correspond with those observed in the males of the ray and shark tribe. This fish inhabits the northern seas of Europe, and is very rarely seen so far southward as the British isles. (Vide Donovan. Brit. Fishes). It grows to the length of three or four feet, and subsists on marine worms and fish of the smaller kinds. The Norwegian fishermen call it the king of herrings, from the circumstance of its being often lurking among the shoals of that fish, the flesh of which appears to be its principal food. The flesh of the *Chimæra* is hard, coarse, and uneatable; the inhabitants of Norway employ however the roes of this fish in their pastry, and in making cakes, and extract an oil from the liver, which they consider of singular efficacy in disorders of the eyes, and as an embrocation for wounds and bruises.

Some call it the sea-ape, and others the sea-lion; it is the *Chimère arctique* of modern French writers.

CHIMÆRA *callorhynchus*. Snout produced beneath into an inflected lip. *Callorhynchus*, Gronov. Mus.—*Elephant Fish*, Ellis, It. Cook, It. *Pejegallos*, Frézier. *Chimæra australis*, Southern *Chimæra*. Shaw.

This nearly corresponds in size with *Chimæra monstrosa*, but has the front rather sloping downwards, and the upper lip extending into a lengthened cartilaginous flap, or appendage, bending down in a reversed direction beneath, from which peculiarity it has acquired the name of the elephant fish. The mouth resembles that of the former fish. The eyes are large; the front marked by undulated lines, and pores, the last of which are less numerous than in *C. monstrosa*. The first dorsal fin, as in that fish, large, somewhat triangular, and armed anteriorly with a strong spine; second dorsal fin resembling the first, but without a spine; the third very shallow, and continued into a thread at the termination of the tail, but which is very short. The pectoral fins are large; ventral moderate; anal small; lateral line commencing from the upper sides of the head, and thence continued in a straight direction, to the beginning of the caudal fin, at which place it terminates. General colour of the whole fish silvery, with a yellowish brown cast on the upper parts; fins pale brown. Inhabits the South Seas.

CHIMÆRA, in *Fabulous History*. See CHIMERA.

CHIMARRHUS, in *Botany*, (so named by Jacquin, *απο του χειμαρρου*, because it usually grows by torrents), Schreb. 309. Willd. 350. Jacq. Amer. 61. Class and order, *pentandria monogynia*.

Gen. Ch. *Cal.* perianth entire, crowning the germ, permanent. *Cor.* one-petalled, funnel-shaped; tube very short; border five-cleft; segments lanceolate, concave, blunt, hairy below, with a longitudinal line running along the middle, spreading. *Stam.* filaments five, awl-shaped, the length of the corolla, hairy at the base, below the divisions of the border; anthers oval, erect. *Pist.* germ roundish, inferior; style filiform, the length of the stamens; stigma bifid, obtuse. *Peric.* capsule somewhat egg-shaped, obtuse, crowned, two-celled, two-valved; valves bifid at the tip. *Seeds* solitary.

Ess. Ch. Corolla funnel-shaped, with a very short tube. Capsule inferior, obtuse, two-celled, two-valved; valves bifid at the tip. Seeds one in each cell.

Sp. C. *lympha*. A lofty tree, with branches spreading out horizontally, wood white, used for beams, rafters, &c. *Leaves* egg-shaped, acuminate at both ends, quite entire, shining, petioled, opposite; a foot long, commonly eight or ten at the end of each twig. *Flowers* white, numerous, small, scentless, in cyme-like racemes half a foot in diameter; those in the axils opposite and solitary, those at the end usually four together. *Capsules* small. A native of Martinico, where it is called *Bois de Riviere*.

CHIMARRUS, in *Ancient Geography*, a river of Peloponnesus; placed by Pausanias between the Erasinus and the maritime burgh of Lerna.

CHIMAY, in *Geography*, a town of France, in the department of Jemmappe, and chief place of a canton, in the district of Charleroy. The place contains 1892, and the canton 8935 inhabitants: the territory includes 300 kilometres and 17 communes. In the vicinity of Chimay, are mines, with founderies and forges, of iron. It is 10½ posts E.N.E. of Cambrai, and 15½ S.E. of Lillo.

CHIMBADORES. See SANTA.

CHIMBO, a jurisdiction of South America, in the province of Quito, situate on the west side of the jurisdiction

of Riobamba, and consisting of an assiento and seven villages: the former, being the capital, is called Chimbo, and was the residence of the corregidor; till it was thought proper, for the convenience of commerce, to remove it to Guaranda, the principal of the above villages. Guaranda is inhabited generally by Mestizos, with some Indians, and very few Spaniards. The jurisdiction of Chimbo being the first of the Serrania, or ridge of mountains bordering on that of Guayaquil, carries on, by means of innumerable droves of mules, the whole trade of Quito and the other provinces, by the way of Guayaquil, carrying the bales of cloth and stuffs, together with the meal, corn, and other products of the country, from the former to the latter; and returning with wine, brandy, salt, cotton, fish, oil, and other goods, for the supply of the provinces of the mountains. This traffic is very advantageous to the inhabitants; but, as the roads, in winter, are impassable to beasts of any kind, it can only be carried on during the summer. This intermission of trade they call "carrarse la montana," i. e. the shutting up of the mountains. The temperature of the air at Guaranda, and of the greatest part of the jurisdiction of Chimbo, from the proximity of Chimborazo, is very cold. The country is extensive and fertile; but the haciendas, or farms, are generally appropriated to the breeding of mules; a few only being cultivated for different species of grain.

CHIMBORAZO, a mountain of South America, situate in the province of Quito, about 100 miles to the south of the city of that name, and about 10 miles to the north of Riobamba, and reckoned the highest point of the Andes. The French mathematicians, who were employed from 1735 to 1743 in measuring a degree of the meridian, computed the height of this mountain to be 3217 French toises above the level of the sea, or 19,302 French feet, which, reduced to English feet, are 20,571. Others state the height of this mountain above the ocean to be 19,595 feet. Consequently, if we admit the height of Mont Blanc to be 15,662 feet, Chimborazo, according to the French measure, is nearly 5000 feet, or a quarter higher. That part of Chimborazo which is covered with perpetual snow, is about 2400 feet from the summit. It should be recollected, however, that this mountain is elevated above the high plain of Quito, which constitutes nearly one-half of the computed height, allowing it to be 9377 feet above the ocean; and, therefore, considered as mere excrescences from the land, they still yield to Mont Blanc. This mountain, though it lies in S. lat. $1^{\circ} 41' 40''$, and consequently near the equator in the middle of the torrid zone, is covered on its sides with ice and snow; and the country adjacent to it is often pierced with intolerable cold, on account of the winds which blow from the mountain. See MOUNTAIN.

CHIMEPANIPESTICK, a river of Canada, which runs into the river St. Lawrence. N. lat. $50^{\circ} 5'$. W. long. $61^{\circ} 25'$.

CHIMER, in *Ornithology*, the Chiming-Thrush and Turdus Campanella of Latham, La Carillonneur of Buffon, and Turdus tintinnabullatus of Gmelin; which see.

CHIMERA, or HIMERA, in *Ancient Geography*, a town of Sicily. Steph. Byz.

CHIMERA, a mountain of Asia Minor, in a district of Lycia, according to Pliny, who says that it had many volcanoes, and resembled Ætna. The Lycians built near this mountain the town of Hephæstia, which they consecrated to Vulcan. Virgil mentions this mountain in his *Æneid*. See CHIMERA *infra*.

CHIMERA, in *Geography*, a town and fortress of European Turkey, capital of a district in the province of Albania,

seated on a rock near the sea-coast, opposite to the island of Corfu. N. lat. 40° . E. long. $19^{\circ} 2'$.

CHIMERA, or CHIMÆRA, in *Fabulous History*, a monster, the daughter of Typhon and Echidna, that breathed a fierce and inextinguishable fire, and which the poets feign to have the head and breast of a lion, the belly of a goat, and the tail of a dragon; and to have been killed by Bellerophon, mounted on the horse Pegasus. This female monster was born in Lycia, and Bellerophon received his orders from Jobates, king of Lycia, to destroy her, and to extirpate a people called the Solymi. Minerva, as some say, or, according to others, Neptune, commiserating his situation, exposed to such dangers, sent him the flying horse Pegasus, by whose assistance he overcame the Solymi and slew the Chimæra.

The foundation of the fable is this: that anciently, in Lycia, there was a volcano, or burning mountain, of this name; the top whereof, which was desert, only inhabited by lions; the middle, having good pastures, was frequented by goats; and the foot, being marshy, by serpents: Thus Ovid:

" — mediis in partibus hircum,
Pectus et ora lææ, caudam serpentis habebit."

Bellerophon being the first who caused this mountain to be inhabited, it was hence feigned that he slew Chimæra. Pliny says, the fire thereof would burn in water, and could be extinguished with nothing but earth or dung. Among other explanations that have been given of this fable, some have supposed that the Chimæra was a pirate ship, whose prow bore the figure of a lion, her middle that of a goat, and her stern a serpent. Among the Bronzes in the collection of the Grand Duke at Florence, is a curious representation of the Chimæra, composed of a lion and goat, in their respective proportions, with an inscription in Etruscan characters. Among philosophers, and in common language, Chimera denotes a mere creature of the imagination.

CHIMERA is used, in *Writers of the Middle Age*, for a kind of vessel or ship. It seems to have been less than the chelandium.

CHIMERIUM *promontorium*, in *Ancient Geography*, a promontory of Asia Minor, on the coast of Lycia, according to Strabo. It was formed by the mountain called Chimera or Chimæra.

CHIMES, in *Horology*, is a species of music mechanically produced by the strokes of hammers against a series of bells, tuned agreeably to a given scale in music; the hammers are lifted by levers acted upon by metallic pins or wooden pegs stuck into a large barrel which is made to revolve by clock-work, and is so connected with the striking part of the clock mechanism, that it is set in motion by it at certain intervals of time, most usually either at every hour, or at every quarter of an hour. The music thus produced may consist of a direct succession of the notes constituting an octave frequently repeated, or otherwise may be a psalm tune, or short popular air in the key to which the bells are tuned. This species of mechanical music is by no means calculated to improve the taste, and had its origin most probably, like clockwork itself, in some of the monastic institutions of Germany, where, according to Dr. Burney, it prevails greatly, and where the ringing of changes on bells, as in England, is but little, if at all practised. The chime mechanism may be adapted either to act with the large bells of a church steeple, by means of wheel-work proportionably strong to raise heavy hammers, or a set of bells of different diameters may be arranged concentrically, within one another

other on one common axis, sufficiently small to be introduced into the frame of a clock, or even of a watch, which we have seen performed by Margetts, who lately died in a state of insanity. The manner in which the hammers are moved by the pins of the chime-barrel must necessarily vary according to circumstances, as the wires of different rooms are differently placed to produce the sound of a house bell, but an ingenious workman will vary the length and shape of his levers of communication agreeably to the situation and distance of his bells from the clockwork, so that if we give a description of the chime mechanism of a church clock, and also of a portable piece, he will not be at a loss to know how to devise and adapt the necessary parts for any other construction.—But before we proceed to our descriptions, it will be proper to give an account of the chime-barrel, and the method of inserting the lifting pegs, or of what is called pricking it.

CHIME-Barrel is that cylinder of brass in small clocks, or of wood in church-clocks, which gives motion to the hammers, that strike on the bells, and produce a change or tune thereon, by means of pegs inserted into certain points of its circumference at measured intervals, the pegs serving to lift the hammers in regulated succession both of order and time.

In making a chime barrel for any given tune there are certain necessary conditions to be attended to: First, the barrel must be well turned in a lathe upon its own arbor, so as to have the whole surface of its circumference concentric, when revolving on its pivots. Secondly, the train of wheel-work, belonging to the chime-work, must make the barrel revolve in a space of time exactly equal to what is required for playing the requisite tune on any other instrument, which time may be exactly limited by proportioning the fly on the last wheel to the power of the weight or spring that urges the first wheel of the train. Thirdly, there must be as many bells as the compass of the proposed tune contains musical notes, and also as many rows of pegs inserted into parallel circular lines on the circumference of the barrel as there are hammers to be lifted by them; and, lastly, the whole circumference of the barrel must be divided into as many longitudinal parallelograms of equal breadth, as there are musical bars in the proposed tune, each of which must be again subdivided into as many parts as there are notes of the lowest denomination, whether crotchets, quavers, or semi-quavers, in each bar; then the parallel dividing lines will correspond to the bars, and the subdivisions within will be the guides for placing the pegs in those bars respectively: for instance, suppose that Pleyel's German hymn be required to be played by a chime clock of any description, and that the points on the barrel where the pegs or pins are to be inserted be required to be ascertained?

In *fig. 1. of Plate VII. (Horology)*, it will be seen that this popular hymn is marked $\frac{2}{4}$, which implies, that the bar is measured by four, or crotchets, of which there are two in each bar; it is also observable that the quickest note in the tune is a semi-quaver, of which denomination eight constitute two crotchets, or one bar; consequently the bar must be sub-divided into eight. Now suppose the length of the barrel to be represented by the line, *DD*, or *dd*, because the compass of the hymn is just one octave beginning and ending with *D* inclusively, the line, *DD*, or *dd*, must be divided into seven equal parts, which will require eight points in each to include them, viz. *D, E, F, G, A, B, C, D*, and *d, e, f, g, a, b, c, d*; then, because the whole hymn contains 16 bars, the whole line, *DD*, which we assume as equal to the circumference of the barrel, must be divided into 16 equal parts, which we have made to fall opposite their re-

spective bars, the better to elucidate our example; then each of these parts may easily be conceived to be sub-divided into eight smaller divisions, as from 1 to 2 in the lower line, *DD*. From the dividing points let straight lines be drawn to complete the square, or parallelogram as the case may be, and there will be a figure, *DDdd*, with $8 \times 16 = 128$ small squares or parallelograms, which we will suppose to be on paper that will exactly cover the barrel when passed round it, in order to convey a more distinct idea of the method of ascertaining the true places of the pins on the barrel, which may be thus done:

The first note, *B*, is a crotchet, and therefore the pin, represented by a dot, that moves its hammer must be in the beginning of the line *Bb*, and the next following pin must be at the space of half a bar forwards to limit its continuance; accordingly the next note, *D*, is placed on the line, *Dd*, at half a bar forwards; again this second note, *D*, being also a crotchet, requires the next succeeding note of *A* to be removed another half bar, namely to the intersection of the lines, *Aa*, with 2 2; but the third note, *A*, which we have just mentioned, is equal in length to three quavers, or six semi-quavers; the succeeding pin to represent *B* must consequently be removed $\frac{6}{8}$ or $\frac{3}{4}$ of the bar, leaving $\frac{2}{8}$ or $\frac{1}{4}$ for the remaining quaver from *B* to *C*, the latter of which, being the first note of the third bar, falls on the intersection of the bar line, 3 3, with the hammer-tail line, *Cc*: by the same rule the crotchet, *C*, once struck continues half of a bar, and requires the following *A* to be half of a bar advanced, but *A* is here $\frac{3}{8}$ of a crotchet, and the following *B* only $\frac{1}{4}$ of the same or $\frac{1}{8}$ of the bar; the pin of *B* must therefore be at $\frac{7}{8}$ of the bar, and the succeeding one on the bar line to limit its duration to $\frac{1}{8}$. In the fourth bar there is a crotchet rest, which is the reason why there is no dot or pin between its bar lines, as though the *B* of this bar had been a minim.—We might thus have analysed the whole surface of the barrel, so far as relates to this hymn, but it is presumed the preceding detail, clearly understood, will render the rest perfectly intelligible without further explication.

When the hammers are very heavy, as in church clocks, those bells which have quavers or semiquavers to be struck immediately in succession require to have each two hammers and each a pair of parallel circles pricked to perform within the limit of time; and when either the barrel is made adjustable, or the pins moveable, a number of tunes may be put on the same barrel, and where the bells are sufficiently numerous, the tune may be played in two or even three parts.

This method of pricking a chime barrel for playing on bells differs from that of an organ-barrel in this respect; that in the former the length of the note is measured by the space between the contiguous pins, whereas in the latter the limit of the note is produced by crank pieces, instead of pins, which pieces keep the pipes open, and therefore must cover the very spaces which lie between the pins of the other; the projecting parts of one barrel mutually corresponding to the vacant parts of the other.

CHIMES of a church clock. *Plates V. and VI. of Horology* explain the chime mechanism in the clock-room of St. Margaret's church, Westminster: *A* (*figs. 1 and 3*) is a barrel on which the rope *B* is wound; this rope, after passing over a fixed friction roller, has a heavy leaden weight fastened to it, by the descent of which the mechanism is actuated: *D* is a large wheel at the end, and on the arbor of this barrel, which is worked by a pinion *E*, not seen, the arbor of which is square at the projecting end for the key of the

the handle by which the weight is wound up; the barrel A is so contrived, by means of the click *b* and ratchet wheel *a*, (*fig. 1*) that, when the rope is in the act of being wound, the barrel slips round its stationary arbor, but when the weight is going down, it turns the large cylinder or chime barrel C attached to the arbor along with it; this chime barrel is made of wood, and has a number of pegs screwed into it, which, as it turns round, at proper intervals take hold of the inner ends *d* of the horizontal and parallel levers F, raise them to a certain height, and then let them go suddenly; this motion at the same time depresses the outer ends *e* of the said levers, and by means of the upright rods G, and other intermediate rods, raises the hammers which strike upon the large bells in the belfry or story above. On the end of the chime barrel next to barrel A, is a large wheel H (*figs. 1* and *3*) which takes into a small pinion on the arbor of the wheel I; this wheel works a pinion on one end of the long arbor K, (*fig. 1*) on the other end of which arbor is a pair of fanners, or a fly L, the vanes of which catch the air, as they turn, and regulate the velocity of the machine. This fly is shewn separate in *fig. 2*. A is a portion of the arbor, on which is loosely fitted an iron bar B B, having a vane D at each end to prevent the bar from slipping round the arbor in a retrograde direction; a ratchet wheel *b* is attached to the outer end of the arbor, and a click *c* is fastened on the fly, which is kept to the teeth of the wheel by a spring, so that when the arbor turns the click stops against the teeth of the wheel, and turns the fly with it, but when the arbor is suddenly stopped (as hereafter described), the fly continues its forward motion for some time by means of its momentum, the click *c* in the mean time slipping round the ratchet *b*; by this contrivance all strain upon the mechanism, by a sudden check of the momentum of the fly, is avoided. On one of the diagonal or cross bars of the wheel I (*figs. 1* and *3*), is a projecting piece of metal *f*, which piece, when the machine is to be stayed, is caught by a detent *g*, which detent may be moved towards the centre of the wheel (so as to clear the piece *f*) when the machine is to be put in motion; the upper end of the detent *g* is fastened to an arbor M, so as to have a circular motion with it; to which arbor is also fixed another detent *h* (*fig. 3*) bent to avoid the bar of the frame. On the middle of this detent *h*, a piece of upright iron *i* is riveted, on the end of which a hammer N (*figs. 1* and *3*) strikes; this hammer is raised at the proper hour by the church clock, and by its fall strikes the piece *i*, (*fig. 3*) depresses the bent detent *h*, and consequently moves the detent *g* from the stop of the piece *f*. O is a circular plate, having a notch in one part of its circumference; at the back of it are fastened four arms *k, l, m*, (*fig. 3*) and another not seen. On the face of the wheel H there is a projecting tooth *n* (*fig. 1*) which takes hold of one of the arms on O, and at every turn of the wheel H, moves the wheel O round the space of one quarter. Behind the arms *k, l, m*, are four knobs *p, q, r, s*, in a detached state (shewn in *fig. 4*) against which a lever R (*figs. 3* and *4*) is pressed, by a spring S; the use of this additional mechanism is to make the wheel O always describe a complete quarter of a revolution whenever it moves at all, for suppose the arms *m, l, k*, (*fig. 4*) to have the position of the dotted lines *m', l', k'*, the pin *n* on the wheel H (*figs. 1* and *3*) takes the arm *m* and pushes it downwards, during which course the knob *p* (*fig. 4*) raises the lever R into the position of the figure; the spring and lever then act upon the knob *p*, and quickly bring the arms to the dotted position, in which situation the letters of reference are advanced each to the next arm. This clock has moreover the striking work, in which there is, as usual, a wheel

called the count wheel, which turns round once in 12 hours; in this wheel there are three pins, that, at the hours 4, 8, and 12, move the end of a lever that communicates, by means of an intermediate rod Q, (*figs. 1* and *3*) with the tail P of the hammer N, so as to elevate it; as the count wheel turns round, one of its pins lets go the lever, and the hammer N falls upon the detent *b*, (the end of which is supposed to be in the notch of the plate O) pushes it down, and at the same time moves the detent *g* on the same arbor M inward; as soon as the hammer has made a stroke, it is partly lifted up again by the tail spring *t* (*fig. 3*) acting against the bar of the frame; but the end of the bent detent *h* is prevented from again entering the notch in the plate O, when the hammer rises, by the lever R, which at the instant the lever *h* (*fig. 4*) is pushed down, moves the wheel O a little round, by means of the spring S, into the position of the figure. When the hammer has thus struck and removed the detent *g*, (*fig. 3*) the leaden weight pulls the barrel A, and sets the machine in motion, during which motion the pegs in the chime barrel E strike the lever, F, and move the bell hammers in the due succession of time, the fly (*fig. 2*) in the mean time regulating the velocity of the barrel. At each revolution of the chime barrel E, the peg *n* in wheel H turns the wheel O round one quarter of a revolution, and by the time the barrel has turned four times, the notch in the plate O is brought again opposite to the end of the bent detent *h*, which therefore falls in by the weight of the detent *g*, the latter of which also falls at the same time, so as to catch the stop *f* which stays the machine. The said notch in the plate O is so placed, that when the bent detent *h* is locked into it, the knobs *p, q, r, s*, on the back of this plate, are in the position shewn in *fig. 4*, so that this plate O moves, the instant it is permitted to do so, by the detent *h* being removed by means of the spring S, independently of the great wheel H. This machinery plays four different tunes, which are changed by turning the index W (*fig. 1*) by the handle to the corresponding tune marked on the dial plate T; this handle has a pinion on its arbor, behind the dial plate, which works in a rack upon the crooked iron bar *v y*, so as to move it up or down when the handle is turned; the bar *v y* is made to move steadily, by having a crook *x* with parallel sides at each end, sliding against both sides of corresponding steady pins screwed into the frame; and the friction of a spring, 7, pressing against it, prevents its being moved by accident: in the middle of the bar *v y* is a bend *y*, which acts like an inclined plane between the rollers 3, 4, fixed in a small frame at the end of the bar W, so as to move that bar horizontally, while the crooked bar *v y* is moved vertically; to the horizontal bar W are fixed the centres of the keys, or short levers, F, and a long iron plate, 5, with 16 notches to confine each lever to its own plane of action. The sliding pins *g g*, moving in a cock with two perforations attached to the frame, confine the bar W to a horizontal motion. In setting out the pegs on the barrel, 64 parallel circles, four to each lever, are drawn round it, at equal distances; every four of these coincide successively, by the rack-work adjustment, with one of the levers, so that the respective pegs upon the barrel in the first of each four circles may work its own lever, and play one tune; then by moving the levers, along with the bar W, the distance that two contiguous circles are apart, a second set of pegs is presented to the said levers, which now play a second tune; and in the same manner a third and fourth, successively. The 16 rods G have each a screw adjustment at their lower ends, and their upper ends are connected with revolving rods fixed to the ceiling, by which the motion is conveyed, under each bell, to the

the hammers, which are placed each in a line perpendicularly under the axis of its bell, so as to strike near its lower extremity; (*Plate vii. fig. 4*): the weight of each hammer H is supported by a spring S, in such a manner that it rises from the bell the instant it has struck. There is moreover a long horizontal iron bar that goes across the levers F (*Plate V. fig. 1*) not seen, the ends of which are connected with another lever also not seen, which, when it is pulled down, takes up all the hammers at once, so as to clear the bells in the act of ringing. There are ten bells in this steeple, six of which have each two hammers, and the other four but one piece; the double hammers are used where the same bell is required to be struck twice in succession so quickly, that the same hammer could not be lifted up and be made to return twice in the requisite time.

In the mechanism we have here described, the chime barrel is so constructed as to be capable of playing only four tunes; but in some steeples which we have visited, the barrels have parallel longitudinal apertures, which admit the lifting pegs to slide into any situation, and which consequently render them disposable for any tune within the compass of the two extreme notes, the sliding pieces being fixed by thumb screws within the barrel.

CHIMES of a common clock. After the ample account which we have just given of the chime mechanism of a large church clock, we will satisfy ourselves with giving so much only of the chime work of a common clock, as may suffice to give the reader an idea how a communication is made from the barrel to the bells, which portion could not easily be represented where the bells are at a distance from the barrel, as is the case in a church steeple. We beg leave, however, to refer our readers to our article *CLOCK with chimés*, for a more particular description of the mechanism which connects the chime part with the going part of the clock, and which alternately locks and unlocks the train of wheel-work that regulates the chime-barrel, it being impossible to describe in a complete manner the contrivance for making the chimés go, and repeat at every quarter of an hour, without describing at the same time the striking mechanism, which does not properly belong to this article. *Figures 2 and 3 of Plate VII. (Horology)* represent as much of the chime mechanism of an ordinary clock as will serve our present purpose: A B C D constitute a portion of the clock frame, of which one connecting pillar only is shown; E is the chime barrel of brass, nearly equal in length to the pillar, and of a diameter sufficient to admit of diagonal rows of brass or steel pins to lift the hammer tails F, in the successive order of a descending octave, while the barrel is revolving, there being eight hammers G usually striking successively against as many bells H, which are mounted, concentrically within one another, on a common axis held fast by the bearing piece of steel, I, screwed to the face of one of the plates at its lower extremity. The mechanism connected with the striking part of the clock is so ingeniously contrived and arranged, as may be seen under the article to which we have already referred, that at and after the first quarter from any hour, it will repeat the octave once; at and after the second quarter, it will repeat the same twice; at and after the third, three times; and at and after the hour itself, four times; also whenever the octave is repeated four times, the chime part unlocks the striking part, and allows the clock to strike the last hour as soon as the chimés have ceased, but not before. K is a brass frame screwed at the lower end across the side of the superior part of the clock frame, which holds the works, and has a brass plate N, of hammered metal attached to it by screws; this plate, N, is divided nearly to the top by eight parallel vertical slits, made by a saw, which form so many springs; the hammers

all turn upon a common fixed arbor near P (*figs. 2 and 3*) by means of a perforation made in each solid part P above the tails, which solid part has a straight edge in each, against the central point of which the respective spring bears a little above its inferior extremity (*fig. 2*); this mode of applying a spring gives it the advantage of performing two offices, for it will not only keep the hammer tail in its proper situation, to be taken by a pin of the barrel, but will give a smartness to its blow, and then restore it to its original position, by acting alternately, partly above and partly below the central hole; which kind of action will readily be understood, by examining the opening joint of a pen-knife, and attending to the manner in which its spring is applied. L is a cock screwed to the face of one of the plates of the frame, and holds the projecting pivot of the fly wheel, to which the fly M is attached with a spring O pressing against it, in such a manner as to hold it to the arbor of the wheel when the latter revolves, and yet to allow it to turn in a detached state, when the motion of the wheel is suddenly arrested at the conclusion of the chiming, which is a necessary precaution for preventing the destructive effect which might be produced by an instantaneous check of the momentum of the fly, and answers the same purpose as the ratchet wheel and click, together with a spring, on the large fly of the church chime work before described.

The chime barrel which we have here described, is pricked for the performance of a repetition of the eight notes of the octave by a descending gradation, but it might as easily have been made to chime the same scale by an ascending gradation, or to play any hymn or other tune within the compass of the eight notes, or even with more notes, by the addition of a few more bells; and that without more than one hammer to each bell; for when the mechanism is light, the hammers may be made to act with as much rapidity, as the hammers of a grand piano forte.

CHIMIN, or **CHEMIN**, in *Law*, a road, or way. See **HIGHWAY** and **ROAD**.

CHIMINAGE, a toll for wayfarage or passage through a forest. The feudists call it *pedagium*.

CHIMITAS, the name of a tribe of American Indians, in the province of New Granada, who are seated on one side of the river Mafabesca, whilst the Guagiros occupy the other; and both concur in intercepting the trade of Carthage and the coast.

CHIMNEY, in *Architecture*, a part of a house or chamber, in which the fire is made.

The word chimney comes from the French *cheminée*, which is derived from the Latin *caminus*, and that from the Greek *καμινος*, a chimney, of *καω*, I burn. The parts of a chimney are, the hearth or fire-place, the jambs or sides, the back, the mantle resting on the jambs, and the tube or flue which conveys away the smoke.

It has been frequently made a question whether or not the ancients were acquainted with the use of chimnies in the common acceptation of the word. On this subject we shall proceed to state those circumstances and arguments that occur.

In favour of the antiquity of chimnies it has been alleged, that Homer (*Odyss. l. i. v. 58.*) represents Ulysses, in the grotto of Calypso, as wishing that he might see the smoke ascending from Ithaca: whence Montfaucon (*L'Antiquité expliquée*) infers, that the houses of Ithaca had chimnies, without which the wish is unintelligible. But in reply, it may be said, that smoke might have been seen in its ascent, though it proceeded from doors or windows. Herodotus also relates (*l. viii. c. 37.*) that a king of Libya, when one of his servants asked for his wages, offered him in jest the sun,

which at that time shone into the house, through the chimney as some have translated the original; but what is here called chimney was merely an opening in the roof, under which, probably, the fire was made in the middle of the edifice. Aristophanes, in his comedy of the *Vespæ* (v. 139.), introduces old Philocleon shut up in a chamber whence he endeavours to make his escape by the chimney; which, however, was a mere hole in the roof, as Reiske has determined; and this appears probable, because mention is made of a top or covering, with which the hole was closed. Several passages have been cited from *Athenæus* (*Deipnos.*), which seem to refer to chimnies; but these are evidently inconclusive; and some of them intimate that there was no such passage for the smoke as a chimney.

Such are the testimonies of Greek authors, respecting the antiquity of chimnies; but they are rather evidences to the contrary, or that the houses of the ancients were constructed without chimnies; more especially when we consider, that there were no chimnies at Rome at the time when these authors wrote, which would not have been the case if the Romans had ever seen them among the Greeks. Vitruvius makes no mention of them, and it is well known that the Romans were accustomed to use other means for warming their houses, such as stoves and brasiers.

The two words *caminus* and *focus* employed by the Latin authors to denote the fire-place are used indiscriminately, so that it is not possible to observe any difference in their signification. Thus, *focus*, which might be taken for a brazier in which charcoal was burnt, is also used to denote a place proper for the consumption of wood, as the words of Horace prove,

“ Dissolve frigus, ligna super foco
Large reponens.” Lib. i. Od. 9, 5.

And when Vitruvius directs in what manner the stables of farm-houses should be placed with respect to the kitchen fire, (Lib. vi. cap. 9) he also uses the word *focus*, which certainly cannot be supposed in this place to mean a portable brazier.

Cicero, in writing to Atticus, says in the same sense as Horace: “*Camino luculento utendum censeo.*” When Vitellius was chosen emperor, the eating-room or *triclinium* was set on fire by the *caminus*. Sueton. cap. 8. This passage, however, seems to allude to a chaffing-dish filled with coal.

Thus these two words are used in a manner which gives completely (say the advocates for the antiquity of chimnies) the idea of a common chimney, for it cannot be supposed that in any dwelling where the conveniences of life were tolerably understood, a fire of wood should be made without a passage for the smoke. The line of Virgil,

“ Et jam fumma procul villarum culmina fumant,”

in some measure supports this opinion, which is further confirmed by Appian, who says “that of those persons proscribed by the triumvirate some hid themselves in wells and cloacæ, some in the tops of houses and chimnies;” for so those who maintain this opinion understand *καπνοδοίς ὑπαγοφίας*, *fumaria sub tecto posita*. It is alleged, however, that the true translation is *fumosa cœnacula*: and it is further said that the principal persons of Rome endeavoured to conceal themselves in the smoky apartments of the upper story under the roof, which, in general, were inhabited only by poor people; and this seems to be confirmed by what Juvenal expressly says (Sat. x. v. 17) “*Rarus venit in cœnacula miles.*”

The use of chimnies, it is allowed, if it ever obtained

among the Romans, was superseded by that of stoves and flues; this practice was probably introduced about the reign of Nero. Seneca relates that in his time there were invented certain tubes which were placed in the walls, by which the heat of the fire was made to circulate and warm equally the upper and lower apartments.

Against the antiquity of chimnies it has been urged, that if there had been any in the Roman houses, Vitruvius could not have failed to describe the construction of them. But he does not say a word on this subject; neither does Julius Pollux, who has collected with great care the Greek names of every part of a dwelling-house; and Grapaldus (*De partibus ædium libri*), who in latter times made a like collection of the Latin terms, has not given a Latin word expressive of a modern chimney. It has been said, indeed, that the word *caminus* means a chimney; but this term, though it was used for a chemical or metallurgic furnace, for a smith's forge, and for a hearth, does not seem, among the Romans, to have denoted a chimney.

In the houses discovered at Herculaneum and Pompeii, there are no chimnies, but they appear all to have been warmed by the means of flues and a subterraneous furnace or *hypocaustum*. See that article, and also STOVES.

The complaints often made by the ancients respecting smoke, serve also to confirm the opinion that they had no chimnies. Upon the whole it may be observed, that, though one or more expressions of ancient authors may appear to allude to a chimney, and though we should infer from such expressions, as Montfaucon has done, that the ancients were acquainted with the art of constructing in mason-work elevated funnels for conveying away the smoke, it must be allowed, when we consider the many proofs that occur to the contrary, that they were, at any rate, extremely rare. As they are so convenient and useful, and can be easily constructed upon most occasions, it is impossible, if they had been well known, that they should ever have been forgotten.

It is not easy to determine the period when chimnies first came into use. If it be true, as Du-Cange, Vossius, and others affirm, that apartments called “*caminatæ*” were apartments with chimnies, they must have been introduced at an early period; for that word occurs in the year 1069, or before that time; but it is always found connected in such a manner as entirely to contradict the above signification. The writers of the 14th century seem either to have been unacquainted with chimnies, or to have considered them as the newest invention of luxury. That there were no chimnies in the 10th, 12th, and 13th centuries has been presumed from the terms “*ignitegium*,” or “*pyritegium*,” the curfew-bell of the English, and *couvre-feu* of the French, which seem to intimate, that the people made fires in their houses in a hole or pit in the centre of the floor, under an opening formed in the roof; and when the fire was burnt out, or the family went to bed at night, the hole was shut by a cover of wood. See CURFEW. The oldest certain account of chimnies that has occurred to Beckmann in his researches (see Hist. of Inventions, vol. ii. p. 103.), is in the year 1347; for an inscription at Venice records that at the above period a great many chimnies (*molti camini*) were thrown down by an earthquake. He adds, that the first chimney-sweepers in Germany came from Savoy, Piedmont, and the neighbouring territories, and these for a long time were the only countries where the cleaning of chimnies was followed as a trade. Hence, he conjectures, that chimnies were invented in Italy.

In considering the countries of modern Europe we may observe the use of stoves prevalent throughout the North, while in France and Great-Britain open chimnies are general. On the other hand, in the warm countries of Italy and Spain there are very few chimnies, and the only method usually

usually practised of tempering the cold, which is sometimes severely felt, is to burn charcoal in portable brasiers.

A chimney, as it has been before observed, consists of a fire-place in which the fuel is consumed, and a flue to carry off the smoke and vapour arising from the combustion; thus affording the benefit of the heat of a fire without the inconvenience of its smoke. But these objects were, and still are very imperfectly attained, a very large portion of the fuel being wastefully consumed without increasing the warmth of the apartment, and, in fact, causing those blasts of cold air so commonly complained of by the sides of large open chimnies, while the smoke is frequently driven out to the intolerable inconvenience of the inhabitants. The plague of a smoking chimney is proverbial, and has engaged considerable attention from observers of various descriptions.

Dr. Franklin is the first who has treated this subject in a philosophical manner, and in his "Observation on the Causes and Cure of Smoky Chimnies," published in 1785; he has very satisfactorily explained all the usual causes of this defect, and shewn their remedies. To this pamphlet, succeeded the Essay of Count Rumford, in 1796, whose improvements have been very generally followed in the construction of fire-places. From these two works, which together form a very valuable body of information, we shall draw the materials for the following treatise on the cause and cure of smoky chimnies, together with the methods of increasing the heat and diminishing the quantity of fuel consumed.

The mode and cause of the ascent of smoke in a chimney may be thus explained; the air contained in the flue being heated by the fire immediately below it, becomes rarefied, and therefore lighter than the external air through which it accordingly rises, and as the heated air escapes from the top of the chimney, its place is supplied by the influx of fresh quantities of air, which, passing over the fire, becomes likewise heated, and thus a constant current is formed in the flue which directs and carries off with it the smoke and vapour from the burning materials. It may be observed here that smoke is not, as some are apt to imagine, in its own nature specifically lighter than air, but the contrary, as may be shewn by a simple experiment. Having lit a pipe of tobacco, plunge the stem to the bottom of a decanter half filled with cold water, then putting a cloth over the bowl blow through it, and make the smoke descend in the stem of the pipe, from the end of which it will rise in bubbles through the water, and being thus cooled, will not afterwards rise to go out through the neck of the decanter, but remain spreading itself and resting on the surface of the water. In this case, therefore, smoke is heavier than air, and it is only when rarefied by heat that it becomes lighter. As, however, the vapour rising from a fire must always be highly rarefied, it is easy to perceive that it would be as much a miracle if smoke should not rise in a chimney, (all hindrances to its ascent being removed,) as that water should refuse to run in a syphon, or to descend in a river. What is it then which creates a smoky chimney, that is, a chimney, which, instead of conveying off all the smoke, discharges a part of it into the room? The causes of this effect may be reduced to the following general cases.

Smoky chimnies in a new house, are such, frequently, for want of air. The workmanship of the rooms being all good and just out of the workman's hands, the joints of the flooring and of the pannels of the wainscoting are all true and tight; the more so as the walls, perhaps not yet thoroughly dry, preserve a dampness in the air of the room which keeps the wood-work swelled and close: the doors and

the sashes too being worked with truth, shut with exactness, so that the room is perfectly tight, no passage being left open for the air to enter except the key-hole, and even that is frequently closed by a little dropping shutter. In this case it is evident that there can be no regular current through the flue of the chimney, as any air escaping from its aperture would cause an exhaustion in the air of the room similar to that in the receiver of an air-pump, and, therefore an equal quantity of air would rush down the flue to restore the equilibrium; accordingly the smoke, if it ever ascended to the top, would be beat down again into the room. Those, therefore, who stop every crevice in a room to prevent the admission of fresh air, and yet would have their chimney carry up the smoke, require inconsistencies and expect impossibilities. The obvious remedy in this case is, to admit more air, and the question will be how and where this necessary quantity of air from without is to be admitted, so as to produce the least inconvenience; for if the door or window be left so much open, it causes a cold draft of air to the fire-place, to the great discomfort of those who sit there. Various have been the contrivances to avoid this, such as bringing in fresh air through pipes in the jambs of the chimney, which, pointing upwards, should blow the smoke up the funnel; opening passages in the funnel above to let in air for the same purpose; but these produce an effect contrary to that intended, for as it is the constant current of air passing from the room through the opening of the chimney into the flue, which prevents the smoke coming out into the room, if the funnel is supplied by other means with the air it wants, and especially if that air be cold, the force of that current is diminished, and the smoke in its efforts to enter the room finds less resistance.

The wanted air must then indispensably be admitted into the room to supply what goes off through the opening of the chimney, and it is advisable to make the aperture for this purpose as near the ceiling as possible, because the heated air will naturally ascend and occupy the highest part of the room, thus causing a great difference of climate at different heights, a defect which will be in some measure obviated by the admission of cold air near the ceiling, which descending, will beat down and mingle the air more effectually.

Another cause of smoky chimnies is too short a funnel, as, in this case, the ascending current will not always have sufficient power to direct the smoke up the flue. This defect is frequently found in low buildings, or the upper stories of high ones, and is unavoidable, for if the flue be raised high above the roof to strengthen its draft, it is then in danger of being blown down and crushing the roof in its fall. The remedy in this case is to contract the opening of the chimney so as to oblige all the entering air to pass through or very near the fire, by which means it will be considerably heated, and by its great rarefaction, cause a powerful draft, and compensate for the shortness of its column. The case of too short a funnel is more general than would be imagined, and often found where one would not expect it; for it is not uncommon in ill-contrived buildings instead of having a separate funnel for each fire-place to bend and turn the funnel of an upper room so as to make it enter the side of another flue that comes from below. By this means the funnel of the upper room is made short, of course, since its length can only be reckoned from the place where it enters the lower funnel, and that flue is also shortened by all the distance between the entrance of the second funnel and the top of the stack; for all that part being readily supplied with air through the second flue, adds no strength to the draft, especially as that air is cold when there is no fire in the second chimney. The only easy remedy

dy here, is to keep the opening shut of that flue in which there is no fire.

Another very common cause of the smoking of chimnies is, their overpowering one another. For instance, if there be two chimnies in one large room, and you make fires in both of them, you will find that the greater and stronger fire shall overpower the weaker, and draw air down its funnel to supply its own demand, which air descending in the weaker funnel will drive down its smoke, and force it into the room. If, instead of being in one room, the two chimnies are in two different rooms communicating by a door, the case is the same whenever that door is open. The remedy is, to take care that every room have the means of supplying itself from without, with the air its chimney may require, so that no one of them may be obliged to borrow from another, nor under the necessity of lending.

Another cause of smoking is, when the tops of chimnies are commanded by higher buildings, or by a hill, so that the wind blowing over such eminences falls like water over a dam, sometimes almost perpendicularly on the tops of the chimnies that lie in its way, and beats down the smoke contained in them. The remedy commonly applied in this case is, a turn-cap, made of tin or plate-iron, covering the chimney above, and on three sides, open on one side, turning on a spindle, and which being guided or governed by a vane, always presents its back to the wind. This method will generally be found effectual, but if not, raising the flues, where practicable, so as their tops may be on a level with or higher than the commanding eminence, is more to be depended on.

There is another case of command, the reverse of that last mentioned; it is where the commanding eminence is farther from the wind than the chimney commanded. For instance, suppose the chimney of a building to be so situated as that its top is below the level of the ridge of the roof, which, when the wind blows against it, forms a kind of dam against its progress. In this case, the wind being obstructed by this dam, will, like water, press and search for passages through it, and finding the top of the chimney below the top of the dam, it will force itself down that funnel in order to get through by some door or window open on the other side of the building, and if there be a fire in such chimney, its smoke is of course beat down and fills the room. The only remedy for this inconvenience is, to raise the funnel higher than the roof, supporting it, if necessary, by iron bars; for a turn-cap in this case has no effect, the dammed up air pressing down through it in whatever position the wind may have placed its opening.

Chimnies otherwise drawing well are sometimes made to smoke by the improper and inconvenient situation of a door. When the door and chimney are placed on the same side of a room, if the door is made to open from the chimney, it follows, that when only partly opened a current of air is admitted and directed across the opening of the chimney, which is apt to draw out some of the smoke.

A room that has no fire in its chimney may sometimes be filled with smoke, which is received at the top of its funnel and descends into the room. To understand this effect, it will be necessary to observe, that currents of air are frequently produced in flues, though not exposed to the influence of fire. The air contained in a funnel, being confined on every side by brick-work, which is a bad conductor of heat, will not be immediately affected by any sudden variation in the temperature of the atmosphere; and thus, while it differs in weight from the external air, an ascending or descending current will be formed in the flue. If, after a warm season, the outward air suddenly grows cold, the empty warm funnels begin to draw strongly upwards, that is, the rarefied air

contained in them begins to rise, cooler air enters to supply its place, is rarefied in its turn, and rises; and this operation continues till the funnel grows cooler, or the outer air warmer, or both, when the motion ceases. On the other hand, if, after a cold season, the outward air suddenly becomes warm, this operation is reversed. When the temperature of the atmosphere and of the flues is nearly equal, the difference of warmth in the air between day and night is sufficient to produce these currents; the air will begin to ascend the funnels as the cool of the evening comes on, and this current will continue till, perhaps, nine or ten o'clock the next morning, when it begins to hesitate, and as the heat of the day approaches, it sets downwards, and continues so till towards evening, when it again hesitates for some time, and then goes upwards constantly during the night, as before mentioned. Now, when smoke, issuing from the tops of the neighbouring chimnies, passes over the tops of funnels which are at the time drawing downwards, as they often are in the middle part of the day, such smoke is of necessity drawn into those funnels, and descends with the air into the chamber.

Chimnies which generally draw well do, nevertheless, sometimes give smoke into the room, it being driven down by strong winds passing over the tops of their flues, though not descending from any commanding eminence. To understand this, it may be considered that the rising light air, to obtain a free issue from the funnel, must push out of its way, or oblige the air that is over it to rise. In a time of calm, or of little wind, this is done visibly; for we see the smoke that is brought up by that air rise in a column above the chimney. But when a violent current of wind passes over the top of a chimney, its particles have received so much force, which keeps them in a horizontal direction, and follow each other so rapidly, that the rising light air has not strength sufficient to oblige them to quit that direction, and move upwards to permit its issue. Add to this, that some of the air may impinge on that part of the inside of the funnel which is opposed to its progress, and be thence reflected downwards from side to side, driving the smoke before it into the room. The simplest and best remedy in this case is the application of a chimney-pot, which is a hollow truncated cone of earthenware placed upon the top of the flue. The intention of this contrivance is, that the wind and eddies which strike against the oblique surface of these covers may be reflected upwards instead of blowing down the chimney. The remarkable chimnies observed at Venice, in which the top of the flue is enlarged and rounded in the shape of a funnel, seem also intended as a remedy to this inconvenience, that the wind blowing over one of the edges into the funnel may be slanted out again on the other side by its form.

The bad construction of fire-places is another cause of smoking chimnies; and this case will lead us to the consideration of the second part of our subject, namely, the methods of increasing the heat and diminishing the consumption of fuel; for it will be found that the improvements necessary to produce the last-mentioned end will also have a general tendency to cure smoky chimnies. On this subject the meritorious labours of Count Rumford are conspicuous, and we shall proceed to give an abridged account of his method.

In investigating the best form of a fire-place, it will be necessary to consider, first, what are the objects which ought principally to be had in view in the construction of a fire-place; and, secondly, to consider how these objects can best be attained. Now the design of a chimney-fire being simply to warm a room, it is essential to contrive so that this end shall

shall be actually attained, and with the least possible expence of fuel, and also that the air of the room be preserved perfectly pure and fit for respiration, and free from smoke and all disagreeable smells.

In order to take measures with certainty for warming a room by means of an open chimney fire, it will be necessary to consider how and in what manner such a fire communicates heat to a room. This question may, perhaps, at the first view of it, appear to be superfluous and trifling; but a more careful examination of the matter will shew it to be highly deserving of the most attentive examination.

To determine in what manner a room is heated by an open chimney-fire, it will be necessary, first of all, to find out under what form the heat generated in the combustion of the fuel exists, and then to see how it is communicated to those bodies which are heated by it.

In regard to the first of these subjects of inquiry, it is certain that the heat which is generated in the combustion of the fuel exists under two perfectly distinct and different forms. One part of it is *combined* with the smoke, vapour, and heated air which rise from the burning fuel, and goes off with them into the upper regions of the atmosphere, while the other part, which appears to be *uncombined*, or combined only with light, is sent off from the fire in rays in all directions. With respect to the second subject of inquiry, it is highly probable that the combined heat can only be communicated to other bodies by actual contact with the body with which it is combined; and with regard to the rays which are sent off by the burning fuel, it is certain that they communicate or generate heat only when and where they are stopped or absorbed. In passing through air which is transparent they certainly do not communicate any heat to it; and it seems highly probable that they do not communicate heat to solid bodies by which they are reflected.

A question which naturally presents itself here is, what proportion does the radiant heat bear to the combined heat? Though that point has not been determined with any considerable precision, it is, however, certain, that the quantity of heat which goes off combined with the smoke, vapour, and heated air is much more considerable, perhaps three or four times greater, than that which is sent off from the fire in rays: and yet small as the quantity is of this radiant heat, it is the only part of the heat generated by the combustion of fuel in an open fire-place which ever is, or, indeed, ever can be employed in heating a room. The whole of the combined heat escapes by the chimney, and is totally lost; and no part of it could ever be brought into a room from an open fire-place, without bringing along with it the smoke with which it is combined.

It is, therefore, of the highest importance to determine how the greatest quantity of radiant heat may be generated in the combustion of the fuel, and how the largest proportion of that quantity may be brought into the room. Now the quantity of radiant heat depends very much upon the management of the fire, or upon the manner in which the fuel is consumed. When the fire burns bright much radiant heat will be sent off from it; but when it is smothered up very little will be generated, and, indeed, very little combined heat that can be employed to any useful purpose; most of the heat produced being immediately expended in giving elasticity to a thick dense vapour or smoke, which will be seen rising from the fire; and the combustion being very incomplete, a great part of the inflammable matter of the fuel being merely rarefied and driven up the chimney, without being inflamed, the fuel will be wasted to little purpose. During this time no heat is communicated to the room; and what is still worse, the throat of the chimney

being occupied merely by a dense vapour, not possessed of any considerable degree of heat, and consequently, not having much elasticity, the warm air of the room finds less difficulty in forcing its way up the chimney and escaping, than when the fire burns bright: and it happens not unfrequently, especially in fire-places ill constructed, that this current of warm air from the room which presses into the chimney, crossing upon the current of heavy smoke which rises slowly from the fire, obstructs it in its ascent, and beats it back into the room: hence it is, that chimnies so often smoke when too large a quantity of fresh coals is put upon the fire.

To cause as many as possible of the rays, as they are sent off from the fire in straight lines, to come directly into the room, it will be necessary, in the first place, to bring the fire as far forward, and to leave the opening of the fire-place as wide and high as can be done without inconvenience; and secondly, to make the sides and back of the fire-place of such form, and of such materials, as to cause the direct rays from the fire which strike against them, to be sent into the room by reflection in the greatest abundance.

Now, it will be found, upon examination, that the best form for the vertical sides of a fire-place, or the *covings*, as they are called, is that of an upright plane, making an angle with the plane of the back of the fire-place of about 135 degrees. According to the old construction of chimnies, this angle is 90 degrees, or forms a right angle; but, as in this case the two covings are parallel to each other, it is evident that they are very ill contrived for throwing into the room, by reflection, the rays from the fire which fall on them. The next improvement will be to reduce the throat of the chimney, the immoderate size of which is a most essential fault in their construction; for, however good the formation of a fire-place may be in other respects, if the opening left for the passage of the smoke is larger than is necessary for that purpose, nothing can prevent the warm air of the room from escaping through it; and whenever this happens, there is not only an unnecessary loss of heat, but the warm air, which leaves the room to go up the chimney, being replaced by cold air from without, produces those drafts of air so often complained of. But though these evils may be remedied, by reducing the throat of the chimney to a proper size, yet, in doing this, several considerations will be necessary to determine its proper situation. As the smoke and hot vapour which rise from a fire naturally tend upwards, it is evident that it will be proper to place the throat of the chimney perpendicularly over the fire; but to ascertain its most advantageous distance, or how far above the burning fuel it ought to be placed, is not so easy, and requires several advantages and disadvantages to be balanced. As the smoke and vapour rise in consequence of their being rarefied by heat, and made lighter than the air of the surrounding atmosphere, and as the degree of their rarefaction is in proportion to the intensity of their heat, and as this heat is greater near the fire than at a distance from it, it is clear, that the nearer the throat of a chimney is to the fire, the stronger will be what is commonly called its draught, and the less danger there will be of its smoking, or of dust coming into the room when the fire is stirred. But, on the other hand, when a very strong draught is occasioned by the throat of the chimney being very near the fire, it may happen that the influx of air into the fire may become so strong as to cause the fuel to be consumed too rapidly. This however will very seldom be found to be the case, for the throats of chimnies are in general too high.

In regard to the materials which it will be most advantageous to employ in the construction of fire-places, little difficulty

difficulty will attend the determination of that point. As the object in view is to bring radiant heat into the room, it is clear that that material is best for the construction of a fire-place which reflects the most, or which absorbs the least of it, for that heat which is absorbed cannot be reflected. Now, as bodies which absorb radiant heat are necessarily heated in consequence of that absorption; to discover which of the various materials that can be employed for constructing fire-places are best adapted for that purpose, we have only to find, by an experiment very easy to be made, what bodies acquire least heat, when exposed to the direct rays of a clear fire; for those which are least heated evidently absorb the least, and consequently reflect the most radiant heat. And hence it appears that iron, and in general metals of all kinds, which are well known to grow very hot when exposed to the rays projected by burning fuel, are to be reckoned among the very worst materials that it is possible to employ in the construction of fire-places. Perhaps the best materials are fire-stone and common bricks and mortar. These substances are fortunately very cheap, and it is not easy to say to which of the two the preference ought to be given. When bricks are used, they should be covered with a thin coating of plaster, which, when perfectly dry, should be white-washed. The fire-stone should likewise be white-washed, when that is used; and every part of the fire-place which does not come into actual contact with the burning fuel should be kept as white and clean as possible.

We shall now proceed to describe particularly, with the assistance of figures, the improvements of Count Rumford. *Fig. 1. Plate XLI. of Architecture*, is a plan of a fire-place on the old construction; *fig. 2.* an elevation, and *fig. 3.* a section of the same. *Fig. 4.* a plan; *fig. 5.* an elevation, and *fig. 6.* a section of an improved fire-place.

The bringing forward of the fire into the room, or rather bringing it nearer to the front of the opening of the fire-place, and the diminishing of the throat of the chimney, being two objects principally had in view in the alterations of fire-places recommended, it is evident that both these may be attained merely by bringing forward the back of the chimney. It will then remain to be determined how far the back should be brought forward. This point will be limited by the necessity of leaving a proper passage for the smoke. Now, as this passage, which in its narrowest part is called the throat of the chimney, ought, for reasons before stated, to be immediately or perpendicularly over the fire, it is evident that the back of the chimney should be built perfectly upright. To determine therefore the place of the new back, nothing more is necessary than to ascertain how wide the throat of the chimney ought to be left. This width is determined by Count Rumford from numerous experiments, and comparing all circumstances, to be four inches. Therefore, supposing the breast of the chimney, or the wall above the mantle, to be 9 inches thick, allowing 4 inches for the width of the throat, this will give 13 inches for the depth of the fire-place. The next consideration will be the width which it will be proper to give to the back. This, in fire-places of the old construction, is the same with the width of the opening in front; but this construction is faulty, on two accounts; first, because the covings being parallel to each other, are ill contrived to throw out into the room the heat they receive from the fire in the form of rays; and, secondly, the large open corners occasion eddies of wind which frequently disturb the fire and embarrass the smoke in its ascent, in such a manner as to bring it into the room. Both these defects may be entirely remedied, by diminishing the width of the back of the fire-place. The

width which in most cases it will be best to give it, is one-third of the width of the opening of the fire-place in front. But it is not absolutely necessary to conform rigorously to this decision, nor will it always be possible. Where a chimney is designed for warming a room of moderate size, the depth of the fire-place being determined by the thickness of the breast to 13 inches, the same dimensions would be a good size for the width of the back, and three times 13 inches, or 3 feet 3 inches, for the width of the opening in front, and the angles made by the back of the fire-place, and the sides of it, or covings, would be just 135 degrees, which is the best position they can have for throwing heat into the room. In determining the width of this opening in front, the chimney is supposed to be perfectly good, and well situated. If there is any reason to apprehend its ever smoking, it will be necessary to reduce the opening in front, placing the covings at a less angle than 135 degrees, and especially to diminish the height of the opening by lowering the mantle.

If from any consideration, such as the wish to accommodate the fire-place to a grate or stove already on hand, it should be wished to make the back wider than the dimension recommended, as for instance, 16 inches; it will be advisable not to exceed the width of 3 feet 3 inches for the opening in front, as in a very wide and shallow fire-place, any sudden motion of the air in front would be apt to bring out puffs of smoke into the room.

The throat of the chimney being reduced to four inches, it will be necessary to make a provision for the passage of a chimney sweeper. This is to be done in the following manner. In building up the new back of the fire-place, when this wall is brought up so high that there remains no more than about 10 or 11 inches between what is then the top of it and the underside of the mantle, an opening or door-way, 11 or 12 inches wide, must be begun in the middle of the back, and continued quite to the top of it, which according to the height that it will commonly be necessary to carry up the back, will make the opening 12 or 14 inches high, which will be quite sufficient for the purpose. When the fire-place is finished, this door-way is to be closed by a few bricks laid without mortar, or a tile or piece of stone confined in its place by means of a rebate made for that purpose in the brickwork. As often as the chimney is swept, the chimney sweeper removes this temporary wall or stone, which is very easily done, and when he has finished his work, he again puts it in its place.

The new back and covings may be built either of brick-work or of stone, and the space between them and the old back and covings, ought to be filled up to give greater solidity to the structure. This may be done with loose rubbish or pieces of broken bricks or stones, provided the work be strengthened by a few layers or courses of bricks laid in mortar; but it will be indispensably necessary to finish the work where these new walls end, that is to say, at the top of the throat of the chimney, where it ends abruptly in the open canal or flue, by a horizontal course of bricks well secured with mortar. It is of much importance that they should terminate in this manner; for were they to be sloped outward and raised in such a manner as to swell out the upper extremity of the throat of the chimney in the form of a trumpet, and increase it by degrees to the size of the flue of the chimney, this construction would tend to assist the winds which may attempt to blow down the chimney, in forcing their way through the throat, and throwing the smoke backward into the room.

The internal form of the breast of the chimney is also a matter of great importance, and which ought to be particularly

larly attended to. The worst form it can have is that of a vertical plane or upright flat, and next to this the worst form is an inclined plane. Both these forms cause the current of warm air from the room which will, in spite of every precaution, sometimes find its way into the chimney, to cross upon the current of smoke which rises from the fire in a manner most likely to embarrass it in its ascent and drive it back. The current of air which, passing under the mantle, gets into the chimney, should be made gradually to bend its course upwards, by which means it will unite quietly with the ascending current of smoke, and will be less likely to check and impede its progress. This is to be effected by rounding off the inside of the breast of the chimney, which may be done by a thick coating of plaster.

Plate XLII. of Architecture, fig. 1. The plan of a fire-place on the old construction; *A B*, the opening of the fire-place in front; *C D*, the back of the fire-place; *A C* and *B D*, the covings.

Fig. 2, shews the elevation or front view of the same fire-place.

Fig. 3. This figure shews how the fire-place, represented in *fig. 1*, is to be altered, in order to its being improved. *A B* is the opening in front, *C D* the back, and *A C* and *B D* the covings of the fire-place in its original state. *a b* its opening in front, *i k* its back, and *a i* and *b k* its covings after it has been altered; *e* is a point upon the hearth upon which a plumb suspended from the middle of the upper part of the breast of the chimney falls. The situation for the new back is ascertained by taking the line *e f* equal to 4 inches. The new back and covings are represented as being built of bricks, and the space between these and the old back and covings as being filled up with rubbish.

Fig. 4. This figure represents the elevation or front view of the fire-place, *fig. 3*, after it has been altered. The lower part of the doorway left for the chimney sweeper, is shown in this figure by dotted lines.

Fig. 5. This figure shews the section of a chimney fire-place and of a part of the flue of the chimney on the old construction. *a b* is the opening in front, *b c* the depth of the fire-place at the hearth, *d* the breast of the chimney, *d e* the throat of the chimney, and *d f g e* a part of the flue.

Fig. 6. shews a section of the same chimney after it has been altered: *k l* is the new back of the fire-place, *l i* the tile or stone which closes the doorway for the chimney sweeper, *d i* the throat of the chimney narrowed to 4 inches, *a* the old mantle, and *b* the new mantle formed under it to diminish the height of the opening of the fire-place in front, the new mantle being backed with plaster to make the inside of a proper form.

When the breast or wall of the chimney in front is very thin, it may happen, that the depth of the fire-place determined according to the preceding rules may be too small. Thus supposing the breast to be only 4 inches thick, which is sometimes the case, particularly in rooms situated near the top of a house, taking 4 inches for the width of the throat, will give only 8 inches for the depth of the fire-place. In this case, it would be proper to increase the depth of the fire-place at the hearth to 12 or 13 inches, and to build up the back perpendicularly to the height of the top of the grate, and then sloping the back by a gentle inclination forward, bring it to its proper place directly under the back part of the throat of the chimney. This slope, though it ought not to be too abrupt, yet should be quite finished at the height of 8 or 10 inches above the fire, otherwise it may perhaps cause the chimney to smoke; but when it is very near the fire, its heat will enable the current of rising smoke to overcome the obstacle which this slope will oppose to its

ascent, which it could not so easily do, were the slope situated at a greater distance from the burning fuel.

There is one important circumstance respecting chimney fire-places designed for burning coals which remains to be examined, and that is the grate. Although there are few grates that may not be used in chimnies, altered or constructed on the principles recommended by Count Rumford, yet they are not by any means all equally well adapted for that purpose. Those whose construction is most simple, and which of course are the cheapest, are beyond comparison the best on all accounts. Nothing being wanted but merely a grate to contain the coals, and all additional apparatus being not only useless but pernicious; all complicated and expensive grates should be laid aside, and such as are more simple substituted in their room. The proper width for grates in rooms of a middling size, will be from 6 to 8 inches, and their length may be diminished more or less according to the difficulty of heating the room, or the severity of the weather. But where the width of a grate is not more than 5 inches, it will be very difficult to prevent the fire from going out. It has been before observed that the use of metals is as much as possible to be avoided in the construction of fire-places, it will therefore be proper always to line the back and sides of a grate with fire stone, which will cause the fire to burn better and give more heat into the room.

Smoke in its passage through a chimney deposits a great part of the soot, with which it is loaded, upon the sides of the flue, which causes danger from fire, and is besides apt to fall back into the room. It is therefore frequently necessary to have the flues cleaned. To effect this, various expedients have been resorted to, but that most commonly adopted is the use of climbing boys, who ascend within the chimney and sweep down the soot. The evils of this disagreeable and unwholesome occupation to those engaged in it, are generally acknowledged, and of late years the public attention has been directed to this subject, and premiums offered for the discovery of methods which might be substituted to a practice so offensive to humanity.

In the year 1802 a number of public-spirited and wealthy persons associated for this purpose, and offered considerable premiums to those who might invent and bring into practice, a method of cleansing chimnies by mechanical means that should supersede the necessity of climbing boys. Feeling themselves, perhaps, inadequate to the task of carrying their laudable intentions into full execution, they applied to the "Society for the encouragement of Arts, Manufactures, &c." in the Adelphi, requesting them to engage in it, and to offer premiums on the subject. In consequence of this application the society offered their gold medal to the person who should invent the most effectual mechanical or other means for cleansing chimnies from soot, and obviating the necessity of children being employed within the flues. In a few months there were five candidates for this premium, whose several inventions were put to the test of experiment upon chimnies not less than 70 feet high. One of the inventions consisted of a set of brushes with pulleys and weights, which were to be let down from the top of the chimney; but as the object was to find an apparatus to effect the purpose from the inside of the house, this was deemed unfit to accomplish the views of the society. Another gentleman proposed the plan of throwing gravel up the chimney by means of condensed air; the machine was tried, and deemed wholly inadequate to the purpose. A third apparatus consisted of elastic rods of whalebone and cane, with a brush at the end of the upper one, which was found to answer only in short and straight chimnies. The next consisted of laths several feet long, which locked into one another,

other, and on the upper one was fixed an elastic expanding brush, which, in its ascending and contracted state, occupied a space of only six or eight inches, but which was to be opened, when forced to the top of the chimney, by means of a string attached to it the whole length of the rods. After many experiments before divers persons appointed to examine its merits, this was given up as ineffectual to the purpose required. The only remaining apparatus was invented by Mr. George Smart, the patentee of a method of making hollow masts for ships: to him, after a long series of practice, in which he has been almost uniformly successful, the gold medal was adjudged; he has received also, we believe, some other premiums for his invention. As his method is now practised by several persons in and near the metropolis, we shall give a particular account of it, with references to an engraved plate. The principal parts of the machine are a brush, some rods or hollow tubes, that fasten into each other, by means of brass sockets, and a cord for connecting the whole together.

The brush consists of four fan-shaped portions (see *Plate Chimney-sweeping*, *figs. 1* and *2*) which are so hung upon hinges, that in ascending the chimney, the brush may take up as small a space as possible, and in descending, it may spread out and sweep the sides of the flue; by a contrivance exactly like that which is adopted in the common umbrella, the brush is prevented from falling down into its contracted form: *fig. 1* represents it expanded, and in *fig. 2* it is shewn in its contracted state. The substance made use of in general for the brush is what is called whisk. The rods represented by *a, b, c, d, e, f*, &c. *figs. 1, 2*, and *5*, are hollow tubes with a metal socket, at the lower end; some of the sockets have a screw in them for the purpose of confining the cord after it has been duly stretched, and preventing the rods from separating (see *fig. 2*.) The upper end of the rods are either with or without ferrules, and taper to admit of a small motion within the sockets. The rods are about thirty inches long, and the cord runs from the top of the brush through all the rods, and when drawn tight keeps the whole machine together. *Fig. 3*, represents the cloth to be placed before the chimney opening, and a bar of deal or other wood, with a slide on it, fixing it to different sized openings. *Fig. 4*, is a bar or bars made to slide out, like a telescope slide, with a screw to fix it at different lengths, for closing the sides of the cloth to the jambs of the chimney piece. *Fig. 5*, exhibits the machine raised up the chimney with the man working, he being on the outside of the cloth, through which there is a small slit or opening to admit the tubes passing. *Fig. 6*, a part of the apparatus, consisting of a small post and pulley, fixed on a board for the purpose of more easily drawing the cord tight before it is made fast with the screw. The method of using the machine is this: Having ascertained, by looking up the chimney, what is the direction of the flue, the cloth is then to be fixed before the fire-place, with the horizontal bar, *fig. 3*, and the sides to be closed with two upright bars like *fig. 4*. The brush is introduced through the opening of the cloth, which opening is then to be buttoned, and one of the rods is to be passed up the cord into the socket on the lower end of the rod which supports the brush; the other rods are in like manner to be brought up one by one in succession, till the brush is raised somewhat above the top of the chimney, observing to keep the cord constantly tight, and when those rods which have a screw in the socket are brought up, they are to be placed on the purchase; the cord is to be put round the pulley and drawn very tight, and screwed down, by which all the rods above will be firmly connected together, and the whole may be regarded as one long flexible rod. In pulling the machine down, the edges

of the brush striking against the top of the chimney, will cause it to expand, and there being a spring to prevent its contracting again, it will bring down the foot with it. In drawing down the machine, the person should grasp with his left hand, the rod immediately above that which he is separating with his right hand, to prevent the upper ones from sliding down too soon. The rods as they are brought down, are to be laid carefully one by one in as small a compass as possible, and arranged like a bundle of sticks.

This machine has been found useful in extinguishing fires in chimnies; for that purpose a coarse cloth is to be tied over the brush, dipped in water, and then passed up in the manner directed. After three years experience, Mr. Smart's machine has been found in a great measure, to answer the purposes for which it was intended; in the course of several thousand trials it is ascertained that not more than one or two chimnies, at most, in a hundred, has resisted the passage of the brush. It is, however, of importance to observe that the invention cannot be deemed in a late of perfection; foot from some coals adheres so strongly to the sides of the chimney and chimney pot, that no brush will of itself bring it down, so that after a considerable time it may be expected that means must be found to scrape off the foot as the climbing boys now generally do. We wish therefore that such an addition to the apparatus could be devised, as should remedy this defect: it is well known that one cause of the smoking of chimnies is from the circumstance of the top of the chimney pot being clogged with foot that adheres to the upper edge, which it is certain Mr. Smart's brush has in many instances failed to remove. He has done much to obviate an evil long complained of; an evil that has deprived of health, and eventually of life, a multitude of persons in their youth, that might for a long course of years have been useful to the community, and we wish to see in his hands, the invention, so honourable to his talents, rendered still more useful by being more perfect. He has attained, with regard to making his brush ascend the chimney, all that can be expected, and instead of bringing up infants to climb the fiftieth or hundredth chimney which on account of the direction of the flue no apparatus can be made to ascend, other means may be adopted, such as, 1st. By having a fixed apparatus at the top, with a chain descending down the flue, and a brush annexed to it; for which purpose two patents were taken out in the year 1803, one by Mrs. Bell of Hampstead, and one by Mr. Davis, of Bloomsbury. Or 2dly, By the method practised at Edinburgh, and other places in the northern parts of the united kingdom, of letting down a weight attached to one end of a cord, with a bush of holly tied at the other end, which by means of a person at the top and another at the bottom of the chimney is worked up and down till the foot is thoroughly cleansed away.

CHIMNEY-Sweepers, regulations concerning. By stat. 28 Geo. III. c. 48. the church-wardens and overseers of the poor of any parish, with the consent of two justices, may bind any boy of the age of 8 years and upwards, who is chargeable to the parish, to any person following the trade of a chimney sweeper, till he shall attain the age of sixteen years. No master shall have more than six apprentices at one time; nor let out his apprentices to hire to any other person for the purpose of sweeping chimnies; nor cause them to call the streets before seven in the morning, nor after twelve at noon, between Michaelmas day and Lady day; nor before five in the morning, nor after twelve at noon the rest of the year. Every master shall cause his name and place of abode to be engraved on a brass plate, to be fixed upon the front of a leathern cap, which he shall provide for each apprentice,

prentice, who shall wear the same when he is out upon his duty. These regulations are enforced by penalties of not more than 10*l.* and not less than 5*l.* The law is so tender with regard to these generally friendless children, that it has appointed a particular form of indenture, by which the master covenants to find his apprentices cloaths for his daily occupation, and other cloaths for his use when he is not employed at his work and for Sundays: he covenants also to see that he is properly cleansed from all foot and filth once a week, and be required to attend public worship in the dress adapted for the purpose.

CHIMNEY, in *Geography*, a town of the island of Ceylon, 94 miles S.E. of Candy.

CHIMNEY-jamb, are the sides of a chimney, usually standing out perpendicularly, sometimes circularly from the back; on the extremities whereof the mantle-tree rests.

CHIMNEY-money, or *hearth-money*, a tax imposed by statute 13 and 14 Car. II. c. 10. expressing, that every fire-hearth, and stove of every dwelling, or other house, within England and Wales, except such as pay not to church and poor, shall be chargeable with two shillings *per ann.* payable at Michaelmas and Lady-day, to the king and his heirs. But this tax was declared to be an oppression and badge of slavery, and accordingly abolished by stat. 1 W. and M. c. 10. and the window-tax established in its room. See *FUAGE* and *WINDOW-TAX*.

CHIMNEY-piece, in *Building*, a composition of certain mouldings, of wood or stone, standing on the fore-side of the jambs, and coming over the mantle-tree.

CHIMOS, in *Ancient Geography*, a maritime village of Egypt, on the borders of the Marrotide nome. Ptolemy.

CHIMPANZEE, in *Zoology*, the Angola ape, *simia troglodytes* of Blumenbach, *satyrus indicus* of Tulpinus, &c. This animal very nearly approaches the orang-outang, but in the opinion of most zoologists is specifically distinct. It is, according to Blumenbach and Gmelin, distinguished among other particulars by having the body smooth, except the back and shoulders, which are hairy; the head is also of a somewhat conic form, and the body brawny, or remarkably muscular. The true orang-outang has the body entirely covered with hair, the haunches especially, and the hair on the fore arms is placed in a reversed direction. In the year 1738, one of those chimpanzees was brought over into England by the captain of a ship in the Guinea trade; it was of the female sex, and was two feet four inches high: it naturally walked erect. It would eat very coarse food, and was fond of tea, which it drank out of a cup with milk and sugar, as we do; it slept in the manner of the human species, and in its voice made some imitation of the human speech, when people speak very hastily, but without any articulate sound. The males of this species are represented as very bold; they will fight a man though they see him armed. Their dispositions are extremely lascivious, inasmuch as to render it unsafe for women to venture into the woods alone; it is affirmed that the female negroes are often surprised and overpowered by these disgusting animals. The chimpanzee shewn in London in 1738 was only about twenty months old, and was of a docile disposition: the parent had it in her arms when she was attacked by the Moors in Angola, and would not part with it till she was killed by one of their spears. This full-grown female was five feet high.

CHINA, in *Botany*, *Ambainensis*, Rumph. See *SMILAX zeylonica*.

CHINA *radix*, Bauh. Pin. See *SMILAX China*.

CHINA *spuria nodosa*, Bauh. Pin. See *SMILAX pseudo-China*.

CHINA, in *History and Geography*. The word China is

well known to the people whom we call Chinese; but the most learned among them never apply it to themselves or their country. They wish to be described as the people of Han, or of some other illustrious family, by the memory of whose actions they flatter their national pride; and their country they call *Chum-cue*, or the central kingdom, representing it in their symbolical characters by a parallelogram exactly bisected; at other times they distinguish it by words that mean all that is valuable upon earth. It is difficult to give any account that shall be satisfactory as to the origin of the Chinese. Four opinions have been advanced, all of which have been peremptorily asserted rather than supported by argument and evidence. By a few writers it has been urged that they are an original race who have dwelt for ages, if not from the first creation of things, in the land which they now possess: by others, chiefly the missionaries, it is alleged that they sprang from the same stock with the Hebrews and Arabs: a third assertion is that of the Arabs themselves, and of M. Pauw, who contend that they were originally Tartars, descending in wild clans from the steppes of Imaus; and a fourth is that of the Brahmins, that the Chinas, so they call them in Sanscrit, were Hindus of the military class, who, abandoning the privileges of their tribe, rambled in different bodies to the north-east of Bengal; and forgetting, by degrees, the rites and religion of their ancestors, established separate principalities, which were afterwards united in the plains and vallies which are now possessed by them. Sir William Jones has examined each of these claims with great care and attention, and he observes, that, "in support of an opinion, (viz. that the Chinese and Hindus were the same people), which I offer as the result of long and anxious inquiries, I should regularly proceed to examine the language and letters, religion and philosophy of the present Chinese, and subjoin some remarks on their ancient monuments, on their sciences and their arts, both liberal and mechanical; but their spoken language not having been preserved in the usual symbols of articulate sounds, must have been for many ages in a continual flux; their letters are merely the symbols of ideas; their popular religion was imported from India in an age comparatively modern; and their philosophy seems yet in so rude a state as hardly to deserve the appellation; they have no ancient monuments from which their origin can be traced; their sciences are wholly exotic; and their mechanical arts have nothing in their characteristic of a particular family; nothing which any set of men in a country so highly favoured by nature might not have discovered and improved. They have, indeed, both national music and national poetry, and both of them beautifully pathetic; but of painting, sculpture, or architecture, as arts of imagination, they seem to have no idea. Instead, therefore, of enlarging separately on each of those heads, I shall briefly inquire how far the literature and religious practices of China confirm or oppose the proposition which I have advanced."

In the course of this inquiry, he finds that the Buddha of the Hindus is unquestionably the Fo of China; but the great progenitor of the Chinese is also named Fo-hi, where the second syllable signifies a victim. Now the ancestor of that military tribe whom the Hindus call the Chandravansa, or "children of the moon," was, according to their legends, Buddha, or the genius of the planet Mercury, from whom, in the fifth degree, descended a prince, named Druhya; whom his father, Yayati, sent in exile to the east of Hindostan, with this imprecation, "may thy progeny be ignorant of the Veda." The name of the banished prince cannot be pronounced by the modern Chinese; and though sir William Jones does not assert that the last syllable of it has been

changed into Yao, he observes, that Yao was the fifth in descent from Fo-hi, or at least the fifth mortal in the first imperial dynasty; that all Chinese history before him is considered by the Chinese themselves as fabulous; that his father, Ti-co, like the Indian king, Yayati, was the first prince who married several women; and that Fo-hi, the head of their race, appeared, say the Chinese, in a province of the west, and held his court in the territory of Chin, where the rovers mentioned by the Indian legislators are supposed to have settled. Another circumstance in defence of this opinion is, that the mother of Fo-hi was the "daughter of heaven," named "Flower-loving," and, according to the Chinese mythology, as the nymph was walking alone on the bank of a river, with a similar name, she found herself suddenly encircled by a rainbow; soon became pregnant, and was delivered of a son, called "Sui," or the "Star of the Year." According to the system of the Hindus, the nymph Rohini, who presides over the fourth lunar mansion, was the favourite mistress of Soma, or the Moon, among whose numerous epithets we find one answering to "Delighting in a species of water-flower that blossoms at night;" and their offspring was Buddha, regent of a planet, and called also from his parent *Rauhineya*, or *Saumya*. Sir William Jones shews also, that the opinions of the Chinese and Hindus are in many respects similar: they both believe this earth to have been wholly covered with water, which they describe as "flowing abundantly, then subsiding, and separating the higher from the lower age of mankind;" and that the division of time, from which their poetical or fabulous history begins, just preceded the appearance of Fo-hi on the mountains of Chint. Though the religion of Confucius was pure, and worthy of a great mind, contending for the existence of a Supreme God, and giving a demonstration of his being and providence from the exquisite beauty and perfection of the celestial bodies, and the wonderful order of nature, in the whole fabric of the world; yet the people of China, in general, had an ancient system of ceremonies and superstitions, which the government and philosophers appear to have encouraged, and which has an apparent affinity with many parts of the oldest Indian worship. They believed in the agency of genii, presiding over all things, of which, like the Hindus, they reckoned five. To these they offered victims on high places with ceremonies, and in a language very like those used by the Brahmins. M. Le Gentil observed, he says, a strong resemblance between the funeral rites of the Chinese, and the fraddha of the Hindus: and M. Bailly, the celebrated French astronomer, after a very learned investigation, concludes, that, "even the puerile and absurd stories of the Chinese fabulists contain a remnant of ancient Indian history, with a faint sketch of the first Hindu ages." After a very elaborate discussion, in all the particulars of which we cannot follow him, sir William Jones says, that the several circumstances of literature and religion seem collectively to prove, as far as the question admits of proof, that the Chinese and Hindus were originally the same people, but having been separated nearly four thousand years, have retained few strong features of their ancient consanguinity, especially as the Hindus have preserved their old language and ritual, while the Chinese very soon lost both; and the Hindus have constantly intermarried among themselves, while the Chinese, by a mixture of Tartarian blood from the time of their first establishment, have at length formed a race distinct in appearance from Indians and Tartars.

Mr. Barrow, who has visited China, and seen much of the inhabitants, and to whose excellent account of his travels in this country we shall have occasion frequently to refer,

does not agree with Sir William Jones with regard to the origin of the Chinese. He admits several of the facts adduced by M. Bailly and others: he allows that the Hindus, like the Chinese, have always shewn a remarkable predilection for the number nine: that the two nations resemble one another in the observance of the solstitial and equinoctial sacrifices; in making offerings to the manes of their ancestors; in the dread of leaving no offspring behind them, to pay the accustomed obsequies to their memory; in observing eight cardinal or principal points of the world; in the division of the zodiac, and in a variety of other coincidences; which the late Mr. Bryant accounts for, by supposing the Egyptians, Greeks, Romans, and Indians, to be derived from one stock, and that some of these people carried their religion, and their learning into China; but he says their physical character is a sufficient proof that the Chinese do not owe their origin to the same stock as the Hindus. The small eye, rounded at the extremity next the nose, instead of being angular, as is the case in that of Europeans, its oblique instead of horizontal position, and the flat and broad root of the nose, are features or characters entirely distinct from the Hindu, the Greek, or the Roman; and belong more properly to the natives of Tartary. There are scarcely in nature two of the human species that differ more widely than a Chinese and a Hindu, setting aside the difference of colour; but the Mantchoo, and indeed all the other Tartar tribes bordering upon China, are hardly to be distinguished from the Chinese. The same colour, the same eyes, and general turn of countenance prevail, on the continent of Asia, from the tropic of Cancer to the Frozen Ocean. The peninsula of Malacca, and the vast multitude of islands spread over the eastern seas, and inhabited by Malays, as well as those of Japan and Lieou-kieou, have clearly been peopled from the same common stock. Having given this account of the different conjectures respecting the origin of the Chinese, we proceed to consider the

Situation and extent of China. In the last century, the Chinese emperors extended this wide empire over many western countries, so that it may be now considered as reaching from those parts of the Pacific Ocean called the Chinese and Japanese seas, to the rivers Sarafou and Sihon in the west, a space of 81°, which, taking the medial latitude of 30°, will amount to nearly 4200 geographical, or 4900 British miles. From N. to S. this vast empire may be computed from the Uralian mountains, lat. 50°, to the southern part of China, about lat. 21°, being 29° of latitude, that is, 1740 geographical, or nearly 2030 British miles. This empire consists of three principal divisions; that of China proper; the territory of the Mandshucs and Monguls, on the north and west; and lastly, the singular and interesting region of Tibet; with the first of these we are at present concerned, reserving the others to their proper places in the alphabet.

China proper extends from the great wall in the north to the Chinese sea in the south, about 1140 geographical, or 1300 British miles. The breadth from the shores of the Pacific ocean to the frontiers of Tibet may be computed at 1330 British miles. In square miles the contents have been estimated at 1,297,999, and in acres at 830,719,360. On the east and south the boundaries are maritime, and to the north they are marked by the great wall and the desert of Shamo, the confines with Tibet on the west seem to be chiefly indicated by an ideal line, though occasionally more strongly marked by mountains and rivers; particularly according to M. D'Anville by the river Yaton, which falls into the Kian-ku, the country of Sifan lying between Tibet and China, on the south of the Eluths of Kokonor.

As China extends from the second to the fifth climate,

its temperature must vary accordingly. The difference of the length of its days is little more than four hours; the longest in the most northern parts, being about fourteen hours and three quarters; and the shortest, in the most southern, about ten hours and three quarters; and the night proportionable. It is, however, generally reckoned very moderate, except only towards the north, where the cold is extremely piercing, not so much from its northern situation, as from ridges of mountains that intersect those parts, and are vastly high, and mostly covered with deep snows. Even in those parts which lie under the tropics, the winds that blow thither from the large and mountainous parts of Tartary render the weather exceedingly cold and piercing, during the three, and sometimes four, winter months. The southern parts, on the other hand, must be supposed to be very hot and dry; but these heats are the more easily borne, by the help of their grottoes, groves, and cooling shades; to these they retire during the heat of the day; at which time there is the same universal silence, and cessation from business, as if it were midnight. In these southern parts there is neither frost nor snow; but they are much troubled with storms, and violent rains, about the time of the equinoxes; all the rest of the year is crowned with a serene sky, and a most delightful verdure. Upon the whole it must be admitted, that where nature has been most unequal in the distribution of her gifts, Chinese industry has supplied the defects. It has in some instances levelled whole ridges of mountains in particular provinces, and raised the land in others. By providing proper fences against excessive colds in some, and heats and droughts in others, and by varying their agriculture, according to the different soils and climates, every spot almost of that vast territory produces enough to maintain its inhabitants, rendering the whole country delightful, populous, healthy, and opulent.

Progressive Geography. The progressive geography of China, as known to the western nations, is not of ancient date, whether with M. D'Anville we suppose the Sinæ to have been in Cochinchina, or with Gosselin place them in the western part of Siam. The most ancient external relation which we possess, is that of the two Mahometan travellers in the ninth century, who surprise us with accounts of barbarism and cannibalism little to be expected: but the Arabs are so fond of fables, that implicit credit may be safely withheld from several passages. Yet these travellers impart high ideas concerning the Chinese empire, and mention Canfu, supposed to be Canton, as a city of great trade, while the emperors resided at Camdan, which seems to be the city also called Nanking, or the southern court, in contradistinction from Peking, or the northern court. This wide empire, continued, however, obscure to the inhabitants of Europe, till the travels of Marco Polo appeared, in the end of the thirteenth century. Yet the work of this traveller remained so unknown, that pope Pius II. in his description of Asia, is contented with the more imperfect account by Nicola Conti, a Venetian traveller of his own time, who visited Cathay. Haitho the Armenian, who wrote his book on the Tartars about the year 1306, begins with an account of Cathay; and Oderic of Portenau described his voyage to China in 1318. Sir John Mandeville visited China about 1340; and Pegoletti gave directions for the route in 1385. But in the following century there seems to have been a strange and unaccountable intermission of intercourse and research, if we except the travels of Nicola Conti above mentioned; and so perishable was the knowledge acquired, as to have escaped even a learned pontiff. After this relapse of darkness, the rays of more genuine and authentic knowledge

gradually emerged by the discovery of the Cape of Good Hope, and the subsequent enterprizes of the Portuguese.

History. The Chinese as a nation pretend to an antiquity beyond all credibility; they carry their history back many millions of years before the period assigned by the Scriptures to the creation of the world. According to the Chinese histories, the first monarch of the whole universe, that is, of China, was called Puon-ku, which is a word denoting the highest antiquity. Puon-ku was succeeded by Tienchoang, which signifies the emperor of heaven; to this monarch they ascribe the invention of letters. He was succeeded by Tihuang, the emperor of the earth, who is said to have been skilled in astronomy; to have divided the day and night; appointing thirty days to make the period of one moon; and he fixed the winter solstice to the eleventh moon. Tihuang was succeeded by Ginc-huang, sovereign of men, who shared the government with nine brothers. These are said to have taught their subjects to build houses, cities, &c. The reigns of these four emperors make up but one of what the Chinese called *hi*, "ages" or "periods," of which there were nine before Fo-hi, who is acknowledged, by the most sensible writers, to be the founder of their empire, but the regular history begins with Yau.

The Chinese historians of this country have reckoned twenty-three dynasties, of which the first included Fo-hi and his eight successors down to Sheen. The others, together with the number of emperors belonging to each family, and the years they reigned, are as follow:

Dynasties.	Emperors.	Years.
1. Hya - -	17 -	458
2. Shang - -	28 -	644
3. Chew - -	35 -	873
4. Tsin-al-Chin - -	4 -	43
5. Han - -	25 -	420
6. Hew-han - -	2 -	44
7. Tzin, or Chin 2d -	15 -	155
8. Song, or Soun -	8 -	59
9. Tzi, or Chi -	5 -	23
10. Lyang - -	4 -	55
11. Chin-al-Kin -	5 -	32
12. Swi, Soui -	3 -	29
13. Tang Tam -	20 -	89
14. Hew-lyang -	2 -	16
15. Hew-tang -	4 -	13
16. Hew-tzin -	2 -	11
17. Hew-han -	2 -	4
18. Hew-chew -	3 -	9
19. Song, or Soum -	18 -	319
20. Ywen -	9 -	89
21. Ming, or Mim -	17 -	276
22. Tzin, Chim -	2 -	53

The most interesting particulars of the Chinese history relate to the incursions of the Tartars, who at last conquered the whole empire, and who still continue to hold the sovereignty; though by transferring the seat of empire to Peking, and by adopting the Chinese language, manners, and customs, Tartary seems rather to be incorporated with China, than the conqueror of it. These incursions began very early, even in the time of Shun, the immediate successor of Yau above mentioned, when the Tartars were repulsed and driven back into their own territories. From time to time, however, they continued their invasions, and the northern provinces of China were often ravaged by the Tartars in their neighbourhood. About the year before Christ 213, Chi-huang-ti having subdued all the princes of the

the different provinces, became the emperor of China, with the possession of unlimited powers. He divided the whole empire into thirty six provinces; and finding the northern parts of his dominions greatly harassed by the invasions of the neighbouring barbarians, he sent a formidable army against them, which drove them far beyond the boundaries of China: and to prevent their return he built the famous stone-wall which separates China from Tartary. After this, being elated with his own exploits, he formed a design of making posterity believe that he himself had been the first Chinese emperor that ever sat on the throne: for this purpose, he ordered all the historical books and records, which contained the fundamental laws and principles of the ancient government, to be burned, that they might not be employed by the learned to repel his authority, and the changes which he proposed to introduce into the monarchy. He is even said, on this occasion, to have caused four hundred of the literati to be burnt, together with their books. In the tenth century of the Christian æra, the Kitan, a people of Eastern Tartary, made incursions into the country, subdued a part of the empire, and established a government of their own in 916. Thirty years after this, Mingt-fong, the emperor of China, was attacked by his brother-in-law She-king-tang, and was by him deprived of his crown and life. She-king-tang assumed the title of emperor under the name of Kaut-fu. But the Kitan general refused to acknowledge him, except on the condition of his yielding up to the Tartars sixteen cities in the province of Pe-cheli, which is the most northern province of China. This submission served only to inflame the avarice of the Kitan, and in the year 959 they invaded the empire afresh. Tsi vang, the emperor, opposed them with a formidable army; but through treachery he was taken prisoner, and was obliged to resign his empire to one of his own generals, who assumed the name of Kaut-fu. The successors of this man opposed the barbarians ineffectually till the year 978, when they became so strong as to lay siege to a considerable city. The emperor sent against them in the night 300 soldiers, each carrying a light in his hand, with orders to approach the camp as near as possible. The enemy imagining by the number of lights that the whole Chinese army was at hand, immediately fled, and, falling into the ambuscade laid for them, were almost all cut to pieces. In the year 999, and again in 1035, the Kitan attacked the empire, and laid it under heavy contributions; after which we hear little more of them till the year 1117, when their ravages became so intolerable, that Whey-tsung, the emperor, in order to put a stop to them, called in the assistance of the Eastern Tartars to destroy the kingdom of Kitan, which they effectually accomplished. This, however, proved of no advantage to the Chinese; for the Tartar general, elated with his conquest, gave the name of Kin to his new dominion, assumed the imperial title, and began to think of aggrandizing his empire. For this purpose he invaded and made himself master of the greater part of the provinces of Pe-cheli and Shan-si, when, after several conferences between the Tartar general and Whey-tsung, the latter was thrown into prison, where he ended his days in 1126, having nominated his eldest son, Kin-tsung, to succeed him. Kin-tsung began his reign with putting to death six ministers of state, who had betrayed his father into the hands of the Kin-Tartars. The Barbarians in the mean time pursued their conquests, and, marching directly towards the imperial city, took and plundered it, at the same time seizing the Emperor and his consort, they carried them away captives. The crown devolved on Kau-tsung, the ninth son of Whey-tsung, who

fixed his court at Nanking. He made several fruitless efforts to recover some of his provinces from the Kin. Kaitong, the Kin monarch, in the mean time, endeavoured to gain the esteem of his Chinese subjects, by paying a great regard to their learning and learned men. He advanced to Nanking, from whence Kau-tsung had retired, and took it; but receiving advice that Yo-li, general of the Song, or Southern Chinese, was approaching to the relief of the city, he set fire to the palace, and retired northward. However, Yo-li arrived time enough to fall upon their rear-guard, which suffered so much, that, from this time, the Kin never dared to cross the river Kyang. But in 1163 the king approached the mouth of that river, and commanded his troops, on the pain of death, to cross it, which they refused, rebelled against their sovereign, and killed him in the beginning of the tumult, and then retired.

After this, nothing remarkable occurs in the Chinese history till the year 1210, when the chief of the Western Tartars, Moguls, or Mungls, quarrelled with Yong-tsi, emperor of the Kin. In 1212, the Mogul generals forced the great wall to the north of Shan-si, made incursions as far as Peking, the capital of the Kin empire, and defeated an army of 300,000 Kin. The war was continued, and several battles fought in the next year; in one of which, the ground was strewed with dead bodies for upwards of four leagues. In 1226, Oktay marched into Honan, besieged the capital of the Kin empire, took several cities, cut to pieces an army of 30,000 men, but was, notwithstanding, obliged to retire into Shan-si. The war was carried on with various success by Oktay and his brother Toley, who took more than sixty important posts in the province of Shan-si. Toley demanded of the Song a passage for his army through the country of Han-chong-fu, which being refused, he forced the passage, and put to the sword the inhabitants of two cities. Having cut down rocks to fill up deep abysses, and made roads through places almost inaccessible, he besieged the city itself, the miserable inhabitants of which fled to the mountains on his approach, where more than a hundred thousand of them perished. In January 1232, Oktay, passing the Whang-ho, encamped in the district of Kay-fong-fu, the capital of the Kin empire, and sent his general, Suputay, to besiege the city. At that time the place was 30 miles in circumference; but having only 40,000 soldiers to defend it, as many more, besides 20,000 peasants, were ordered into the city, while the emperor published an affecting declaration, animating the people to defend it to the last extremity. Although the Moguls took some considerable posts, yet, in other instances, they were opposed with such intrepidity and valour, that they were obliged to retire. Oktay resolved to return to Tartary, but Suputay, his general, pushed on the siege of the capital with renewed vigour. For sixteen days and nights he continued his attacks without intermission, which seemed only to inspire the besieged with fresh courage: an incredible number of men perished on both sides; at length Suputay, finding that he could not take the city, withdrew his army. Soon after, the plague broke out in Kay-fong-fu, and raged with such violence, that, in fifty days, more than a million of persons perished by it.

In a short time the war was again renewed. The capital of the Kin empire was delivered up by treachery to Suputay, who put all the males of the imperial race to the sword, while he spared, by command of Oktay, the inhabitants, who are said to have amounted to near a million and a half of families. The monarch, after this disaster, retired to Juning-fu, a city in the southern part of Honan, attended only

only by four hundred persons. Here they were again besieged by the Moguls, and reduced to the extremity of living three months on human flesh, killing the old and feeble, as well as many prisoners, for food. This being known to the Moguls, they attacked them, but were repulsed, though at the expense of all the best Kin officers; upon which the emperor resigned his crown to Cheng-lin, a prince of the blood. While the ceremony of investing the new emperor was performing, the Moguls broke into the city, slew the late emperor and his successor; and thus, in the year 1234, an end was put to the dominion of the Kin Tartars in China.

The empire of China was now to be shared between the Song, or southern Chinese, and the Moguls. It had been agreed upon, that the province of Houan should be delivered up to the Song as soon as the war was finished. But they, without waiting for the expiration of the term, or giving Oktay notice of their proceedings, introduced their troops into some of the considerable Mogul cities. On this the Mogul general resolved to attack them, and repassing the Whang-ho, cut to pieces part of the garrison of Lo-yang, while they were out in search of provisions. The Song emperor now desired a continuance of peace, which, however, did not accord with the views of Oktay, who, at the head of the Moguls, made great progress in the province of Huquang, where he took several cities, and put vast numbers to the sword. From 1239 to 1246, the Moguls were unable to make any progress; but upon the death of the Chinese general, Mong-kong, they renewed the war with more vigour and success than ever, for several years. In 1259 they laid siege to Ho-chew, a strong city, to the west of Peking, defended by a numerous garrison. The siege continued from February till August, when the Moguls made a general assault in the night. They mounted the walls before the governor had intelligence of it, but were soon attacked with the utmost fury; a terrible slaughter ensued, and among the rest fell the emperor himself, upon which they raised the siege, and retired to Shensi. Hupilay succeeded to Mongko, and laid siege to Vu-chang-fu, a city near the capital of the Song empire. The relief of this city was committed to a man destitute of courage and talents, and who, to obtain a peace, entered into a treaty, by which he engaged the Song empire to pay an annual tribute of 100,000*l.*, and likewise to acknowledge the sovereignty of the Moguls. This treaty proved the ruin of the empire; for when the Mogul emperor found the terms not fulfilled, he determined to revenge himself on the Song for their treachery, published a manifesto against them, and, in 1268, the war was renewed. They made many conquests, took Nanking, and marched towards Hang-chew-fu, the capital of the Song empire. Notwithstanding, however, the progress made by the Moguls, vast territories still remained to be subdued, before they could be considered as masters of the Chinese empire. On the death of Iwon-tsung, therefore, the mandarins raised his brother, Te-ping, to the throne. His army, consisting of nearly 200,000 men, ignorant of the art of war, was defeated by 20,000 Mogul troops. Nor was the fleet more successful; for being thrown into confusion by that of the Moguls, and the emperor in danger of falling into their hands, one of the officers, taking him upon his shoulders, jumped with him into the sea, where they were both drowned. Most of the mandarins followed this example, as did also the empress and minister, all the ladies and maids of honour, and multitudes of others, inasmuch that 100,000 people are supposed to have perished on that day. Thus ended the Chinese race of emperors; and the Mogul dynasty, known by the name of Ywen, commenced.

Though no race of men ever existed more remarkable for cruelty than the Moguls, yet the emperors of the Ywen dynasty were not, in any respect, worse than their predecessors. On the contrary, Hupilay, called by the Chinese Shi-tsu, who was the first emperor of that race, endeared himself so much to the people, that the reign of his family is styled by the Chinese, the wise government. This he accomplished by paying strict regard to their ancient laws and customs, by the mildness of his government, and by his attention and encouragement to learned men. In 1280 he employed some mathematicians to search for the source of the river Whang-ho, which, at that time, was unknown to the Chinese themselves. In four months they made the discovery, and drew a map of it, which they presented to his majesty. A treatise on astronomy was, by his order, published in the same year. And, in 1282, he brought together all the learned men of the empire, to examine into the state of literature, and to take measures for its advancement. Soon after his accession he fixed his residence at Peking, where being informed that the barks, which brought to court the tribute of the southern provinces, were obliged to come by sea, and often suffered shipwreck, he caused that celebrated canal to be cut, which is at present one of the wonders of the Chinese empire. It reaches from Canton to Peking, and thus forms a communication between the southern and northern provinces. During the reign of Shi-tsu he formed the design of reducing the islands of Japan, and the kingdoms of Tonquin and Cochin-China; but these enterprises failed, with the loss of 100,000 men. The throne continued in this family till the year 1367, when Shun-ti, the last of that dynasty, was driven out by a Chinese, named Chu, who assumed the imperial title under the name of Hong-wu, and thus put an end to the Ywen government. Hong-wu and his successor drove the Moguls beyond the great desert, which separates China from Tartary. They continued, notwithstanding, to make incursions upon the empire till 1583, when vast numbers of them were cut to pieces by the Chinese troops. The twenty-first dynasty of Chinese emperors, founded in the year 1368, continued till 1644, when they were again expelled by the Tartars. The last Chinese emperor was Whey-tsung, who ascended the throne in 1628. He found himself at once engaged in a war with the Tartars, and attacked by a number of rebels in the different provinces of his empire. The former were soon vanquished; but the emperor finding himself overpowered by the rebels, deserted by his subjects, betrayed by those in whom he placed the greatest confidence, and preferring death to the disgrace of falling into the hands of his enemies, retired with his empress, whom he tenderly loved, and the princess, their daughter, into the garden. His grief was so great that he was unable to utter a single word. After a few silent embraces the empress hanged herself on a tree. Her husband staid only to write these words on the border of his vest; "I have been basely deserted by my subjects; do what you will with me, but spare my people." He then cut off the young princess's head with one stroke of his scymitar, and hanged himself on another tree, in the seventeenth year of his reign. His prime minister, queens, and eunuchs followed his example. And thus ended the Chinese monarchy, to give place to that of the Tartars, which has continued ever since. The whole empire submitted to the usurper Li, except prince U-san-ghey, who commanded the imperial forces in the province of Lyau-tong. This brave prince, finding himself unable to cope with the usurper, invited the Tartars to his assistance; and Ifong-te, their king, immediately joined him with an army of 80,000 men. Upon this Li marched directly to Peking, plundered

and burnt the palace, and then fled with immense treasures. The young Tartar monarch was immediately declared emperor of China, his father, Tsoate, having died almost as soon as he set foot in that empire. The new emperor, Shun-chi, conferred upon U-fan-ghey the title of king, and assigned to him the capital of Shen-si for his residence. In 1682 the whole empire was so effectually subdued, that the emperor, Kang-hi, successor to Shun-chi, determined to visit Tartary, his native dominions, in order to take the diversion of hunting. This practice he continued for several years. He was a great encourager of learning and the Christian religion, in favour of which he published a decree in 1692. In 1716, however, he revived some obsolete laws against the Christians; and in the next reign Christians of all denominations, not excepting even those of the imperial race, were persecuted; the Jesuits were banished into Makau, a little island inhabited by the Portuguese, but subject to China.

In the year 1720, the emperor received the congratulations of the whole empire, on the signal victory which his forces had gained over the Eluths, who possessed the country of the Lamas, and had committed dreadful ravages for four years successively; which victory gave him now the sole command of the kingdom of Tibet. In the month of June an earthquake was felt at Peking, which lasted about two minutes, and killed above 1000 persons by the fall of houses. In November, the czar of Muscovy made his public entry into Peking, with a numerous and splendid retinue, dressed after the European manner. He met with a gracious reception at the court, though the emperor would not accede to the object of this visit, which was to take measures for establishing a free commerce between the dominions of the two sovereigns.

The emperor, while taking the diversion of hunting in one of his parks, was suddenly seized with a shivering fit, which obliged him to return to his palace immediately. His illness increased, and medical assistance was applied to, but was found to be in vain. Being conscious of his approaching end, he assembled all his grantees, and having in their presence declared his fourth son his successor, he expired on the 20th of December, 1722, in the 69th year of his age. Yong-ching was 45 years old when he ascended the throne. He had several brothers, but placed his confidence only in one; the rest he dispersed or banished. He imprisoned many of the princes and grantees for protecting the missionaries, to whose design he had himself formerly been very favourable; and discarded all these fathers from his service except one, who was an excellent painter. In other respects he shewed himself a wise prince, assiduous and indefatigable in the discharge of the duties of government, steady and resolute in his disposition, and endowed with a degree of eloquence and address, and attentive in answering the memorials which were presented to him. He governed wholly by himself; and no monarch was ever more absolute, or more dreaded by his subjects. This unlimited authority enabled him to enforce a great many wholesome laws and regulations, in framing which he spent whole days and nights with the most persevering industry. The surest way of gaining his favour, was by presenting him with some scheme tending to the public good, or to the relief of his subjects in times of calamities, in the execution of which, if it appeared practicable, he spared no pains. On the 13th of November, 1731, the city of Peking was nearly overturned by a dreadful earthquake, such as had never before been felt in China. The first shocks, which happened about eleven in the forenoon, were so sudden and violent, that in less than a minute above 100,000 inhabitants were buried in the

ruins of houses, and a still greater number in the surrounding country, where whole villages and towns were destroyed. The emperor was then at his pleasure-house about two leagues from the capital. While taking an airing in his barge, seeing the edifice instantaneously converted into ruins, he fell prostrate on his knees, with his hands and eyes lifted up to heaven. He published an edict, accusing himself as the chief cause of this calamity, and attributing the judgment to the wrath of God for his offences and want of care in governing the people. He then ordered an account to be taken of the families that had suffered by it, and an estimate of the damage it had occasioned, advancing considerable sums for their relief; part of which was presented to the missionaries, towards repairing their churches. But in the following year he renewed his persecution against the Christians, and caused the missionaries, and all that belonged to them, to be loaded with irons, and thrown into prison; and some he even condemned to the punishment of carrying the wooden collar. This prince was succeeded by Kien-Lung, who, after a happy, peaceable, and long reign of 63 years, died on the 11th of February, 1799; and was succeeded by Ka-Hing, the present emperor, and the fifth of the Tartar dynasty. These emperors have wisely prevented the European nations, who have overthrown all the other eastern governments, from obtaining a footing in China. They permit them, the English in particular, to carry on a restricted intercourse at the single port at Canton; but they treat with coolness every attempt to obtain exclusive privileges, to build forts, or to establish permanent factories.

Topographical Description, Population, &c.—After the above historical sketch, we proceed to the topography of China. It is divided into fifteen provinces, six of which are styled northern and nine southern. The names of these will be given below, when we come to speak of the population; and the description of each province will be found in the alphabetical order of the dictionary. Sensible as the Chinese seem to be of the advantages derived from an easy communication between the different parts of the empire, by means of canals, it is the more surprising what the motives could have been, that, till this moment, have restrained them from facilitating an intercourse by means of good roads, in such parts of the country as have no inland navigation. In this respect they fall short of most civilized nations. Except near the capital, and in some few places where the junction of the grand canal with navigable rivers is interrupted by mountainous ground, there is scarcely a road in the whole country that can be ranked beyond a foot path. Hence it happens that in the northern provinces, during winter, it is impossible to travel with any degree of ease, convenience, or safety; all the canals to the northward of the Yellow river, which runs from 34° to 35° latitude, being frozen up. It is equally surprising that their ingenuity has not extended itself to the invention of sledges, or some sort of carriages, suitable for travelling on ice, which other nations have converted into the best of roads. The cities and large towns are for the most part built in a regular form; their walls are high and strong, the gates are spacious, the main streets are broad and straight, intersected with others, which cross them at right angles. The squares are adorned with noble structures, such as triumphal arches and stately towers several stories high, embellished with galleries, carving, gilding, and a variety of other ornaments. Their public buildings are more remarkable for their extent than for their magnificence; their private houses are large but low, seldom exceeding one story in height, without any windows towards the street; these are often painted, varnished, and gilt, in a most splendid manner. The shops are set out with all their rich merchandize,

chandize, some of which is brought out and displayed in front of the houses. Before these are erected large wooden pillars, the tops of which are higher than the eaves of the houses, bearing inscriptions in gilt characters, setting forth the nature of the wares to be sold, and the honest reputation of the seller, and, to attract the more notice, they are generally hung with various coloured flags and streamers from top to bottom, exhibiting the appearance of a line of shipping dressed, as may be sometimes seen, on the river Thames, in the colours of all the different nations of Europe. The streets, being generally unpaved and covered with sand, prove so dusty in dry weather, as to be not only offensive to the great crowds that continually throng them, but very injurious likewise to the fine merchandize that is exposed. These clouds are still increased by multitudes of horses and carriages of all descriptions that are in continual motion. In rainy weather they are still more inconvenient from the mud and dirt, so that in winter and summer they are very troublesome and even unhealthy to walk in. The towns, villages, and military posts, are regularly placed at intervals of about three miles. No just idea can be formed of the population and magnitude of a Chinese city by the extent of its enclosing walls. Few are without large patches of unoccupied grounds within them, which, in many instances, far exceed the quantity of land that is built upon. Even in that part of the capital called the Chinese city, several hundred acres are under cultivation. The imperial city, containing the palace and buildings for the officers of state, the eunuchs, and artificers, occupies very nearly a square mile, more than two-thirds of which is a kind of park and pleasure grounds; and under the north wall of the Tartar city there is a pond or swamp, which appears to be fully twice the dimensions of Lincoln's-Inn-Fields. Such spaces of unoccupied ground might perhaps have been reserved for the use of the inhabitants in case of siege, as the means of supplying a few vegetables of the pungent kind, as onions and garlic, for the besieged, which are the more necessary for a people who use so small a portion of animal food, and little or no milk. Thus the cities of Babylon and Nineveh, which were so frequently exposed to the calamities of war and siege, had gardens and corn-lands within their walls. Independently of towns and villages, the houses of the peasants are, in many parts, scattered about. The face of the country is often level and entirely open; not a hedge-row, and very few trees to be seen through an extensive district. The cottages appear clean and comfortable; they are without fences, gates, or other apparent precaution, against the intrusion of wild beasts or thieves. Robbery is said to happen seldom, though not punished by death, unless aggravated by the commission of violence. The wives of the peasantry are of material assistance to their families, in addition to the rearing of their children, and the care of domestic concerns; for they carry on most of the trades which can be exercised within doors. Not only do they rear silk-worms and spin the cotton, but the women are almost the sole weavers throughout the empire.

Many parts of the country are so covered with swamps and morasses, as not to admit of the usual cultivation. In such situations the Chinese exhibit new instances of industry and ingenuity. They form rafts or hurdles of bamboo which they float upon the water, or rest upon morasses; on these rafts they spread a layer of soil, from whence they raise various kinds of vegetables; in like manner successful attempts are also made, in miniature, to produce smaller vegetables on ship-board, by laying seeds on moistened soil, or even on pieces of flannel placed in frames and wetted. By these means the radical leaves of mustard, for example,

sprout up quickly and are particularly grateful to persons long absent from land. Besides this method of raising a crop upon the water, the lakes, rivers, and canals of China are converted assiduously to such other useful purposes, either in cultivating vegetables growing from their bottom, or in catching the birds that swim upon its surface, or the fish that exist under it, or the other animals which creep upon the bottom, or by fertilizing the lands, by irrigation from them, and by the cheap and easy communication which they afford between the different districts of the empire; thus saving so much land, otherwise necessary for roads, and so much labour to make and keep them in repair, which is now employed in agriculture. In a country so populous as China every precaution is necessary to prevent the smallest spot of ground from being unoccupied that can be applied to any use; hence grape-vines, vast quantities of which are produced in this country for food, are generally planted on the sides of the canals; and, as they spread, small upright posts are driven in the water five or six feet from the bank, by which means that space is converted into a perfect arbour, without any expence of earth but what is immediately about the roots. Ample provision is likewise made for the constant cultivation of the land, by the forfeiture of such as are neglected, to the sovereign, who immediately grants them to other farmers willing to undertake their culture.

We must next proceed to the rivers of China, of which the Hoan-ho and the Kian-ku, deserve particular attention. The sources of the first, which is also denominated the Yellow river, from the quantity of mud which it devolves, are two lakes, situated among the mountains of that part of Tartary known by the name of Kokonor. These lakes lie about 35° N. lat. and 19° of longitude, to the westward of Peking, or about 97° E. of Greenwich. This prodigious river is extremely winding and devious in its course, pursuing a N.E. direction to about 42° of N. latitude, and after running due east it suddenly bends south to a latitude nearly parallel to its source, and pursues an easterly direction till it is lost in the Yellow sea. Its comparative course may be estimated at about 1800 British miles; or according to the late embassy 2150. At about 70 miles from the sea, where it is crossed by the imperial canal, the breadth is little more than a mile, and the depth only about nine or ten feet, but the velocity equals about seven or eight miles an hour. The Kian-ku rises in the vicinity of the sources of the Hoan-ho; but, according to the received accounts and maps about 200 miles further to the west, and winds nearly as far to the south as the Hoan-ho does to the north. After washing the walls of Nanking, it enters the sea about 100 miles to the south of the Hoan-ho. The Kian-ku is known by various names during its long progress; and near its source is called by the Eluths, Porticho or Petchou; its course is about equal to that of the former; these two rivers being considered as the longest on the face of the earth, for they are supposed to exceed the famous river of the Amazons in South America, and the majestic course of the Ganges does not extend half the length. In the late embassy the length of the Kian-ku is estimated at 2200 miles; and it is observed that these two great Chinese rivers, taking their source from the same mountain, and passing almost close to each other, in a particular spot, afterwards separate from each other, to the distance of 15° of latitude, or about 1050 British miles; and finally discharge themselves into the same sea, comprehending a tract of land of about 1000 miles in length, which they greatly contribute to fertilize. To these grand rivers many important streams are tributary; but it would not be consistent with our plan to enter into details here respecting them, the principal of those meriting

notice, will be found in the alphabetical order of the dictionary.

In China there are many noble and extensive lakes. According to Du Halde, there is one in the province of Hou-quang, that is at least 80 leagues in circumference. In the province of Kiang-fi there is another about thirty leagues in circumference, formed by the confluence of four large rivers, and is itself very dangerous to navigators. There is a considerable lake, not far to the south of Nanking, besides a number of smaller ones chiefly in the eastern and central parts of China. Sir George Staunton mentions, that upon a lake near the imperial canal, were observed thousands of small boats and rafts, constructed for a singular species of fishery. On each boat, or raft, are ten or twelve birds, which, at a signal from the owner, plunge into the water: and it is astonishing to see the enormous size of fish with which they return grasped within their bills. They are so well trained, that it does not require either ring or cord about their throats, to prevent them from swallowing any portion of their prey, except what the master is pleased to return them, for encouragement and food. The boat made use of by these fishermen is of a remarkably light make, and is often carried, together with the fishing birds, by the men who are there to be supported by the employment.

Du Halde describes some of the Chinese mountains as abounding with silver: others produce marble and crystal. In the province of Kiang-nan there is a district wholly mountainous. Two grand ranges, running E. and W. intersect the centre of the empire, apparently continuations of the enormous chains of Tibet. In the southern part of China the principal ridges run from N. to S.

The population of China has been a topic of considerable debate. Pauw observes from Du Halde, that when the missionaries proceeded through the empire, to prepare their maps, they found in the greater part of its large governments, countries of more than twenty leagues, little peopled, almost uncultivated, and often so wild as to be quite uninhab-

able, and he infers that the population is even exaggerated when it is computed at 82,000,000. "In so wide an empire," says Mr. Pinkerton, "most of the features are on a large scale, nor can human industry totally overcome, though as we have seen, it diminishes certain impediments of nature, as ridges of rocks, and extensive swamps, in certain positions; and in the north of China large forests are indispensably preserved for the sake of fuel. On a smaller scale, such obstacles to universal population are found even in the most fertile countries; they occur, as we all know, near the capital of our town." Civil wars, which, as we have seen in the foregoing history, have repeatedly raged in China, have laid desolate immense districts of the country for a long period of time. As it would be absurd to suppose that all China consists of land fit for cultivation, so it would be equally absurd to deny that the population has impressed every traveller with astonishment, and with ideas totally different from those of Pauw, who seems to have forgotten that the want of cultivation in some districts is balanced by that residing on the waters, millions of families passing their whole existence in boats, on the numerous rivers, lakes, and canals. The recent English embassy, prepared as they were for something very extraordinary on the subject of population, were nevertheless greatly astonished when the following statement was delivered at the request of Lord Macartney by a mandarin of high rank, as the abstract of a census that had been taken the preceding year: "The amount," says Mr. Barrow in his Travels in China, "appeared so enormous as to surpass credibility. But as we had always found this officer a plain, unaffected, and honest man, who on no occasion had attempted to deceive or impose on us, we could not consistently consider it in any other light than a document drawn up from authentic materials. To the table containing the account of the population are added the number of people on a square mile, and the value of the surplus taxes remitted to Peking in the year 1792.

Provinces.	Population.	Square miles.	No. on each square mile.	Surplus taxes remitted to Peking.
				oz. silver.
Pe-tche-lee	38,000,000	58,949	644	3,036,000
Kiang-nan	32,000,000	92,961	344	8,210,000
Kiang-fee	19,000,000	72,176	263	2,120,000
Tche-kiang	21,000,000	39,150	536	3,810,000
Fo-kien	15,000,000	53,480	280	1,277,000
Houquang { Hou-pee	14,000,000	144,770	187	{ 1,310,000
{ Hou-nan	13,000,000			{ 1,345,000
Honan	25,000,000	65,104	384	3,213,000
Shan-tung	24,000,000	65,104	368	3,600,000
Shan-fee	27,000,000	55,268	488	3,722,000
Shen-fee { one	18,000,000	154,008	195	{ 1,700,000
Kan-foo { province	12,000,000			{ 340,000
Se-tchuen	27,000,000	166,800	162	670,000
Quang-tung	21,000,000	79,456	264	1,340,000
Quang-see	10,000,000	78,250	128	500,000
Yu-nan	8,000,000	107,969	74	210,000
Koei-tchoo	9,000,000	64,554	140	145,000
Totals	333,000,000	1,297,999		36,548,000

The measurement annexed to each of the fifteen ancient provinces was taken from the maps constructed by a laborious, and, as is generally believed in China, very accurate survey, which employed the Jesuits ten years. Whether this great empire, the first in rank both in extent and population, does or does not actually contain three hundred and thirty-three millions, is a point that Europeans are not likely to ascertain. That it is capable of sustaining this and a much greater population, Mr. Barrow, in his work already referred to, has taken considerable pains to prove. He mentions several causes that have contributed to the populousness of this country: since the Tartar conquest China has enjoyed a profound peace, and its army being parcelled out as guards for the towns, cities, and villages, and stationed at the numberless posts on the roads and canals, all marry, have families, and a certain portion of land, which they have time to cultivate, is allotted for their use. As the nation has little foreign commerce, there are but few seamen: such as belong to inland navigation are mostly married: public opinion indeed considers celibacy as disgraceful, and a sort of infamy is attached to a man who continues unmarried beyond a certain time of life. As an encouragement to the nuptial state, every male child may be provided for, and receive a stipend from the moment of his birth by having his name enrolled on the military list. By the equal division of the country into small farms, every peasant has the means of bringing up his family, if drought or inundations do not frustrate his labour; and the pursuits of agriculture, it is well known, are very favourable to health, and consequently to population. From the general poverty that prevails among the lower classes, drunkenness is little known, and temperance, from necessity, very much practised. The climate in general is moderate and uniform, and, excepting the small pox, the Chinese are liable to few epidemical disorders; the women are very prolific, and from the inanimate kind of life which they lead, are subject to few accidents, and they all suckle and nurse their own children. From these and other favourable circumstances, Mr. Barrow supposes that the population of China may not have been exaggerated even by those who have given the highest calculations.

Canals and Chinese Navigation. In China there is scarcely a town or even a village which has not the advantage either of an arm of the sea or a canal; by which means navigation is rendered so common, that almost as many people live on the water as on land. The great canal is one of the wonders of art; it runs from north to south, extending from the city of Canton to the extremity of the empire; and by it all kinds of foreign merchandize entered at that city are conveyed directly to Peking, a distance of 825 miles. This canal is about 50 feet wide; it passes through, or near 41 large cities; it has 75 large sluices to keep up the water, besides several thousand bridges. China owes the greatest part of her riches to these numerous canals, which are cut through any kind of private property, not even excepting the gardens of the emperor, who, when the work arrives at his ground, digs the first spade of earth, and pronounces with an audible voice, "This is to let all know that private pleasure should never obstruct the public good." The canals are bordered or faced with quays of free-stone, and, in low places, long causeways are raised for the convenience of travellers. There are bridges over the canals of three, five, or more arches, of which the middle one is high enough for vessels to pass under with their masts standing. When the water is liable to overflow the neighbouring meadows, they open the sluices to convey it away, and there are inspectors appointed to keep the canals in proper repair. One large canal generally runs through every province, and a

vast number of smaller ones are cut from the large one; which again are divided into some still smaller, that end at a village or great town; sometimes they discharge themselves into a lake, or large pond, from which all the adjacent country is watered. Among all the canals in the southern provinces, one is called the great canal, which is the grandest inland navigation in the known world, being, according to Mr. Barrow, nearly 1000 feet in width, of which the sides are built with massy blocks of grey marble mixed with others of granite; and this immense aqueduct, although forced several feet above the surface of the country, by embankments thrown up by the labour of man, flows with a current of about three miles an hour towards the Yellow river. The bustle and activity both on shore and on the numberless canals that branch out in every direction from the main trunk, exhibit, for several miles, on either side, one continued town, extended to the point of junction with this large river, celebrated in every period of Chinese history. That which most charms the eye is the immense number of large boats with imperial colours, and beautifully painted, that sail in fleets, and commanded by a single mandarin of the province, and loaded with its best productions, and chiefly on the emperor's account. There are several classes or rates of these boats, very neat and commodious; a middle sized one has a hall and four very convenient rooms, besides a good kitchen, and place for the attendants; the rooms are generally carved, painted, and gilt; even the ceiling is painted, and the whole varnished; some of these boats are of 200 tons burthen, and from 300 to 400 of them on the same canal at the same time, and sometimes in one fleet; and by the cleanliness and good management of the canals, it is rendered the most pleasant and fertile country in the world. The Chinese junks are strong roomy vessels, from 100 to 200, and some 300 tons burthen; the hold below deck is divided into several distinct apartments, partitioned off with two-inch plank, grooved or rabbeted as close as possible, and the joints or seams are caulked with a cement of lime, pitch, &c. prepared in such a manner as to render it perfectly water-tight. A junk may strike against a rock and not sink; a leak may be sprung, but will damage no further than the goods in that apartment. Before the barges are launched from the canal into the stream of the Yellow river, certain ceremonies are conceived to be indispensably necessary: an oblation is made in every vessel to the genius of the river: the animals sacrificed on such occasions consist of fowls or pigs. The blood, with the feathers and the hair, are daubed upon the principal parts of the vessel, and on the fore-castle are placed cups of wine, oil, and salt, the last article being thought by the Chinese as necessary to every sacrifice. The cups, the slaughtered animals, and several made dishes remain on the fore-castle, while the captain stands over them on one side, and a man with his *gong* on the other. On approaching to the rapid part of the stream, at a signal given by the *gong*, the captain takes the cups one by one, the contents of which he throws over the bow of the vessel, into the river. The libation being performed, a quantity of crackers, squibs, and gilt tin foil are burnt with up-lifted hands, while the deep-sounding *gong* is incessantly struck with increasing violence as the vessel sweeps along with the current. The victim and the other dishes are then removed for the use of the captain and the crew, and the ceremony ends by three genuflexions, and as many prostrations. The Chinese are unskilled in the art of navigation. They keep no reckoning at sea, nor possess the least idea of drawing imaginary lines upon the surface of the globe, by the help of which the position of any particular place may be assigned; in other words, they have no means of ascertaining the latitude or longitude of any

place either by the distance failed, or by observation of the heavenly bodies. Yet they pretend that many of their early navigators made long voyages in which they were guided by charts of the route, sometimes drawn on paper, and sometimes on the convex surface of large gourds. The present system of Chinese navigation is to keep as near the shore as possible, and never to lose sight of land, unless in voyages that absolutely require it, such as to Japan, Batavia, and Cochin-China. Knowing the bearing or direction of the port intended to be made, they endeavour to keep the head of the ship always pointing to it by means of the compass. Yet even with the assistance of the compass it is surprising how their ill-constructed vessels can perform so long and dangerous a voyage as that of Batavia, and, indeed, vast numbers of Chinese vessels are annually lost by shipwreck in attempting it. When a ship leaves Canton on a foreign voyage, it is considered as an equal chance that she will never return; and when the event proves favourable, a general rejoicing takes place among the friends of those who had embarked in the hazardous undertaking. Some of these ships are not less than 1000 tons burthen, and contain half that number of souls, besides passengers, who hope to make their fortunes at Batavia or Manilla. A ship belongs to several merchants, and is divided into as many compartments as there are partners, and each sits up his own as he pleases. He ships his goods and accompanies them in person, or sends his son, or a near relation, for it rarely happens that they will trust each other with property where no family connection exists. Each sleeping-place is just the length and breadth of a man, and contains only a small mat spread on the floor, and a pillow. Behind the compass is generally placed a small temple, with an altar, on which is continually kept burning a spiral taper composed of wax, tallow, and sandal-wood. This holy flame answers a double purpose; for while the burning of it fulfils an act of piety, its twelve equal divisions serve to measure the portions of time which make a complete day. It should seem that the superstitious notions inculcated on the people, have led them to believe that some particular influence resides in the compass; for on every appearance of a change in the weather, they burn incense before the magnetic needle.

Government and political Relations. The government of China is patriarchal. The emperor is absolute, but the examples of tyranny are rare, as he is taught to regard the people as his children, and not as his slaves. Being considered as the common father of his subjects, he is accordingly invested with the exercise of the same authority over them, as the father of a family exerts on those of his particular household. In this sense he takes the title of the Great Father; and by his being thus placed out of the reach of any earthly controul, he is supposed to be also above earthly descent, and therefore, as a natural consequence, he sometimes styles himself the sole ruler of the world and the son of heaven. Conformably to this system, founded entirely on parental authority, the governor of a province is considered as the father of that province; of a city, the father of that city; and the head of any office or department is supposed to preside over it with the same authority, interest, and affection, as a father of a family superintends and manages the concerns of domestic life. The stability of the government, in all its sensible and even minute forms and customs, justly astonishes those who are most conversant in history. It arises from a circumstance unknown in any other government, the admission and practice of the principle, that "knowledge is power." For all the officers of government pass through a regular education, and a progress of rank, which are held indispensable. Of the officers called manda-

rins, there are nine classes, from the judge of the village to the prime minister. The profession requiring a long and severe course of study, the practice of government remains, like that of medicine, unshaken by exterior events; and while the imperial throne is subject to accident and force, the remainder of the machine goes on without interruption. The governors of the provinces have great and absolute power, yet rebellions are not unfrequent. Bribery is also an universal vice, and the Chinese government, like many others, is less beautiful in practice than in theory. The Chinese laws are ancient, but numerous; and edicts of the reigning dynasty have restrained the mandarins within stricter limits of duty.

Though unbounded authority is given to the emperor by the laws, yet the same laws lay upon him a necessity to use his power with moderation and discretion, which are the two props that have so long supported the great fabric of the Chinese monarchy. The first principle instilled into the people at large, is to respect their prince with so high a veneration as almost to adore him. His commands are indisputable, and his words sacred. He seldom shews himself to the people, and is never spoken of but on the knees. When he is ill, the palace is full of mandarins, who spend their whole time in a large court, offering petitions to heaven in behalf of their prince's cure. No weather, no inconvenience, can excuse them from this duty: so long as the emperor is in pain or in danger, the people seem to fear nothing but the loss of him. Self-interest is no small occasion of the great respect which is shewn him by his subjects; for as soon as he is proclaimed emperor, the whole authority of the empire is in his hands, and the fortunes of his subjects are entirely at his disposal. 1st. All places of honour and profit are in his gift. Honesty, learning, experience, and gravity of behaviour, are said to be the only qualifications to insure success to the candidate for any post of trust or dignity. As the emperor has the sole choice of all officers of state, so he dismisses, without ceremony, those who are deficient in their duty. 2d. He has absolute power over the lives and properties of all his subjects. Offenders are arraigned and tried in the different provinces, but the sentence is always presented to the emperor, who either confirms or rejects it, as he pleases. He can lay what taxes he thinks fit upon his subjects to supply the pressing wants, and relieve the necessities of the state. 3d. The right of making peace and war belongs to the emperor; he may make what treaties, and upon what terms, he pleases, provided they are not dishonourable to the kingdom. The judgments passed by him are irrevocable, and his sovereign courts and viceroys dare not use the least delay in registering them. 4th. Another singular circumstance belonging to the Chinese government, is the right that the emperor has of choosing his successor, whom he may select not only from the royal family, but from among his other subjects: and there have been emperors, who, finding none of their own family able to support the dignity of a crown, have chosen for their successors persons of mean birth and fortune, but eminent for virtue and understanding. Examples of this nature are not, however, very common, but it frequently happens that the choice does not fall according to seniority, which, in China, never occasions any civil commotions or rebellions. 5th. The grave itself does not put an end to his power over his subjects, which is exercised even upon the dead, whom he disgraces or honours, when he has a mind either to reward or punish them or their families. He confers upon them, after their decease, titles of honour; canonizes them as saints, or, according to their language, "makes them naked spirits." Sometimes he builds for them temples; and, if their administration of public affairs

affairs has been very beneficial, or their virtues remarkably eminent, he commands the people to honour them as gods. The emperor has ever been looked upon as the chief priest and principal servant of religion; and there are ceremonies and public sacrifices which he alone is thought worthy to offer up to the great Creator of heaven. 6th. The emperor may change the figure and character of the letters, abolish characters already received, or form new ones. He may likewise change the names of provinces, of cities, and of families. He may forbid the use of any commonly received expression or modes of phrase, and introduce others which have hitherto been esteemed obsolete and uncouth.

To assist the emperor in the weighty affairs of the state, and in the arduous task of governing an empire of so great an extent, and such an immense population, the constitution has assigned him two councils; the one, called the ordinary council, is composed of his principal ministers, of which there are six. The other, or extraordinary council, consists entirely of the princes of the blood. For the administration of the affairs of government, there are six boards or departments, consisting of. 1. The court of appointments to vacancies in the offices of government, being composed of the ministers and learned men, qualified to judge of the merits of candidates. 2. The court of finance. 3. The court of ceremonies, presiding over the direction of ancient customs, and treating with foreign ambassadors. 4. The court for regulating military affairs. 5. The tribunal of justice. 6. The board of works.—These public functionaries resolve upon, recommend, and report to the emperor, all matters belonging to their separate jurisdictions, who, with the advice of his ordinary, and, if necessary, of his extraordinary council, confirms, amends, or rejects their decrees. Subordinate to these supreme courts held in the capital, are others of a similar constitution, established in different provinces, and great cities of the empire, each of which corresponds with its principal in Peking.

The political importance and relations of China may be said to be concentrated within itself, as no example is known of alliance with any other state. It has been supposed, that one European ship would destroy the Chinese navy, and that 10,000 European troops might over-run the empire. Yet its very extent is an obstacle to foreign conquest, and, perhaps, not less than 100,000 soldiers would be necessary to maintain the quiet subjugation of it; so that any foreign yoke must prove of very short continuance. The recent conquest by the Mandchurs happened in consequence of the general detestation excited against a sanguinary usurper; and the invaders were in the immediate proximity, while even a Russian army would find almost insurmountable difficulties on the route, and the conquest, like that by the descendants of Zingis, would infallibly prove of short duration. The Chinese have taken almost all their civil laws from their canonical books of morality. Filial piety is their basis, as well as that of their government. Some decrees of the emperors, and especially those respecting the observance of certain ceremonies, which custom has established, form the rest of the code. In a word, the Chinese jurisprudence contains every thing that is to be found in the best moral writers. Every mandarin who is a governor, either of a province or city, is obliged, twice a month, to instruct the people around him, and to recommend the observance of certain salutary rules, such as filial piety, a certain deference to elders, frugality, temperance, and the other personal virtues. An express law points out those parts of morality which ought to be the subjects of these discourses. Jurisprudence is taught in China in the same manner as the principles of religion are taught in other countries.

The laws of China which concern marriage are very extensive. A man can have only one lawful wife, and her rank and age must be nearly equal to his own; but he may receive into his house, on certain conditions, several concubines or wives of the second rank, who are wholly subject to the lawful spouse. Their children are considered as hers, they address her as mother, and can give this title to her only. Divorces are granted in China as they were among all ancient nations, but with less facility and only in certain cases, such as adultery, incompatibility of tempers, sterility, hereditary and infectious diseases. The law protects every wife who is abandoned by her husband, and can, if he absents himself for three years, take another husband, provided she first get the consent of the mandarins. The law forbids marriage in certain circumstances; and marriage is also suspended when a family experiences any severe misfortune. Every father of a family is responsible for the conduct of his children; he is even accountable for that of his domestics. Every fault is imputed to him, whose duty it is to prevent it. The old persons of a family live generally with the young; the former serve to moderate the passions of the latter, and the influence of age over youth is supported by the sentiments of nature, by habits of obedience, by the precepts of morality ingrafted in the law of the land, and by the unremitted policy and honest endeavours of parents to that effect. They who are past labour dispense the rules and the wisdom which experience taught them, to those who are advancing in life. Plain moral sentences are written up in the common hall where the male branches of the family assemble. In almost every house is hung up a tablet of the ancestors of the persons then residing in it, to which references are perpetually made, and their example serves as an incitement to travel in the same path. The descendants from a common stock visit the tombs of their forefathers together, at stated times, which practice collects and unites the most remote relations. They cannot lose sight of each other, and seldom become indifferent to their respective concerns. The child is bound to labour and to provide for his parents' maintenance and comfort, and the brother for the brother and the sister, who are in extreme want; the failure of which duty would be followed by such detestation that it is not necessary to enforce it by positive law. Even the most distant kinsman, reduced to misery by accident or ill-health, has a claim on his kindred for relief. Manners, stronger than laws, produced and nurtured by intercourse and intimacy, secure effectual assistance for him. These habits and manners fully explain a fact that appears extraordinary to Europeans, that no spectacles of distress are seen to excite the compassion, and implore the casual charity of individuals.

Civil and Military Establishments. From the produce of the taxes, the civil and military establishments, and all the incidental and extraordinary expences, are first paid on the spot where they are incurred, out of the provincial magazines, and the remainder is remitted to the treasury in Peking to meet the expences of the court, the establishment of the emperor, his palaces, temples, gardens, women, and princes of the blood. The confiscations, presents, tributes, and other articles, may be reckoned as attaching to his privy purse. The surplus revenue remitted to Peking in the year 1792, was stated to be about twelve millions sterling. It is a general opinion among the Chinese part of his subjects that vast sums of the surplus revenue, and such as arise from confiscations, are annually sent to the capital of Tartary: this, however, is an erroneous opinion. Notwithstanding the great wealth of the imperial treasury, the present emperor found it necessary, in a single year, to accept of what

is called an offering, of five hundred ounces of silver, from the salt merchants of Canton, and sums of money, and articles of merchandize from other quarters, to enable him to quell a rebellion that was raging in one of the western provinces. He even sent down to Canton a quantity of pearls, agates, serpentine, and other stones of little value, in the hope of raising a temporary supply from the sale of them to foreign merchants. The emperor of China, therefore, has not so much wealth at his disposal as has usually been

imagined. He even accepts of patriotic gifts from individuals, consisting of pieces of porcelain, silks, fans, tea, and such like trifling articles, which afterwards serve as presents to foreign ambassadors; and each gift is pompously proclaimed in the Peking gazette. The chief officers in the civil departments of government, independent of the ministers and the different boards in Peking, according to the statement of *Tebou-ta-gin*, with their salaries and allowances, reduced into silver, will be seen from the following table:

Quality.	Number.	Salaries in Ounces of Silver.	Total.
Viceroy, over one or more provinces	11	20,000	220,000
Governors of provinces	15	16,000	240,000
Collectors of revenue	19	9,000	171,000
Presidents of criminal tribunals	18	6,000	108,000
Governors of more than one city of the first order	86	3,000	258,000
Governors only of one city of the first order	184	2,000	368,000
Governors of a city of the second order	149	1,000	149,000
Governors of a city of the third order	1,305	800	1,044,000
Presidents of literature and examinations	17	3,000	402,000
Inspectors-General	117		
Total ozs.			2,960,000

The inferior officers acting immediately under the orders of these, and amounting to many thousands, together with the salary and expences of the different boards, all of which are paid out of the public treasury, must require a sum, at least equal to the above; so that, on a moderate calculation, the ordinary expences of the civil government will amount to the sum of 5,920,000 ounces of silver, or 1,973,333 pounds sterling. Some idea may be formed of the numerous appointments and the frequent changes in administration, from the Chinese court calendar, which is published every three months, making four large volumes. The attention, precaution, and extreme jealousy of the government, have not been considered as sufficient for the protection of the empire, without the assistance of an immense standing army, which, in the midst of a profound peace, was stated by *Van-ta-gin*, to consist of one million of infantry and eight hundred thousand of cavalry. The expence of this military establishment, together with artillery, tents, war-equipage, vessels of force on the different rivers and canals, the building and keeping in repair the military posts, &c. &c. has been estimated at 49,982,933l. sterling. The revenue is estimated at sixty-six millions sterling, so that the whole will stand as follows:

Total amount of the revenue - - -	£66,000,000
Civil establishment - - -	£1,973,333
Military ditto - - -	49,982,933
	<u>51,956,266</u>

Surplus, being for the emperor's establishment £14,043,734

which accords pretty nearly with the sum said to have been remitted to Peking in the year 1792. It may perhaps be asked, in what manner this large body of men is employed, since the nation is so little engaged in foreign war. To which it may be replied, that the employments of the military differ materially from those among European nations. Except a great part of the Tartar cavalry, who are stationed on the northern frontier, and in the conquered provinces of Tartary, and the Tartar infantry, who are distributed as guards for the different cities of the empire, the rest of the army is parcelled out in the smaller towns, villages, and hamlets, where they act as constables, thief-takers, assistants to magistrates, subordinate collectors of the taxes, guards to

the granaries, and are employed in a variety of different ways under the civil magistracy and police. Besides these, an immense multitude are stationed as guards of the military posts, along the public roads, canals, and rivers. These posts are small square buildings, like so many little castles, each having on its summit a watch-tower and a flag, placed at the distance of three or four miles asunder. At one of these posts there are never fewer than six men, who not only prevent robberies and disputes on the roads, but convey the public dispatches to and from the capital. An express sent from post to post travels in this way at the rate of a hundred miles per day, and there is no other post nor mode of conveying letters for the convenience of the public.

A great part then of the Chinese army may be considered as a kind of militia, which never has been, and probably never will be, embodied; as a part of the community not living entirely on the labour of the rest, but contributing something to the common stock. Every soldier stationed on the different guards has his portion of land assigned to him, which he cultivates for his family, and pays his quota of the produce to the state. The different kinds of troops that compose the Chinese army consist of, 1. Tartar cavalry, whose only weapon is a sabre; and a few who carry bows. 2. Tartar infantry, bowmen having also large sabres. 3. Chinese infantry, carrying the same weapons. 4. Chinese matchlocks. 5. Chinese tigers of war, bearing large round shields of basket-work and long swords. On the shields are painted monstrous faces of some imaginary animal, intending to frighten the enemy, or to petrify their beholders. The military dress varies in almost every province; sometimes they wear blue jackets edged with red, or brown with yellow; some have long pantaloons, some breeches, and others petticoats and boots; the bowmen have long loose gowns of blue cotton, stuffed with wadding, studded with brass knobs, and bound round the middle with a girdle, from which the sabre is appended behind. On the head they wear a helmet, with flaps on each side, that cover the cheeks and fall on the shoulders. The upper part is like an inverted funnel, with a long pipe terminating in a kind of spear, on which is bound a tuft of hair dyed scarlet. "The greatest number of soldiers," says Mr. Barrow, "that we saw at any one place might be from 2 to 3000, which were drawn up in a single line along the bank of a river, and, as they stood with

with an interval between each other, equal to the width of a man, they formed a very considerable line in length. Every fifth man had a small triangular flag, and every tenth a large one; the flags that supported them were of different colours, and fixed to the jacket behind the shoulders." The Tartar cavalry appear to be remarkably swift, and to charge with great impetuosity; but the horses are so small, and broken into so quick and short a stroke, that the eye is deceived, and their real speed is but moderate. Their saddles are soft, raised before and behind, so that the rider cannot be easily thrown out of his seat; and the stirrups are so short that the knee is nearly level with the chin. They have little artillery, and that is very bad. They give a decided preference to clumsy match-locks, over the fire-locks now in use among European troops, pretending that the former, by being fixed with iron forks into the ground are capable of doing more execution than the latter; but the true reasons are probably their want of good metal to manufacture locks, or the bad quality of their gun-powder, or, above all, their deficiency in courage to make use of them with that steadiness which is required to produce their full effect. Their favourite weapon is the bow, which, like all other missile weapons, requires less courage to manage than those which bring a man to oppose himself in close contest with man. Although the Tartars have continued the Chinese army on the old footing, they have used every exertion to recruit it with their own countrymen in preference to the Chinese. Every male Tartar child is accordingly enrolled, a precaution highly necessary, as their whole army at the time of the conquest is said not to have exceeded 80,000 men. It is, however, certain, that the Chinese government was at this time under a very weak administration, and every department both civil and military under the controul of eunuchs, 6000 of whom are said to have been turned adrift by the Tartars, on the taking possession of the palace at Peking.

The conduct of the Mantchoo Tartars, whose race is now on the throne, was a master-piece of policy not to have been expected in a half-civilized race of people. They entered the Chinese dominions as auxiliaries against two rebel chiefs, and in a short time placed their own leader on the throne; but instead of setting up for conquerors they melted into the mass of the conquered. They adopted the dress, the manners, the opinions of the people, and in all the civil departments of the state, they appointed the ablest Chinese, and all vacancies were filled with Chinese in preference to Tartars. They learned the Chinese language, married into Chinese families, encouraged Chinese superstition, and, in short, omitted no step that could tend to incorporate them as one nation; their great object was to strengthen their army with their own countrymen; while the Chinese were so satisfied with the change, that they almost doubted whether a change had really taken place. In proportion as the Tartar power increased, they have become less solicitous to conciliate the Chinese; all the heads of departments are Tartars; the ministers are Tartars; and most of the offices of high trust and power are filled by Tartars. The best soldiers of this empire are collected from the three northern provinces; those supplied by the rest are seldom called forth; but remain with their families, enjoy their pay, and have seldom any occasion to remember that they are soldiers, except when ordered to appear at a review.

State of Society; Manners and Customs. It may be laid down as an invariable maxim that the condition of the female part of society in any nation will furnish a tolerably just criterion of the degree of civilization to which that

nation has arrived. The manners, habits, and prevailing sentiments of women have great influence on those of the society to which they belong, and generally give a turn to its character. Thus, those nations where the moral and intellectual powers of the mind in the female sex are held in most estimation, will be governed by such laws as are best calculated to promote the general happiness of the people; and, on the contrary, where the personal qualifications of the sex are the only objects of consideration, as is the case in all the despotic governments of Asiatic nations, tyranny, oppression, and slavery are sure to prevail; and these personal accomplishments, so far from being of use to the owner, serve only to deprive her of liberty and the society of her friends, to render her a degraded victim subservient to the sensual gratifications, the caprice, and the jealousy of man. Among savage tribes the labour and drudgery fall heaviest on the weaker sex. The Chinese have imposed on their women a greater degree of humility and restraint than the Greeks of old, or the Europeans in the dark ages. Not satisfied with the physical deprivation of the use of their limbs, they have contrived, in order to keep them the more confined, to make it a moral crime for a woman to be seen abroad. If they should have occasion to visit a friend or relation, they must be carried in a close sedan-chair: to walk would be the height of vulgarity. Even the country ladies, who may not possess the luxury of a chair, rather than walk, suffer themselves to be rolled about in a sort of covered wheel-barrow. The wives and daughters, however, of the lower class are neither confined to the house, nor exempt from hard and slavish labour, many being obliged to work with an infant upon the back, while the husband, in all probability, is gaming, or otherwise idling away his time. In the province of Kiang-see nothing is more common than to see a woman drawing a kind of light plough, with a single handle, through ground that has previously been prepared; the easier task of directing the machine is left to the husband, who, holding the plough with one hand, casts, at the same time, with the other, the seed into the drills. The advantages which these women possess in a higher sphere of life, if any, are not much to be envied. Even at home, in their own family, a woman must neither eat at the same table, nor sit in the same room with her husband. And the male children, at the age of nine or ten years, are entirely separated from their sisters. Thus the feelings of affection, not the instinctive products of nature, but the offspring of frequent intercourse, and of a mutual communication of their little wants and pleasures, are nipped in the very bud. A cold and ceremonious conduct must be observed on all occasions between the members of the same family. There is no common focus to attract and concentrate the love and respect of children for their parents. Each lives retired and apart from the other. The incidents and adventures of the day, which furnish the conversation among children of many a long winter's evening, by a comfortable fire-side, in our own country, are in China buried in silence. Boys, it is true, sometimes mix together in schools, but the stiff and ceremonious behaviour, which constitutes no inconsiderable part of their education, throws a restraint on the little playful actions incident to their time of life, and completely subdues all spirit of activity and enterprise. A Chinese youth of the higher class is inanimate, formal, and inactive, constantly endeavouring to assume the gravity of years. To beguile the many tedious and heavy hours that must unavoidably recur to the secluded females, totally unqualified for mental pursuits, the tobacco-pipe is the usual expedient. Every female from the age of eight or nine years wears, as an appendage to her dress, a small silken purse or pocket,

to hold tobacco and a pipe, with the use of which many of them are not unacquainted at this tender age. Some, indeed, are constantly employed in working embroidery on silks, or in painting birds, insects, and flowers on their gauze. But the women who employ their time in this manner are generally the wives and daughters of tradesmen and artificers; a lady of rank would not be supposed to condescend to use her needle. Daughters may be said to be invariably sold. The bridegroom must always make his bargain with the parents of his intended bride. She has no choice, but is disposed of to the highest bidder. The man, indeed, in this respect, has no great advantage on his side, as he is not allowed to see his intended wife until she arrives in formal procession at his gate. If, however, on opening the door of the chair in which the lady is shut up, and of which the key has been sent before, he should dislike his bargain, he can return her to her parents; in this case the articles are forfeited that constituted her price; and a sum of money in addition may be demanded, not exceeding the value of these articles. "To what a degraded condition," says Mr. Barrow, "is a female reduced by this absurd custom, and how little inducement can she have to render herself amiable or elegant, knowing that she will be consigned into the hands of the first man who will give the price that her parents have fixed upon her charms." The man takes a wife because the laws of the country direct him to do so, and custom has made it indispensable; and a woman after marriage continues to be the same piece of inanimate furniture she always was in her father's house. She suffers no indignity, nor does she feel any jealousy or disturbance when her husband brings into the same house a second or a third woman. Although polygamy be allowed by the government, yet few take the advantage of it. Nine-tenths of the community find it difficult to rear the offspring of one woman by the labour of their hands; such, therefore, are neither in circumstances, nor probably feel much inclination to purchase a second. The unsocial distance which the law prescribes to be observed between the sexes, and the cool and indifferent manner of bargaining for a wife, are not calculated to produce numerous instances of criminal intercourse. These, however, sometimes happen, and the weight of punishment always lies heaviest on the woman. The husband finds no difficulty in obtaining a sentence of divorce, after which he may sell her for a slave, and thus redeem a part at least of his purchase-money. The same thing happens in case a wife should elope; but if a young girl should chance to lose what is justly held to be the most valuable part of female reputation, she is sent to market by her parents, and publicly sold for a slave. In cases of mutual dislike, or incompatibility of temper, the woman is generally sent back to her parents. The prohibition against the frequent intercourse with modest females, for there are public women in every great city, is not attended here with the effect of rendering the pursuit more eager; it seems even to have the contrary effect, of promoting that sort of connection, which, being one of the greatest violations of the law of nature, will ever be considered by an enlightened people as the first of moral crimes, a connexion that links the man infinitely below the brute. The commission of this detestable and unnatural act is attended with so little sense of shame, that many of the first officers of state seem to make no hesitation in publicly avowing it. Each of these officers is constantly attended by his pipe-bearer, who is generally a handsome boy, from 14 to 18 years of age, and is always well dressed, the reason of which is too obvious, to bye-standers, to be misinterpreted.

The state of domestic society in China is ill calculated

to promote the affection and kindness which children feel for their parents in many countries. A tyrant to command, and a slave to obey, are found in every family; and if the acts of kindness and attention that create mutual endearments be wanting among the members of the same family living under the same roof, it will be in vain to expect to find them in the large sphere of public life; and in fact there are no friendly societies, nor meetings, to talk over the transactions and the news of the day. These can only take place in a free government. A Chinese, having finished his daily employment, retires to his solitary apartment. There is, it is true, a sort of public houses where the lower orders of people resort for their cup of tea; but such places are not frequented for the sake of company. Whenever a few Chinese meet together, it is generally for the purpose of gaming, or to eat a kettle of boiled rice, or drink a pot of tea, or smoke a pipe of tobacco. The upper ranks indulge at home in the use of opium, of which they are very fond, though it is strictly prohibited by law. It is, however, too expensive to be used by the common people. The young have no occasional assemblies for the purpose of dancing, and of exercising themselves in feats of activity, which in Europe are attended with the happiest effects. The first day of the new year, and a few succeeding days, are the only holidays that are observed by the working part of the community. On these the poorest peasant makes a point of procuring new cloaths for himself and his family; they pay visits to their friends and relations, interchange civilities and compliments, make and receive presents; and the officers of government, and the higher ranks, give feasts and entertainments; but even in these there is nothing that bears the resemblance of conviviality. The guests never partake together of the same service of dishes, but each has frequently a separate table; the eyes of all must constantly be kept on the master of the feast, to watch his motions, and to observe every morsel he puts into his mouth, and every time he lifts the cup to his lips (for a Chinese of good breeding can neither eat nor drink without a particular ceremony), to which the guests must pay attention. If a person invited should be prevented from attending, the portion of dinner that was intended for him is sent in procession to his own house; it is even customary to send after the guest the remains of his dinner. Whatever may be the occasion of bringing together a few idlers, they seldom part without trying their luck at some game of chance, for which a Chinese is never unprepared. He rarely goes abroad without a pack of cards in his pocket, or a pair of dice; both of these are different from similar articles elsewhere; their cards are much more numerous than ours, and their games much more complicated. They sometimes play at chess, which appears to be essentially different from that game as played in other Oriental nations. The spirit of gaming is so universal, in most of the towns and cities, that, in almost every bye corner, groups are to be found playing at cards or throwing dice. They are accused of even staking their wives and children on the hazard of a die. One of their most favourite sports is cock-fighting, which is as eagerly pursued by the upper classes in China, as it continues to be by those in a similar situation in some parts of Europe. The training of quails for the same cruel purpose of butchering each other, furnishes abundance of employment for the idle and dissipated. They have even extended their inquiries after fighting animals into the insect tribe, in which they have discovered a species of *gryllus*, or locust, that will attack each other with such ferocity, as seldom to quit their hold without bringing away, at the same time, a limb of their antagonist. These little creatures are kept apart in bamboo cages; and the custom of making them

devour

devour each other is so common, that during the summer months scarcely a boy is seen without his cage and grass-hoppers.

Another trait in the Chinese character, which must not be passed over, is the horrid practice of infanticide, tolerated by custom, and allowed by government; because where the legislature does not interfere to prevent crimes, it may be said to lend them countenance. The laws of China do not indeed suppose such an unnatural crime to exist, and have therefore provided no punishment for it. They have left the child entirely to the disposal of the father, concluding, that if his feelings will not prevent him from doing it an injury, no other consideration will. Thus, though the commission of infanticide be frequent in China, it is considered as more prudent to wink at it, as an inevitable evil, which natural affection will better correct than penal statutes. It is, however, tacitly considered as a part of the duty of the police of Peking, to employ certain persons to go their rounds at an early hour in the morning with carts, in order to pick up such bodies of infants as may have been thrown into the streets in the course of the night. No inquiries are made, but the bodies are carried to a common pit without the city walls, into which all those that may be living, as well as those that are dead, are said to be thrown promiscuously. The number of children thus inhumanly slaughtered, in the course of a year, is differently stated by different authors, some making it about 10 and others 30,000 in the whole empire. Mr. Barrow thinks the truth may probably lie in the mean of these extremes. He concludes that about 24 infants are on an average daily destroyed in Peking, where it is supposed about an equal number are exposed, to that of all the other parts of the empire. How very weak then, says he, must be the boasted filial affection of the Chinese for their parents, when they scruple not to become the murderers of their own children, towards whom, according to the immutable laws of nature, the force of affection will ever be stronger, than for those, whom the laws of China, in preference, have commanded to be protected and supported when rendered incapable of assisting themselves. Hence, and from other facts, the result of his own observations, he infers that filial piety, among the Chinese, may rather be considered in the light of an ancient precept, carrying with it the weight of a positive law than the effect of sentiment. These unfavourable features, in the character of a people whose natural disposition is neither ferocious nor morose, but on the contrary mild, obliging, and cheerful, can be attributed only to the habits in which they have been trained, and to the heavy hand of power, perpetually hanging over them. That this is the case may be inferred from the general conduct and character of those who have from time to time emigrated into other countries, where they are not less remarkable for their honesty than for their peaceable and industrious habits. In these places it appears also that their quickness at invention is not surpassed by accuracy of imitation. The exterior deportment of every class in China is uncommonly decent, and all their manners mild and engaging; but even these, among persons of any rank, are considered as objects worthy of the interference of the legislature; hence it follows that they are ceremonious without sincerity, studious of the forms only of politeness, without either the ease or elegance of good-breeding. An inferior makes a sham attempt to fall on his knees before his superior, and the latter affects a slight motion to raise him. A common salutation has its mode prescribed by the court of ceremonies; and any neglect or default in a plebeian towards his superior is punishable by corporal chastisement, and in men in office by degradation or suspension. In a govern-

ment where every man is liable to be made a slave, where every man is subject to be flogged with the bamboo, where he is compelled to thank the tyrant on his knees for the trouble he has taken to correct his morals, high notions of honour, or even of common honesty, cannot be expected. Such a system is well calculated to exclude and obliterate every notion of the dignity of human nature. A slave in fact cannot be dishonoured, the vices of such a condition are innumerable, and they appear on all occasions: a Chinese merchant will cheat, whenever an opportunity offers him the means, because he is considered incapable of acting honestly; a Chinese peasant will steal whenever he can do it without danger of being detected; because the punishment is only the bamboo, to which he is daily liable; and a Chinese prince, or a prime minister, will extort the property of the subject, and apply it to his private use whenever he thinks he can do it with impunity. The only check upon the rapacity of men in power, is the influence of fear, arising from the possibility of detection. The love of honour, the dread of shame, and a sense of justice seem to be equally unfelt by the majority of men in office. Mr. Barrow produces a variety of instances to prove that the character of the Chinese is generally defective in these respects; and he says that the refined knavery displayed by Chinese merchants in their dealings with Europeans, and the tricks that they play off in their transactions with one another, are well known to most nations, and proverbial in their own. A merchant, with them, is considered as the lowest character in the country, as a man that will cheat if he can, and whose trade it is to create, and then supply artificial wants. To this general character, an exception is due to those merchants, who, acting under the immediate sanction of government, have always been remarked for their liberality and accuracy in their dealings with Europeans trading to Canton. The want of principle in the Chinese character seems to be more in the system of government, than in the nature and disposition of the people.

The Tartars, by assuming the dress, the manners, and the habits of the Chinese, are scarcely distinguishable from them in their external appearance; and if any physical difference exists it seems to be in stature only. The Chinese are rather taller and of a more slender and delicate form than the Tartars, who are in general short, thick, and robust. The small eye, elliptical at the end next to the nose, is a predominating feature both in the Tartar and Chinese countenance; they have both the same high cheek-bones and pointed chins, which with the custom of shaving off the hair gives to the head the shape of an inverted cone. The natural colour both of the Chinese and Tartars seems to be that tint between a fair and a dark complexion, and the shades of this complexion are deeper, or lighter, according as they have been more or less exposed to the influence of the climate. The women of the lower class, who labour in the fields or who dwell in vessels, are almost invariably coarse, ill featured, and of a deep complexion, very like that of a Hottentot. Among the men, those who are best dressed wear a sort of velvet cap on their heads; a short jacket close buttoned round the neck and folded across the breast, the sleeves remarkably wide; the materials, cotton cloth; black, blue, or brown silk; or European camlet; they wear quilted petticoats and black satin boots. The common people are dressed in large straw hats, blue or black cotton frocks, wide cotton trousers, and shoes made of straw; some have coarse stockings of cotton cloth; the legs of others are naked, and a single pair of drawers constitutes the whole cloathing of a great portion of the crowd. On the banks of the Pei-ho, and indeed in most parts of the country, bunches of large artificial flowers,

of different colours, are stuck in the jet black hair of the women, which is screwed up close behind, and folded into a knot across the crown of the head. Two bodkins of silver, brass, or iron, are conspicuously placed behind the head in the form of an oblique cross. Their faces and necks are daubed with white paint, the eye-brows are blackened, and on the centre of the lower lip, and at the point of the chin, are two spots about the size of a small wafer, of a deep vermilion colour. A blue frock like that of the men, reaching in some to the middle of the thigh, in others to the knee, is almost universal. A pair of wide trousers of different colours are extended a little below the calf of the leg, where they are drawn close, the better to display an ankle and a foot which, for singularity at least, may challenge the whole world. This distorted member consists of a foot that has been cramped in its growth to the length of four or five inches, and an ankle that is generally swollen in the same proportion that the foot is diminished. The little shoe is as fine as tinsel and tawdry can make it, and the ankle is bandaged round with party-coloured cloths ornamented with fringe and tassels: with such a leg and foot thus dressed out they are considered in China superlatively beautiful. This monstrous fashion of cramping the growth of the feet has been attributed to the jealousy of the men. The fashion is, however, at present so universal, that any deviation from it is considered as disgraceful. Upon the principle of being thought superior to others, the men of learning, as they call themselves, suffer the nails of their little fingers to grow, sometimes to the length of three inches, for the sole purpose of demonstrating the impossibility of their being employed in any sort of manual labour; and upon the same principle, perhaps, the ladies of China may be induced to continue the custom of maiming their female infants in order that they may be distinguished from those of the peasantry, who in most of the provinces are condemned to submit to the drudgery of the field. The interior wrappers of the ladies' feet are said to be seldom changed, a custom that conveys no favourable idea of Chinese cleanliness; this, indeed, forms no part of their character; the comfort of clean linen, or frequent change of under garments, is equally unknown to the sovereign and the peasant. A sort of thin coarse silks supplies the place of cotton or linen, next the skin, among the upper ranks; but the common people wear a coarse kind of cotton cloth. These vestments are rarely removed for the purpose of washing; the consequence is an abundant increase of those vermin, to the production of which filthiness is found to be favourable. The highest officers of state make no hesitation of calling their attendants in public to seek in their necks for those troublesome animals, which when caught they put between their teeth. They carry no pocket handkerchiefs, but make use of small square pieces of paper, which their attendants have ready prepared for the purpose. They sleep at night in the same cloaths they wear by day; their bodies are as seldom washed as their articles of dress. At their meals they make no use of table linen, and eat without knife, fork, or spoon; a pair of small sticks, or the quills of a porcupine, are the only substitutes or these convenient articles; and a Chinese, if his rank enables him, lies down to sleep as soon as he has finished his lonely meal. There are no inns in any part of this vast empire, that is, no inhabited and furnished houses where a traveller may purchase those refreshments of which he stands in need. What they call inns are mean hovels, consisting of bare walls, where, perhaps, a passenger may procure a cup of tea for a piece of copper money, and permission to pass the night, but this is the extent of the comfort which such places afford. The practice indeed of journeying by land

is so rare, that no house of decent accommodation could be supported by the occasional visits of travellers. The officers of state invariably make use of the conveniences which the temples afford, as being the best that can be obtained.

Buildings and Furniture of the Chinese. The Chinese buildings, even public monuments, and the emperor's palaces, strike more by their extent than their magnificence. The imperial palace at Peking may be compared to a large city: those of the princes, principal mandarins, and people of great fortune, contain four or five outer courts, in each of which is a separate building with three gates; that in the middle is larger than the other two, and is decorated with two marble lions, which are placed on either side of it. The halls set apart for receiving visits are neat, and provided with seats, and other plain furniture, but nothing can be perceived in them which marks either magnificence or grandeur. The apartment in which they entertain their friends is equally plain and simple. Those set apart for their women and children are inaccessible to every stranger, even the most intimate friend of the master of the house. The Chinese gardens are laid out in a peculiar style. In these are groves, ponds, artificial mountains and rocks, and winding alleys, which conduct to different points of view, each of which presents a new object. The Chinese are fond of every thing that is gigantic: with them the beauty of a column consists in its size and height; and that of a hall in its extent. Two provinces, viz. Chan-tong and Kiang-nan, abound with excellent marble, and in quantities sufficient to supply the rest of the empire; but the Chinese are neither acquainted with the art of cutting it properly, nor of applying it to the purposes of building. They generally employ it in constructing bridges, for thresholds to the doors, and to pave their streets, where any of them are paved. Some triumphal arches, temples, and pagodas, are, however, built of it, but without art or taste. The Chinese exhibit but little attention in ornamenting and embellishing the interior part of their houses: they have neither mirrors, tapestry, nor gilding. They, besides, receive no visits but in a particular hall, which is situated in the front part of the house, and before every other apartment, for the purpose of preventing those who are admitted into it from having any communication with the inner apartment. Its ornaments consist of large lanterns made of painted silk, which are suspended from the ceiling, tables and other furniture, which are generally covered with a most beautiful varnish so transparent, that the veins of the wood may be seen through it, and so bright and shining, that it reflects different objects, like silvered glass. The sort of tapestry manufactured in China is of white satin, on which are wrought birds, flowers, landscapes, &c. Sometimes they contain, in large characters, a few moral sentences, which generally compose a kind of enigma. Poor people are contented with whitening the walls of their apartments; others cover them with that sort of paper which is brought from China, and which people of fortune, in Europe, used formerly to employ in ornamenting some part of their's. The beds of the rich are furnished in winter with curtains of double satin, and in summer of plain white taffety, interspersed with flowers, birds, and trees: sometimes they are composed only of very fine gauze, which keeps out gnats and mosquitoes, and leaves a free passage for the air. The posts of these beds are gilt, painted and ornamented with what they denominate sculpture. The common people use curtains only of linen, and plain mattresses, stuffed with cotton; in the northern provinces they sleep upon beds constructed of brick. These singular beds are larger or smaller in proportion to the number of the family.

mily. They are kept warm by means of a small stove. Those who are able place on the bricks a kind of mattresses. In the morning this is removed, and its place is supplied by a carpet, or mat; the bed then becomes a sort of couch, upon which the whole family sit and work. At the stoves the poor people dress their meat and warm their tea and other liquors, for, notwithstanding the heat of the climate, they never drink any thing cold. In the houses of the great the stoves are built in the wall, and the fire is lighted from the outside.

Language and Literature. The Chinese language is not only one of the most ancient in the universe, but is, perhaps, the only language of the early ages, which is still spoken and living: it is indeed as extraordinary, as the people who speak it, and has no relation whatever to any known language. Its genius is such that no laws of analogy can comprehend it. It has no alphabet, and the words which compose it consist of one syllable only, and are very few in number. These words always remain the same; that is to say, monosyllables, even when two are united to signify one single thing: whether they are written or pronounced, they remain always separate and distinct, and are never blended into one. These monosyllables never produce but one sound. When they are written by the European alphabet, they begin by the letters *ch, tch, f, g* or *j, i, h, l, m, n, ng, p, s, ts, v, ou*; the final letters are *a, e, i, o, oi, ou, u, l, n, gu*. The middle of Chinese words consists of vowels and consonants, which produce only one sound, and are always pronounced as monosyllables. The Chinese language contains only about three hundred and thirty primary and radical words; though some dictionaries make them amount to four hundred and eighty-four. The sense of these primitive words may be multiplied almost without end, by the abundance and variety of accents, inflections, and aspirations used, and by other changes of the voice which pronounces them. The nice distinctions between the tones and accents of words, nearly resembling each other in sound, but varying much in sense, require a great nicety of ear to distinguish, and of vocal powers to render them exact. To succeed in making those distinctions perfectly, a stranger should begin to learn them at an early age, while his organs are flexible and acute. Synonymous words are frequently introduced into Chinese dialogues to prevent any doubt about the sense. If, however, in an intricate discussion any uncertainty should still remain as to the meaning of a particular expression, recourse is had to the criterion of tracing, with the finger in the air, the form of the character, and thus completely ascertaining at once what was meant to be expressed. In the Chinese language there are not many minute rules of grammar, conjugation or declension. There is no necessity of distinguishing substantives, adjectives, or verbs; nor any accordance of gender, number, and case, in a Chinese sentence. The beginning or end of words is not altered as it is in the Greek verb, by the times of performing the action meant to be expressed, or the cases in which the things mentioned are intended to be placed. A very few particles denote the past, the present, and the future; nor are those auxiliaries employed, when the intended time may be otherwise inferred with certainty. The plural number is marked by the addition of a word, without which the singular is always implied. Neither the memory, nor the organs of speech, are burthened with the pronunciation of more sounds to express ideas, than are absolutely necessary to mark their difference. A single syllable always expresses a complete idea, and may be sounded by an European consonant preceding a vowel, sometimes followed by a liquid. Such an order of words renders the language soft and harmonious as the Italian, from the rarity of consonants, and the frequency of its vowel

terminations. There is in the Chinese a certain order or settled syntax in the succession of words in the same sentence: a succession fixed by custom differently in different languages. The formation of Chinese sentences is often the simplest and most artless possible, and such as may naturally have occurred at the origin of society. A simple character repeated, stands sometimes for more than one of the objects which singly it denotes; and sometimes for a collective quantity of the same thing. The character of *moo*, singly, is a tree; repeated, is a thicket; and tripled, is a forest. In Chinese there are scarcely fifteen hundred distinct sounds. In the written language there are, at least, eighty thousand characters, or different forms of letters.

The Chinese characters are divided into six sorts; the first exhibiting the shape or image of sensible things; the second indicating the object by some visible addition to the shape or symbol; the third associating two characters to express an object, which neither will denote separately; the fourth expressing a sound, in order to supply the defect of the figure, as *ya* adjoined to the figure of a bird, to represent a duck, &c.; the fifth being a metaphorical application of their characters, by which their language acquires a force and vivacity of colouring peculiar to itself, but at the same time rendering it extremely obscure; the sixth extending the primitive sense of a character, so that the same character may denote a verb or adverb, an adjective or substantive. These characters have been represented by some learned writers for sensible things, and symbols for mental objects, which are tied to no sound, and may be read in every tongue; and this seems to have been the case in the most remote antiquity, when their characters, which are now abbreviated and disfigured, might have been more simple and natural. See Phil. Transf. vol. lix. p. 489.

The characters of the Chinese language were originally traced, in most instances, with a view to express either real images, or the allegorical signs of ideas: a circle, for example, for the sun, and a crescent for the moon. A man was represented by an erect figure, with lines to mark the extremities. The difficulty and tediousness of imitation, soon occasioned a change to traits more simple, and more quickly traced. A faint resemblance, however, still remains, in a few instances, of the original forms in the present hieroglyphic characters; and a gradation of their changes is traced in several Chinese books. Not above half a dozen of the present characters consist each of a single line; but most of them consist of many, and a few even of seventy different strokes. A certain connexion is to be perceived in the arrangement of the written characters of the Chinese; as if it had been originally formed upon a system to take place at once, and not to grow up, as other languages, by slow and distant intervals. Upwards of two hundred characters, each consisting of a few lines, are made to mark the principal objects of nature. These may be considered as the genera or roots of language, in which every other word or species, in a systematic sense, is referred to its proper genus. The heart is a genus, of which the representation of a curve line approaches somewhat to the form of the object, and the species referable to it, include all the sentiments, passions, and affections, that agitate the human breast. Each species is accompanied by some mark denoting the genus, or "heart." Under the genus "hand" are arranged most trades and manual exercises. Under the genus "word," every sort of speech, study, writing, understanding, and debate. A horizontal line marks a unit; crossed by another line it stands for ten. The five elements, of which the Chinese suppose all bodies in nature to be compounded, form so many genera, each of which comprehends under it a great

number of species. As in every compound character or species, the abridged mark of the genus is discernible, a person is soon enabled to consult the Chinese dictionary, in which these characters are arranged under their proper genera. The characters of the genera are placed at the beginning of the dictionary, in an order, which, like that of the alphabet, is invariable, and soon becomes familiar to the learner. The species under each genus follow each other, according to the number of strokes of which each consists, independently of the one or few which serve to point out the genus. The species wanted is thus soon found out, and its meaning and pronunciation are given through other words in common use, the first of which denotes its signification, and the other its sound. When no one word is found to render exactly the same sound, it is communicated by two words, with marks to inform the inquirer, that the consonant of the first word, and the vowel of the second, joined together, form the precise sound wanting. The composition of many of the Chinese characters often displays considerable ingenuity, and serves to give an insight into the opinion and manners of the people. The character expressive of happiness, includes abridged marks of land, the source of their physical, and of children, that of their moral, enjoyments. This character, embellished in a variety of ways, is hung up in almost every house.

Upon the formation, changes, and allusions of compound characters, the Chinese have published many thousand volumes of philological learning. No where does criticism more abound, or is more strict. The introduction or alteration of a character is a serious undertaking, and seldom fails to meet with opposition. The most ancient writings of the Chinese are still classical among them. The language seems in no instance to have been derived from or mixed with any other. The written seems to have followed the oral language, soon after the men who spoke it were formed into a regular society. The Chinese printed character is the same as is used in most manuscripts, and is chiefly formed of straight lines in angular positions, as most letters are in eastern tongues. A running hand is used by the Chinese only on trivial occasions, or for private notes, for the ease and expedition of the writer; and differs from the other as much as an European manuscript does from print. The principal difficulty in the study of Chinese writings, arises from the general exclusion of the auxiliary particles of colloquial language, that fix a relation between indeclinable words, such as are all those of the Chinese language. The judgment must be constantly exercised by the student, to supply the absence of such assistance. That judgment must be guided by attention to the manners, customs, laws, and opinions of the Chinese, and to the events and local circumstances of the country, to which the allusions of language perpetually refer. The Chinese characters are sketches, or abridged figures; and a sentence is often a string of metaphors. The different relations of life are not marked by arbitrary sounds, simply conveying the idea of such a connection, but the qualities naturally expected to arise out of such relation become frequently the name by which they are respectively known. Kindred, for example, of every degree is thus distinguished, with a minuteness unknown in other languages. That of China has distinct characters for every modification known by them of objects in the physical and intellectual world. Abstract terms are no otherwise expressed by the Chinese than by giving to each the name of the most prominent objects to which it might be applied, which is likewise indeed generally the case of other languages. Among the Latins the abstract idea of virtue was expressed under the name of *virtus*, being the quality most esteemed among them, as filial

piety is considered to be in China. The words of an alphabetical language being formed of different combinations of letters, each with a different sound and name, whoever knows and combines these together, may read the word without the least knowledge of their meaning; this, however, is not the case with hieroglyphic language, in which each character has a sound annexed to it, but which bears no certain relation to the unnamed lines or strokes, of which it is composed. Such character is studied and best learned by becoming acquainted with the idea attached to it; and a dictionary of hieroglyphics is less a vocabulary of the terms of one language with the correspondent terms in another, than a Cyclopædia containing explanations of the ideas themselves, represented by such hieroglyphics. In such sense, only, can the acquisition of Chinese words be justly said to engross most of the time of men of learning among them. Enough, however, of the language is imperceptibly acquired by every native, and may, with diligence, be attained by foreigners, as far as concerns the ordinary concerns of life.

We now proceed to the literature of the Chinese. In their language are a multitude of books, abounding in useful knowledge; but the highest class consists of *five* works: one of which, at least, every Chinese who aspires to literary fame must diligently peruse. The *first* is purely historical, containing annals of the empire from 2337 years before Christ; it is entitled *Shuking*, and a version of it has been published in France. The *second* classical work of the Chinese contains three hundred odes, or short poems, in praise of ancient sovereigns and legislators, or descriptive of ancient manners, and recommending an imitation of them in the discharge of all public and domestic duties. They abound in wise maxims, and excellent precepts, their whole doctrine being reducible to this grand rule, "that we should not even entertain a thought of any thing base or culpable." So high an opinion do the Chinese entertain for this work, that one of their writers asks, "Why, my sons, do you not study the book of Odes? If we creep on the ground, if we lie useless and inglorious, those poems will raise us to true glory: in them we see, as in a mirror, what may best become us, and what will be unbecoming; by their influence we shall be made social, affable, benevolent: for, as music combines sounds in just melody, so the ancient poetry tempers and composes our passions. The Odes teach us our duty to our parents at home, and abroad to our prince; they instruct us also delightfully in the various productions of nature." "Hast, thou studied," said the philosopher to his son, "the first of the three hundred odes? He who studies them not, resembles a man with his face against a wall, unable to advance a step in virtue and wisdom." Most of these odes are three thousand years old. The work is printed in four volumes. The *third* book is entitled *Yeking*, or the book of changes, believed to have been written by Fo, the Hermes of the East, and consisting of right lines variously disposed; it is, however, scarcely intelligible to the most learned mandarins. Confucius, himself, being dissatisfied with the commentators upon it, intended to have elucidated it, but was prevented by death. The *fifth*, or *Liki*, is compiled from old monuments, and consists chiefly of the Chinese ritual, and of tracts on moral duties; but the *fourth*, entitled *Chung-Cieu*, or *Spring and Autumn*, by which the writer meant the flourishing state of an empire under a virtuous monarch, and the fall of kingdoms under bad governors, is an interesting work to every nation. The Chinese have their stanzas, odes, elegies, eclogues, epigrams, and satires. The common people also have ballads and songs peculiar to themselves. Some of the most distinguished of the literati have even thought it of importance to turn into verse the celebrated maxims of morality,

rality, the duties of the different conditions, and the rules of civility for their use. Seldom is the Chinese poetry disgraced by obscenity, and if it ever happens, the author must pay dear for it if his works fall into the hands of government. It is in consequence of that rigid and severe attention which watches over every thing in the least tending to corrupt public manners, that all romances, without exception, are expressly prohibited by the laws. The police, however, less severe than the law, permits such novels and romances as have an useful tendency, and in which nothing is found prejudicial to morality. Every author who writes against government is punished with death, as well as all those who have had any hand in the printing or circulation of his works. The rules of dramatic composition established in Europe are not known to the Chinese. They neither observe our unities, nor any thing that can give regularity and probability to the plot. Their dramas do not represent a single action; they exhibit the whole life of a hero, and this representation may be supposed to continue forty or fifty years. The representation of these is thus described by sir George Staunton. "The company of actors successively exhibited, during a whole day, several different pantomimes and historical dramas. The performers were habited in the ancient dresses of the Chinese, at the period when the personages represented were supposed to have lived. The dialogue was spoken in a kind of recitative, accompanied by a variety of musical instruments; and each pause was filled up by a loud crash, in which the *loo* bore no inconsiderable part. The band of music was placed in full view, immediately behind the stage, which was broad, but by no means deep. Each character announced, on his first entrance, what part he was about to perform, and where the scene of action lay. Unity of place was apparently preserved, for there was no change of scene during the representation of one piece. Female characters were performed by boys or eunuchs."

Chinese Education. According to the book of ceremonies, the education of a child should commence at the moment of its birth: it allows nurses, but enjoins mothers to use the greatest precaution in choosing them. As soon as a child can put its hand to its mouth, it is weaned, and taught to use its right hand. At the age of six, he is made acquainted with the numbers most in use, and with the first principles of geography. At seven he is separated from his sisters; after which he is no longer suffered to eat with them, nor to sit down in their presence. At eight he is instructed in the rules of good-breeding and politeness. The calendar becomes his study at the age of nine. At ten he is sent to school, where he learns to read, write, and cast accounts. From thirteen to fifteen he is taught music; after which he is instructed in the use of the bow and arrow, and how to mount a horse. When the Chinese youth have attained to the age of twenty, they receive the first cap, if they are judged to deserve it: they are then permitted to wear silk dresses, ornamented with furs; but before that period they have no right to wear any thing but cotton. In their mode of instruction, the Chinese select some hundreds of characters that express the commonest objects, or those at least which fall most frequently under the perception of the senses, such as a man, some domestic animals, ordinary plants, the most useful furniture of a house, the sun, the moon, and even the heavens. These objects are engraved or painted separately on certain substances, and under each is put the name of the thing represented, which points out to the children the meaning of the word. The first book put into the hands of a child is a collection of short sentences, consisting of three or four verses each. They are

obliged to give an account in the evening of what they have learned in the day. Youth in China have no relaxation from the severity of their studies, but at the commencement of the new year, and a few days at Midsummer. After this elementary treatise, they have to learn the books that contain the doctrines of Confucius and Mencius; and while they are learning by heart all the characters, they are taught to form them with a pencil: for this purpose they have leaves of paper given them, on which are written or imprinted with red ink very large characters; these they are required to cover with black ink, and to follow exactly their shape and figure, which insensibly accustoms them to form the different strokes. After this they are made to trace other characters, placed under the paper on which they write; these are black and smaller than the former. It is of great advantage to the Chinese literati to be able to paint characters well, because a deficiency in this respect will frequently occasion a student to be rejected at his examinations when he is candidate for his degrees. When a pupil has made himself master of a sufficient number of characters, he is put upon composition. To incite the youth to improvement in this part of their education, there is a sort of competition established in China. Twenty or thirty families, who are all of the same name, and who consequently have only one hall for the manes of their ancestors, agree among themselves to send their children to this hall at stated times in order to compose. Each head of a family in turn gives a subject for literary contest, and adjudges the prize; but the exercise of this privilege lays him under the necessity of being at the expense of a dinner, which by his orders is carried to the hall of competition. These contests are private, and have no concern with the rules laid down for public education; but every student is obliged to undergo an examination, at least twice a year, under the inspection of an inferior mandarin of letters. This practice is general throughout all the provinces in China. It happens frequently, that the mandarins of letters order these students to be brought before them, to examine into the progress they have made in their studies, and to excite a spirit of emulation among them. Even the governors of cities do not think it below their dignity to take this care upon themselves. They order all the students, who are not far distant from their residence, to appear at their tribunal once a month. The author of the best composition is honoured with a prize, and the governor treats the candidates on the day of competition at his own expense. To encourage learning, there are in every city, town, and almost in every village, masters who keep schools, for the purpose of teaching what they call the sciences. Besides this, parents, possessed of the means, provide preceptors for their children, to attend and instruct them, to form their minds to the principles of virtue, and to initiate them in the rules of good breeding and the accustomed ceremonies, and, if their age will admit of it, to make them acquainted with the laws, and with the knowledge of history. To give dignity to the examinations, the building in which they are held has always something to distinguish it, even in the smallest cities; but in those denominated capitals of provinces, it is a real palace. When the competition begins, the students are all shut up, each in a small chamber, care being first taken that no one conceals any thing that might afford him assistance in his composition. They are forbidden, under the severest possible penalties, to carry any thing with them into their closet but pencils and ink; and from that moment they are allowed to have no communication with any one.

In connection with this part of our subject we may notice, that

that a son who speaks to his father does it with the greatest deference and modesty: he does not even call himself the son, but the grandson, though he may be the eldest of the family, and perhaps the father of many children himself. He will also often make use of his own name, that is, the name that he possesses at that period, for the Chinese have different names in succession, agreeably to their age and rank. The family name is that which is given them at their birth: a month after, the parents give a diminutive name to their son, which is generally that of a flower, animal, &c. This name is changed when the youth begins to make progress in his education at a public school, and the master bestows upon him some flattering appellation, which the pupil adds to his name. When he has attained to manhood, he requests a new name from his friends, and this he retains during life, unless he has the good fortune to rise to some dignity in the state, when he is honoured with one that corresponds with his talents and office. No other must be afterwards given him, not even that of his family.

Religion of the Chinese. The primitive religion of China, or at least those opinions, rites, and ceremonies, that prevailed in the time of Confucius, and before that period all seems to be fable and uncertainty, may be pretty nearly ascertained from the writings ascribed to that philosopher. He maintains that out of nothing there cannot possibly be produced any thing; that material bodies must have existed from all eternity; that the cause or principle of things must have had a co-existence with the things themselves; that therefore this cause is also eternal, infinite, indestructible, without limits, omnipotent, and omnipresent; that the central point of influence from which this cause acts, is the blue firmament, from whence its emanations spread over the whole universe; that it is, therefore, the supreme duty of the prince, in the name of his subjects, to present offerings to *Tien*, and particularly at the equinoxes, the one for obtaining a propitious seed-time, and the other a plentiful harvest. These offerings to the deity were always placed on a large stone, or heap of stones, erected on the summit of a high mountain, on the supposition that their influence would be so much the greater, in proportion as they should approach the seat and fountain of creating power, like the ancient Persians, who considered the circle of the heavens to be the ruling power of the universe, to which they also sacrificed on high mountains. To the same principle Tacitus refers, observing that the nearer mortals can approach the heavens the more distinctly will their prayers be heard. Noah also, after quitting the ark, built an altar on the mountain where it rested, and made a burnt offering, the smoke of which ascending unto heaven, was pleasing to the Lord. Abraham was commanded to offer his only son Isaac on a mountain, and Balaam ascended to the top of Mount Pisgah, to offer a sacrifice and to curse Israel. Thus all nations in their infancy seem to have adopted the natural idea of paying adoration to heaven from high places. The large stones or heaps of stones, that have been appropriated to religious uses in almost every part of the world, may have been introduced from the custom among savage nations, to mark with a great stone the place where their worthies were interred; such being at length deified in the opinions of their votaries, the stones that were dedicated to their memory were used in their religious worship. The peculiar homage, that, from time immemorial, has been paid to the memory of the dead by the Chinese, renders probable this explanation of the origin of their altars, or four stones, which are called *Tan*, and which in former times were erected on most of their high mountains. At the present day the *Tan* is re-

presented, upon many of the altars erected in their temples, by four loose stones placed in the corners of the altar, as the horns were in the corners of the Jewish altars. As the people increased and spread over the empire, the inconvenience of ascending any particular mountain was felt, and the *Tan* was then transferred to places better adapted to general accommodation. In the city of Peking, which stands on a sandy plain, the *tien-tan*, or altar of heaven; the *tee-tan*, or altar of earth; and the *sen nong-tan*, or altar of ancient agriculturists, are erected on artificial mounts, within the walls of the palace; and here the emperor continues, to this day, to sacrifice at appointed times, exclusively, as the son of heaven, and the only being on earth worthy to intercede for his people. The same doctrine prevailed in the time of Confucius, who observes that the distance between the all creative power and the people is so immeasurably great, that the king, as high priest, can alone offer such a sacrifice; and that this power is best satisfied when man performs the moral duties of life, which consist chiefly in filial piety, and unlimited obedience to the will of the prince. In the writings of Confucius appears a strong predilection for predicting events by the mystical lines of Fo-shee. By the help of these lines, he pretended to foretell the events that would take place for a considerable length of time. This manner of expounding the lines of Fo-shee by Confucius, the supposed system of binary arithmetic by Leibnitz, laid the foundation of consulting future destiny, at this day universally sought after by the Chinese. Government even grants licences to certain persons, who pretend to predict events and cast out evil spirits by a charm, consisting of some character written by them, according to the supposed prevailing planet. Predestination in all ages has formed one of the leading features of popular religion, but the Chinese confine the influence of lots to the events of this life. Other parts of the doctrine of Confucius were well calculated to keep alive the superstitious notions that still prevail among the Chinese multitude. He taught them to believe that the human body was composed of two principles, the one light, invisible, and ascending; the other gross, palpable, and descending; that the separation of these principles causes the death of man, when the light part ascends into the air, and the gross sinks to the earth. The word death never enters into the philosophy of Confucius, nor is it even now employed by the Chinese. When a person departs this life, the common expression is, he is returned to his family, and it was on this ground, that it became the indispensable duty of every good man to observe a strict obedience in the performance of the sacred rites in the temple consecrated to the memory of ancestors. He maintained that all who neglected this duty, would, after death, be deprived of the privilege of visiting the hall of ancestors, and of the pleasure arising from the homage bestowed by their descendants. Such a system could not fail to establish a belief in good and evil spirits presiding over families, towns, cities, houses, mountains, and other particular places.

Neither Confucius nor any of his disciples attached the idea of a personal being to the deity; nor does it seem ever to have entered into their minds to represent their first cause under any image or personification. They considered the sun, moon, stars, and the elements, with the azure firmament, as the creative and productive powers, the immediate agents of the deity, and inseparably connected with him, and they offered adoration to these agents, united in one word, *Tien* (Heaven). The disciples of Confucius, like the stoics, consider the whole universe as one animated system made up of one material substance and one spirit, of which every

every living thing was an emanation, and to which, when separated by death, from the material part it had animated, every living thing again returned. But what has been esteemed surprising is, that the followers of Confucius have never erected any statue to his memory, nor paid him divine honours, as has been erroneously supposed. In every city is a public building, in which examinations for public offices are held, and this building is called the house of Confucius. Here on certain days the men of letters assemble to pay respect to the memory of their philosopher. In the great hall, appropriated for this ceremony, a plain tablet is erected with an inscription to this effect: "O Cong-foo-tse, our revered master, let thy spiritual part descend, and be thou pleased with this token of respect which we now offer unto thee." Fruit and wine, flowers and perfumes, and other articles are then placed before the tablet and scented gums, frankincense, and tapers of sandal wood are at the same time burnt. This ceremony is in every respect the same as that which Confucius taught to be observed towards the manes of departed relations, who are thought to delight in hovering over the grateful odour of fruits, flowers, and the smoke of incense.

Another religion sprung up shortly after the death of Confucius. A man of the name of *Lao-kung*, having travelled into Tibet, became acquainted with the worship of the priests of Lama, which he thought would suit his countrymen, and he accordingly established a sect under the name of *Tao-tze*, or *sons of immortals*. He maintained, like Epicurus, that to live at ease and make himself happy were the chief concerns of man. The doctrine of immortality, a branch of the *Metempsychosis*, was converted by *Lao-Kung*, into the art of producing a renovation of the faculties in the same body, by the means of certain preparations taken from the three kingdoms of nature. The infatuated people flew with avidity to the fountain of life. Princes fought after the draughts that should render them immortal, but which, in fact, in numerous instances, brought on premature death. Consistent with the principle of "taking no thought for the morrow," the priests of *Lao-kung* devoted themselves to a state of celibacy, as being more free from cares and the incumbrances which necessarily attend a family connexion; and, the better to accomplish this end, they associated in convents. Here they practised all manner of incantations, and their successors perform their magic tricks as they march in procession round the altar, on which the sacred flame is supposed to be kept continually burning. They chaunt in unison a kind of recitative, and they bow their heads obsequiously every time they pass before the front of the altar. The great *Gong* is struck at intervals, accompanied by tinkling sounds, emitted by gently striking small metal plates, suspended in a frame. Their temples are crowded with large and monstrous figures, some made of wood, some of stone, and others of baked clay, daubed over with paint and varnish, and sometimes gilt. To these figures, however, they do not seem to pay any homage, but they are intended to represent good and evil genii under the various passions to which human nature is liable.

About the year 65 of the Christian æra, the sect of Fo was introduced into China from Hindostan. The name was derived from the idol Fo, supposed to be the Boodh of Hindostan, and the chief tenets are those of the Hindoos, among which is the metempsychosis, or transmigration of souls from one animal to another. The priests are denominated bonzes, and Fo is supposed to be gratified by the favour shewn to his servants. Since the fifteenth century, many of the Chinese literati have embraced a new system, which acknowledges an universal principle, under the name of *Tai-ki*,

seeming to correspond with the soul of the world of some ancient philosophers. This opinion may indeed deserve the name of atheism, but it is confined to very few; and the Chinese are so far from being atheists, that they go into the opposite extreme of polytheism, believing even in petty demons, who delight in displaying minute acts of evil or good. There is in China no state religion, none is preferred or encouraged by it; the emperor is of one faith, many of the mandarins of another; and the majority of the common people of a third, which is that of Fo. This last class, the least capable, from ignorance, of explaining the phenomena of nature, and the most exposed to wants which it cannot supply by ordinary means, is willing to recur to the supposition of extraordinary powers, which may operate the effects that it cannot explain, and grant the requests which it could not otherwise obtain. The Chinese have no Sunday, nor even such a division of time as that of a week. The temples are open every day for the visits of devotees, and persons of that description have, from time to time, made grants, though to no great amount, for the maintenance of their clergy; but no lands are subject to ecclesiastical tithes. The common Chinese are remarkably superstitious: besides the habitual offices of devotion, the temples are particularly frequented by the disciples of Fo, previously to any undertaking of importance; whether to marry or to go a journey, or conclude a bargain or change situation, or for any other material event of life, it is necessary first to consult the superintendant deity. This is performed by various methods. Some place a parcel of consecrated sticks differently marked and numbered, which the consultant, kneeling before the altar, shakes in a hollow bamboo till one of them falls on the ground; its mark is examined, and referred to a correspondent mark in a book which the priest holds open, and sometimes even it is written upon a sheet of paper pasted upon the inside of the temple. Polygonal pieces of wood are by others thrown into the air, each side of which has its particular mark; the side that is uppermost when fallen on the floor, is referred to its correspondent mark in the book of fate. If the first throw be favourable, the person who made it, prostrates himself in gratitude, and undertakes, in confidence, the business in agitation. But if the throw be adverse, he tries a second time, and the third throw determines, at any rate, the question. In other respects, the people of the present day seem to pay little attention to their priests. The temples are, as we have observed, always open to such as choose to consult the decrees of heaven. They return thanks when the oracle proves propitious to their wishes. Yet they more frequently cast lots to know the issue of a projected enterprise, than to supplicate for its being favourable; and their worship consists more in thanksgiving than in prayer. Although the religion of Fo teaches the doctrine of the transmigration of souls, and promises future happiness to the people, on certain conditions, yet the Chinese seldom carry the objects, to be obtained by their devotion, beyond the benefits of the present life.

The temples of Fo abound with more images than are found in most Christian churches, and some that bear a greater analogy to the ancient than to the present worship of the Romans. One figure, representing a female, was thought to be something similar to *Luxina*, and is particularly addressed by unmarried women wanting husbands, and married women wanting children. The doctrine of Fo, admitting of a subordinate deity particularly propitious to every wish which can be formed in the human mind, would scarcely fail to spread among those classes of the people, who are not satisfied with their prospects, as resulting from the natural causes of events. Its progress is not obstructed by the

government of the country, which never interferes with mere opinions. It prohibits no creed which is not supposed to affect the tranquillity of society.

Funeral rites may be reckoned among the Chinese religious customs. Formerly it was usual to bury slaves alive with their dead emperors, but this cruel practice has given way to that of burning representations of their domestics in tin-foil, cut into the shape of human beings, and of placing their statues, in wood or stone, upon their graves. The Chinese burying-places, planted with cypress trees, are at a distance from any church or temple, and are no otherwise consecrated than by the veneration of the people, the remains of whose ancestors are deposited in them. The people preserve those sacred repositories with all the care they can afford to bestow upon them. They visit them annually, repair any breaches that accidents may have made, and remove any weeds that may have grown. No person is allowed to be buried within a city, and where there is ground that cannot be cultivated, it is always preferred for places of interment, as less liable to be disturbed; yet the meanest peasant will respect the spot over which a heap of earth denotes a repository of the dead beneath. The last remains of a relation are interred with all the honours which the family can afford. The loss of a parent in China is esteemed the greatest that can happen to any one, and the sentiment of affection and respect towards such, while living, is not suddenly extinguished in the breast of the survivors. The heart is indulged and consoled by paying superfluous duties to the manes of the deceased. The dictates of nature in this instance are enforced by the moral laws which govern the empire. Every institution tending to maintain the habits of affectionate regard of offspring towards their progenitors, is sanctified into a precept, not to be neglected but at the peril of being accounted infamous. The funeral processions of the great officers of state, sometimes extend for nearly half a mile in length. In the front marches a priest uncovered, next a group of musicians with flutes, trumpets, and symbols; after these the male relations of the deceased, in long white frocks, and behind them the chief mourner, supported by two friends, whose exertions to prevent him from tearing his cheeks and hair appear ridiculous; next follows the coffin, covered by a magnificent canopy, and borne generally on the shoulders of men; after the canopy, the female relations proceed in chairs, or in little covered carts, wearing white frocks like the men, their hair dishevelled, and broad white fillets bound across their foreheads. Over the mourners are carried umbrellas, with deep curtains hanging from the edges. Several persons are employed to burn circular pieces of paper, covered chiefly with tin-foil, as they pass by burying-places and temples. These pieces, in the popular opinion, like the coin to Charon for being conveyed to the Elysian fields, are understood to be convertible, in the next stage of existence, into the means of providing the necessaries of that new life. Notwithstanding the philosophical doctrines of the learned Chinese, which exclude all notions not consonant with reason, as well as the reality of all beings not referable to the senses, they often yield, in practice, to the notions of the vulgar. The people, among other superstitions, are particularly scrupulous about the time and place of burying their dead. The delay occasioned before those difficult points are ascertained, has often detained the coffins of the rich from their last repository; many are seen in houses and gardens under temporary roofs to preserve them, in the mean time, from the weather; but necessity obliges the poor to overcome many of their scruples in this respect, and to deposit at once, and with very little ceremony, the remains of their relations in their last abode.

The cemeteries of the dead exhibit a much greater variety of monumental architecture than the dwellings of the living can boast. Some, indeed, deposit the remains of their ancestors in houses, that differ in nothing from those they inhabited while living, except in their diminutive size; others prefer a square vault, ornamented in such a manner as fancy may suggest; some make choice of a hexagon to cover the deceased, and others of an octagon. The round, the triangular, the square, and multangular column, is indifferently raised over the grave of a Chinese; but the most common form of a monument to the remains of persons of rank, consists in three terraces one above another, enclosed by circular walls. The door of the vault is in the centre of the uppermost terrace, covered with an appropriate inscription; and figures of slaves and horses, and cattle, which, when living, were subservient to them, and added to their pleasures, are employed after their death to decorate the terraces of their tombs.

The celebration of marriage, ostentatious, and, indeed, expensive as it is, is yet inferior to that of funerals in the same rank of life. Its pomp, was probably, in the origin, suggested by the parents of the parties. They naturally wished to give dignity to an union of their choice, and to mark it with a solemnity tending to render the tie more sacred and more durable. But the impulse which unites the sexes did not require the aid of public festivals. Sir George Staunton describes both a funeral and marriage procession, which he witnessed at the same time. Speaking of the former, he says, "it was moving towards the gate in which the white or bridal colour, according to European ideas, of the persons who formed it, seemed at first to announce a marriage ceremony; but the appearance of young men overwhelmed with grief shewed it to be a funeral, much more, indeed, than the corse itself, which was contained in a handsome square case, shaded with a canopy, painted with gay and lively colours, and preceded by standards of variegated silks. Behind were sedan chairs covered with white cloth, containing the female relations of the deceased; the white colour, denoting, in China, the affliction of those who wear it, is studiously avoided by such as wish to manifest sentiments of a contrary kind; it is, therefore, never seen in the ceremony of nuptials, (met soon afterwards), where the lady, as yet unseen by the bridegroom, is carried in a gilt and gaudy chair, hung round with festoons of artificial flowers, and followed by relations, attendants, and servants, bearing the paraphernalia, being the only portion given with a daughter in marriage by her parents.

Among the religious ceremonies of the Chinese must be noted their festivals, the first of which is kept on the emperor's anniversary. This festival may be considered as lasting several days. The first is consecrated to the purpose of rendering a sacred and devout homage to the supreme majesty of the emperor. The prince's ambassadors, and great officers of state, are assembled in a large hall; and, upon particular notice, they are introduced into an inner building, like a temple, which is chiefly furnished with instruments of music; among these are sets of cylindrical bells, suspended in a line from ornamented frames of wood, and gradually diminishing in size from one extremity to the other, and also triangular pieces of metal arranged in the same order as the bells. To the sound of these instruments a slow solemn hymn is sung by the eunuchs, who have such a command over their voices as to produce the effect of musical glisses at a distance; the performers are directed in gliding from one tone to another by the striking of a shrill and sonorous cymbal. During the performance, and at particular signals, nine times repeated, all the persons present prostrate themselves, nine times, except the emperor,

peror, who continues, as if it were an imitation of the deity, invisible the whole time.

The celebrated feast of lanterns, when the whole country is lighted up, from one extremity of the empire to the other, in every possible way that fancy can suggest, is an ancient religious usage, of which, at the present day, they can give no plausible account. It has been supposed that it may be derived from a common origin, with an annual illumination of the same kind mentioned by Herodotus; which was generally observed, from the cataracts of the Nile to the borders of the Mediterranean, by hanging lamps of different kinds to the sides of the houses. On this day the Chinese not only illuminate their houses, but they also exercise their ingenuity in making transparencies in the shape of different animals, in which they run through the different streets by night. The effect, when perfectly dark, is whimsical enough. Birds, beasts, fishes, and other animals are seen darting through the air, and contending with each other; some with squibs in their mouths breathing fire, some sending out sky-rockets, others rising into pyramids of party-coloured fire, and others bursting like a mine with violent explosions.

Throughout the whole empire of China a grand festival is celebrated on the same day, called the vernal festival. In the morning the governor of every city comes forth from his palace crowned with flowers, and enters a chair, in which he is carried amidst the noise of different instruments which precede. The chair is surrounded by several litters covered with silk carpets, upon which are represented persons illustrious for the support they have given to agriculture, or some historical painting on the subject. The streets are hung with carpets; triumphal arches are erected at certain distances; and the houses are every where illuminated. A large figure made of baked earth representing a cow comes next. A child with one foot naked and the other shod, which represents "the spirit of labour and diligence," follows, beating the image to make it advance. Labourers furnished with implements of husbandry march behind, and a number of comedians and people in masks close the rear, whose appearance and attitudes afford entertainment to the populace. The governor advances to the eastern gate as if he intended to meet the spring, and then the procession returns to the palace in the same order. After this the cow is stripped of its ornaments, and a number of earthen calves are taken out of its belly, which are distributed, as well as the figure itself, when broken to pieces, among the crowd. The governor then puts an end to the ceremony, by making a short oration in praise of agriculture, in which he endeavours to excite his hearers to promote so useful an art by all the means in their power. Another Chinese festival is that on the commencement of the new year, during which all affairs, whether private or public, are suspended; the tribunals are shut; the posts stopped; presents are given and received; the inferior mandarins go and pay their respects to their superiors; children to their parents; and servants to their masters. This is called taking leave of the old year. In the evening all the family assemble to take a grand repast, when no stranger is admitted; but on the following day they become more sociable, the whole of which is employed in diversions and feasting, and the evening concluded with illuminations. It may be worth observing in this place, that almost every intercourse in China between superiors and inferiors, is accompanied or followed by reciprocal presents, but those made by the former are granted as donations, while those on the part of the latter are accepted as offerings. Chinese terms correspondent to these are still applied to the presents passing between the emperor and foreign princes, according to the official style of the arrogated

superiority affected by the Chinese court. But when the emperor of China has occasion to make mention of himself, he uses the most modest and, indeed, humble expressions in every thing that relates to his own person, according to the system of Chinese manners; which require, in the mention of one's self, that the most abject terms should be employed, and the most exalted towards those who are addressed.

State of Knowledge in China. It is a matter of doubt whether natural philosophy or chemistry can be said to be known as sciences in this country. There are several treatises indeed on particular subjects in each, and the Chinese possess a very voluminous Cyclopædia containing facts and observations relating to them; but no traces are to be perceived of any general system or doctrine by which separate facts or observations are connected and compared, or the common properties of bodies ascertained by experiment; or where kindred arts are conducted on similar views; or rules framed, or deductions drawn from analogy, or principles laid down to constitute a science; for some there is not even a name. Of pneumatics, hydrostatics, electricity, and magnetism, they may be said to have little or no knowledge; and their optics extend not beyond the making of convex and concave lenses of rock crystal, to assist the sight in magnifying, or for the purpose of burning glasses. The single microscope is in common use, but the Chinese have never hit upon the effect of approximating objects by combining two or more lenses. Their books are full of particular processes and methods, by which a variety of effects may be produced in chemical and mechanic arts, and much might probably be gained by the perusal of them, by persons versed in the language of the describers, and acquainted with the subject of the description. As soon as the product of any art or manufacture has appeared to answer the purpose for which it was intended, it seldom happens that the discoverer is either impelled by curiosity, or enabled by his opulence, to endeavour to make any further progress towards its increased utility. The use of metals for the common purposes of life has made them search for them in the bowels of the earth, where they have found all those that are deemed perfect except platina. If they have not discovered the best methods of separating the precious metals from the substances among which they are found, nor of reducing the ores of others into their respective metals, they have at least succeeded in obtaining them without alloy, whenever they wish so to do. The gold is chiefly collected in small grains among the sand in the beds of rivers and torrents, which carry it down with them as they descend from the mountains. It is pale, soft, and ductile, and is often formed into bracelets, which some mandarins and many women of rank wear round the wrist, not more for ornament, than from a notion that they preserve the wearer from a variety of diseases. The Chinese beat it into leaf used for gilding, and the weavers employ it in their tissues and embroideries. Trinkets are also made of it at Canton, which are sent to Europe as eastern ornaments. Besides the use of silver as a medium of payment for other goods when it passes according to its weight, it is likewise drawn into threads used in the silk and cotton manufactures. Bell metal and white copper are made in great perfection in China; the latter is found to consist of copper, zinc, and a little silver. The iron ore of the Chinese is not well managed, and the metal is not so soft, malleable, or ductile, as the iron of this country; and their smiths work is exceedingly brittle, clumsy, and without polish. They excel in the art of casting iron, and form plates of it much thinner than is generally known to be done in Europe. Much of the tin imported by the Chinese is formed into as thin a foil as possible, to paste it

upon square pieces of paper, which are burnt before the images of their idols. With the amalgam of tin and quick-silver, they make mirrors; and their spectacles, which are much used in China, are formed of crystal, which the Canton artists cut into laminæ with a kind of steel saw. The powder of the crystal, like that of the diamond, helps to cut and polish itself. In almost every thing the Canton artists are uncommonly expert in imitating European works: they mend and even make watches, copy paintings, and colour drawings with very great success. They supply strangers with coarse silk stockings, manufactured at Canton, though none of the natives wear such, unless it be some young Chinese, who are fond of following the fashions of Europeans. The toys made at Canton, known under the name of balancers or tumblers, are partly filled with quick-silver. That metal is sometimes used in the same complaints as those to which it is applied in Europe as a specific; but a prejudice prevails among the common people, that it is apt to destroy the powers of one sex, and to occasion barrenness in the other.

The state of physic is extremely low in China: there are no public schools or teachers of it; and a young man who wishes to become a physician has no other way of acquiring medical knowledge than by engaging himself as an apprentice to some practitioner. He has thus the opportunity of seeing his master's practice, of visiting his patients with him, and of learning such parts of his knowledge and secrets as the other chuses to communicate. The emoluments of the profession rarely exceed the skill of the practitioner. As many copper coins as are equal to about sixpence are said to be the usual fee among the people, and perhaps quadruple among the mandarins. The latter of high rank have physicians in their household; the emperor's physicians, as well as most of the domestics, are chiefly eunuchs. Medicine is not divided in China into distinct branches; the same person acts as physician, surgeon, and apothecary. The surgical part of the profession is still more backward than the other. Amputation in cases of compound fracture is utterly unknown, and death is the speedy consequence of such accidents. The mortality of the small-pox, joined to the observation that it attacked the same person but once, induced the Chinese, at an early period, to expose young persons to its infection when it happened to be mild. This led to the practice of inoculation, which is first mentioned in the annals of China at a time answering to the beginning of the tenth century of the Christian æra. The general method of Chinese inoculation is, when the disease breaks out in any district, the physician carefully collects a quantity of proper matter, which is dried, pulverized, and closely shut up in a porcelain jar, so as to exclude it from the air; and in this manner it will retain its property for many years. When the patient has been duly prepared by medicine, and strictly dieted for some time, a lucky day is chosen for the sprinkling a little of the powder upon a piece of fine cotton, which they insert up the nostrils of the patient. No male physician is allowed to attend a pregnant woman, and still less to practise midwifery; in the delicacy of which, both sexes seem to agree in China. There are books written on that art for the use of female practitioners, with drawings of the state and position of the infant at different periods of gestation, together with a variety of directions and prescriptions for every supposed case that may occur: the whole is mixed with a number of superstitious observations. In China, as in this country, there are quacks, who gain large sums of money by the sale of nostrums, the efficacy of which is set forth in hand-bills distributed among the people. There are in China no professors of the sciences connected

with medicine. The human body is never, unless privately, dissected there. Books indeed, with drawings of the external structure, are sometimes published; but these are extremely imperfect, and consulted perhaps oftener to find out the name of the spirit under whose protection each particular part is placed, than for observing its form and situation. The physiology of the human body, or the doctrine which explains the constitution of man, is neither understood, nor considered as necessary to be known; and their skill in pathology, or in the causes and effects of diseases, is extremely limited and often absurd. The seat of most diseases is supposed to be discoverable by means of the pulse; yet they have no knowledge whatever of the circulation of the blood. They imagine that every particular part of the human body has a particular pulse assigned to it, and that these have all a corresponding and sympathetic pulse in the arm: thus they suppose one pulse to be situated in the heart, another in the lungs, a third in the kidneys, and so forth; and the skill of the doctor consists in discovering the prevailing pulse in the body, and the mummery made use of on such occasions is highly ludicrous. The best of their medical books are little better than mere herbals, specifying the names, and enumerating the qualities of certain plants. The knowledge of these plants, and of their supposed virtues, goes a great way towards constituting a physician. Those which are most commonly employed are gin-feng, rhubarb, and China-root. A few preparations are also found in their pharmacopœia from the animal and mineral kingdoms. In the former they employ snakes, beetles, centipedes, and the aurelia of silk-worms and other insects; the meloe and the bee are used for blisters. In the latter, saltpetre, sulphur, native cinnabar, and a few other articles, are occasionally preferred. Opium is taken as a medicine, but more generally as a cordial to exhilarate the spirits.

There is no branch of science which the Chinese affect to value so much as astronomy. Nothing indeed can be so well calculated to excite curiosity, and occasion admiration, as the sight which the clear atmosphere of China almost always allows to its inhabitants, of an azure firmament spangled with stars. The vicissitudes of day and night, of summer and winter, and the different phases of the moon, exhibit appearances too striking not to claim attention in the rude as well as the cultivated stages of society. The necessity indeed of being able to mark with some degree of precision the returns of the seasons, in so large a community, must have directed an early attention of the government to this subject: and accordingly we find, that an astronomical board has formed one of the state establishments in China from the earliest periods of their history. Yet so little progress have they made in that science, that the only part of its functions which can be called astronomical has long been committed to the care of foreigners, whom they affect to hold in contempt, and to consider as barbarians. The principal object of this board is to frame and to publish a national calendar, and to point out to the governor the suitable times and seasons for its important undertakings. Even when the marriage of a prince is about to take place, the commissioners of astronomy must appoint a fortunate day for the celebration of the nuptials, which is announced, in form, in the Peking Gazette. In this almanack are inserted all the supposed lucky and unlucky days in the year, predictions of the weather, days proper for taking medicines, commencing journeys, taking home a wife, laying the foundation of a house, and other matters of moment, for entering upon which particular times are assigned. To the superintendence of the Chinese members of this tribunal is committed the astrological part, a committee of whom is selected annually

for the execution of this important task. The phenomena of the heavenly bodies, to an enlightened and intelligent mind, furnish the most grand and sublime spectacle in nature; to the ignorant and superstitious the most awful. The common people in all countries and of all ages have considered the occasional privation of the light of the two great luminaries of heaven as the forerunners of some extraordinary event. The people of China have, from the earliest ages, considered a solar eclipse as ominous of some great calamity; and as great pains are taken to inspire them with a belief that their prosperity is owing to the wisdom and virtues of their sovereign, so they are tempted to attribute whatever they think portentous to some deficiency on his part. To this convenient prejudice the emperor finds it prudent to accommodate his conduct. He never ventures upon any undertaking of importance at the approach of such an eclipse, but affects to withdraw himself from the presence of his courtiers, to examine strictly into his late administration of the empire, in order to correct any error, for the commission of which the eclipse may have been an admonition, and invites his subjects to offer him freely their advice. The Chinese government observes on the event of an eclipse ceremonies similar to those that were in use two thousand years ago among the Egyptians, Greeks, and Romans. When the moon is eclipsed, their musical instruments are struck up, under the notion that by their shrill noise they may assist in relieving the labouring goddess. The brazen gong is violently beat by the Chinese on the occasion; and that such an event may not pass unobserved, and the luminary may thereby be deprived of the usual assistance of music to frighten away the dragon, which they suppose to have seized upon it, the great officers of state in every city and town are instructed to give public notice of the time when it will happen according to the calculations of the national almanack. "A rude projection of a lunar eclipse," says Mr. Barrow, "that happened while we were at Tong-choo, was stuck up in the corner of the streets; all the officers were in mourning, and all business was suspended for that day." When the Dutch ambassadors were at Peking, the sun was eclipsed on the 21st January 1795, which happened to be the first day of their new year; a day observed through the whole empire with the greatest festivity and rejoicings; and almost the only day on which the bulk of the people refrain from their respective occupations. The ambassador and his suite were summoned to court at the usual hour of three in the morning, and on arriving at the palace, they were told that in consequence of an eclipse of the sun, about to happen on that day, which was a most unfortunate event, portending an unhappy year to the country, the emperor would not be visible for three days, during which time the whole court would go into mourning, and that the amusements usual on that particular day would be suspended from one end of the empire to the other. Just before the eclipse happened, the members of the mathematical board and other learned men assembled near the palace, each having in his hand a sketch of the obscuration in order to witness the truth of the astronomer's calculation. The moment the eclipse begins, they fall down on their knees and bow their heads nine times to the ground, during which is struck up the horrible crash of gongs, kettle drums, trumpets, and other noisy instruments, intending to scare away the devouring dragon.

Astronomy, as connected with the first principles of chronology, has however been in high estimation from a very early period of Chinese history. The first mention of it that has come down to us, is, where the emperor Yao instructed his Astronomers *Hi* and *Ho*, how to distinguish and determine the four seasons of the year. "First," says

the mighty prince, "*Yao* desires that *Hi* and *Ho* will calculate and observe the places and motion of the sun, moon, and stars; and that they will afterwards teach the people whatever relates to the seasons. Secondly, according to *Yao* the equality of day and night, and the star *Niao*, serve to determine the vernal equinox. The equality of day and night and the star *Hu* point out the autumnal equinox. The longest day, and the star *Ho*, are the signs of the summer solstice. The shortest day, and the star *Mao*, shew the winter. Thirdly, *Yao* informs his two astronomers, that the *Ki* consists of 366 days, and that to determine the year and its four seasons, an intercalary moon must be employed. Hence it appears that the Chinese astronomers, even at this early period, were required to mark in the calendar the times when the sun and moon entered the different signs, together with the places of the planets, and the times of the eclipses. We know also from other works of authority, that those who neglected to announce these phenomena, were punished with death. It appears likewise, that even at that time, they knew how to determine the equinoxes and solstices by the length of the days and nights, and that they availed themselves of the motion of the planets, in order to compare their places with that of the sun in each of the four seasons. It is also evident, though certainly very extraordinary, that the Chinese were then acquainted with the length of a year of 365 days and six hours. The Chinese have always fixed the beginning of the astronomical year at the winter solstice; but the beginning of the civil year has varied according to the will of the emperors. The Chinese year has at all times consisted of a certain number of lunations, twelve of which form a common year, and thirteen the embolismic year. They reckon their lunations by the number of days which happen to fall between the moment in which the sun is in conjunction with the moon, and the moment of the conjunction following.

The Chinese divide their days into a greater or smaller number of equal parts, but besides these they generally divide them into 12 hours, which are, of course, double the length of those adopted by us. Their day begins and ends at midnight. The path described by the sun has been known in China from the remotest antiquity, and the Chinese have always distinguished the ecliptic from the equator. The former they call *hoang-tao*, the yellow way; the other is named *tche tao*, or the equinoctial line. The year is also, with the Chinese, divided into four equal parts or seasons, each of which has three smaller divisions, its beginning, its middle, and its end, that is, a lunation for each of the three parts: it is likewise subdivided into 24 equal parts, each of which contains 15 degrees, so that the whole together makes the 360 degrees. The Chinese make use of a cycle of sixty years called "*kiatse*," from the denomination given to the first year of it, which serves as the basis of their whole chronology. Every year of this cycle is marked with two letters, which distinguish it from the others; and all the names of the emperors, for two thousand years and upwards, have names in history common to them with the corresponding cycle. The intricate and irregular motion of the moon has been long known by the Chinese. In the reign of Yao the astronomers were able to calculate, with sufficient precision, the times of new and full moon. The first day of the new moon, they named *cho*, commencement or beginning, and the day of full moon, *ouang*, which signifies to expect, or hope: because the people expected the kindness and protection of certain spirits, which they invoked only at that epocha. To express the age of the moon, besides the numbers, they use the words *superior* and *inferior string*: they say *chang-bien*, a bow having the string uppermost, and *hia-bien*,

a bow having the string undermost. It is thus they distinguish what are denominated the quarters of the moon. Their method of intercalation has varied, but it has generally admitted twenty-nine or thirty days for one lunation; the former is called a small lunation, and the latter a greater lunation. They divide the stars according to the following order: the *pe-teou*, or celestial bushel of the north, is what we call the *urus major*: the *nan teou*, or celestial bushel of the south, which comprehends the principal stars opposite to the great bear; and which, together, form a figure, almost like that of the great bear in the north. The five planets called "ou-ling" are next enumerated; these are Saturn, Jupiter, Mars, Venus, and Mercury: and lastly are mentioned 28 constellations, in which are comprehended all the stars of the zodiac, and some of those which lie nearest to it. M. Gaubil, one of the learned Jesuits who resided long in China, and who paid great attention to the astronomy of the Chinese, says they have been long acquainted with the motion of the sun, moon, and planets, and even of the fixed stars from west to east; though they did not determine the motion of the latter till about 400 years after the Christian æra. To the five planets just enumerated they have assigned revolutions which approach very near to ours. They have no notion of their different situations, when stationary and retrograde: and as in Europe, some of the Chinese imagine that the heavens and planets revolve round the earth, and others round the sun. By reading their books we may perceive, that the Chinese have had a perfect knowledge of the quantity of the solar year; that they have also known how to estimate the diurnal motions of the sun and moon; that they have been able to take the meridian altitude of the sun, by the shadow of a gnomon; and that they have thence made pretty exact calculations to determine the elevation of the pole, and the sun's declination: it appears that they have had a tolerable knowledge of the right ascension of the stars, and of the time when they pass the meridian; of the reason why the same stars, in the same year, rise and set with the sun; and why they pass the meridian, sometimes when the sun rises, and sometimes when he sets.

In China the first operations of arithmetic are very generally unknown; in the shops regular entries are made of the articles to be disposed of, and the several prices are affixed in the common Chinese characters equivalent to the words which express numbers in other languages; but not by a distinct set of figures upon a similar system to that of those called Arabic by the Europeans. Their arithmetic is mechanical, and to find the aggregate of numbers, a machine called the "swan-pan" is in universal use, from the man of letters to the meanest shopman. See *ABACUS* and *SHWAN-PAN*.

The knowledge of the Chinese in geography is as limited as that in astronomy. Their own empire was considered by them as occupying the middle space of the square surface of the earth, the rest of which was made up of islands. When the Jesuits went first to China, they found the charts, even of their own country, rude and incorrect, sketches without any scale or proportion, in which a ridge of mountains covered a whole province, and a river swept away half of another. At present they have neat and accurate maps of the country, copied after the original survey of the whole empire, undertaken by the Jesuits, and completed after several years labour.

State of the Arts. Little can be said of the state of the fine arts in this country. Of their poetry we have already spoken. Music does not seem to be cultivated as a science, nor learnt as an elegant accomplishment, nor practised as an amusement of genteel life, except by females who are edu-

cated for sale, or by such as hire themselves out for the entertainment of those who may be inclined to purchase their favours. These women play generally upon wind-instruments, such as pipes and flutes, while the favourite instrument of the men is something like a guitar. Eunuchs and the lowest class of persons are hired to play, and the merit of their performance appears to consist in the intenseness of the noise they are able to make. The gong is admirably adapted for this purpose. See *GONG*, and *CHINESE MUSIC*. Kettle drums and different sized bells constitute part of their sacred music. They have also an instrument which consists of stones cut into the shape of a carpenter's square, each stone suspended by the corner in a wooden frame. It is the boast of the Chinese historians, that the whole empire of nature has been laid under contribution in order to complete their system of music: that the skins of animals, fibres of plants, metals, stones, and baked earth, have all been employed in the production of sounds. A Chinese band plays, or endeavours to play, in unison, but they never attempt to play in separate parts. They have not the least notion of counterpoint, an invention to which even the Greeks had not arrived, and which was unknown in Europe, as well as Asia, till the monkish ages. See *CHINESE MUSIC*. With regard to painting, they can be considered in no other light than as miserable daubers, being unable to pencil out a correct outline of many objects, to give body to the same, by the application of proper lights and shadows, and to lay on the nice shades of colour, so as to resemble the tints of nature. But the gaudy colouring of certain flowers, birds, and insects, they imitate with a degree of exactness and brilliancy to which Europeans have not yet arrived; to give distance to objects on canvas, by diminishing them, by faint colouring, and by perspective, they have no sort of conception. At Yuen-min-yuen Mr. Barrow found two very large paintings of landscapes, which, as to the pencilling, were done with tolerable execution, but they were finished with a minuteness of detail, and without any of those strong lights and masses which give force and effect to a picture; none of the rules of perspective were observed, nor any attempt to throw the objects to their proper distances. In a country where painting is at so low an ebb, it would be in vain to expect much execution in sculpture. Grotesque images of ideal beings, and monstrous distortions of nature are sometimes seen upon their bridges, and in their temples, where the niches are filled with gigantic gods of baked clay, sometimes painted with gaudy colours, plastered with gold leaf, or covered with varnish. Near the gates of cities four-sided blocks of stone or wood are frequently erected, with inscriptions upon them, to perpetuate the memory of certain distinguished characters, but they are neither objects of grandeur nor ornament. The whole of their architecture is indeed unsightly and unsolid, without elegance or convenience of design, and without any settled proportions. Their pagodas are the most striking objects. See *PAGODA*. Their temples are mostly constructed upon the same plan. See *TEMPLE*. Next to these the most conspicuous objects are gates of cities, which are generally square buildings carried several stories above the arched gate-way, and, like the temples, are covered with one or more large projecting roofs. But the most stupendous work of this country is the great wall that divides it from northern Tartary, which is built upon the same plan as the wall of Peking, being a mound of earth cased on each side with bricks or stones. The astonishing magnitude of the fabric consists not so much in the plan of the work, as in the immense distance of fifteen hundred miles, through which it is extended, over mountains of two and three miles in height, and across deep valleys and rivers. See *WALL*.

Chinese Trade, Manufactures, Agriculture, &c. The trade of China is now encouraged by the government. Even the foreign commerce, which was formerly shut up by their jealous monarchs, has been laid open by the Tartars since the conquest, so that they now trade with Japan, Manilla, Siam, Batavia, and other parts of the East Indies. They likewise derive considerable advantage from their traffic with the Europeans. These have indeed scarce any port open to them, except that of Quang-tong, and that only at certain times of the year; neither are they suffered to sail up quite to that city, but are forced to cast anchor at Whang-pu, a place about four leagues short of it, where the river is so crowded with trading vessels, that it looks like a large city on the water. This trade was once very advantageous to the Europeans, who brought thither cloths, swords, clocks, watches, looking-glasses, diamonds, crystals, telescopes, and other mathematical instruments, and sold them at a high rate; but the market is now over-stocked with those commodities, and the trade hardly worth carrying on in any thing but silver exchanged for gold, which is sold higher or lower according to the time of the year; it being cheapest in March, April, and May, when there is the greatest number of vessels in the port returned from Quang-tong. But what the Chinese chiefly depend upon is their home traffic. We ought to consider every province as a separate state or kingdom; some of these abound with certain commodities, or provisions, which others want, and, to communicate which to all the rest, the best methods have been invented, both by land and water-carriage. Thus the provinces of Hu-quang and Kyang-si, which abound with rice, supply those that want it; Che-kyang furnishes the finest silks; Kyang-nan the finest ink, varnish, and all sorts of curious works; Yunnan, Shen-si, and Shan-si, yield plenty of iron, copper, and other metals, horses, mules, and furs; Fo-kyen, the best sugar and tea; and Sechwen the greatest variety of medicinal and other plants; all these are conveyed from one province to another, either by their rivers and canals, or by land-carriage; and when brought to the place of sale, are commonly vended in a few days. The next branch of their wealth arises from their manufactures, of which they have great variety. We shall only speak of some of the most considerable, such as their silk and cotton, their porcelain and Japan ware, or varnish. We begin with the silk, the invention of which the Chinese records attribute to one of the wives of the emperor Wang-ti; since which period many other empresses have been recorded for the singular care they took to encourage it, by breeding the silk-worms, spinning the silk, and delivering it to the proper workmen and women to be woven. Their example could not fail of exciting the rest of their sex to put their hands to such a profitable, as well as delightful, work, by which they were enabled to exchange their old garb of skins, for the more easy and elegant dress made of this new and valuable commodity. Upon the whole, that manufacture hath been so well cultivated among them from time immemorial, that not only the princes, grantees, literati, and other persons of distinction, but their domestics, the merchants, tradesmen, and mechanics, can afford to clothe themselves with it; none, except those of the meanest sort, and the peasants, appearing in cotton. The quantity they send abroad of it is prodigious, and plainly proves that it employs an infinite number of hands; so that it is not without reason that China is styled the silk country. Neither are the Chinese to be less admired for their surprising ingenuity, diligence, and skill, in the management of every branch of it, the contrivance of their looms, and other instruments for spinning and weaving it in a beautiful variety of colours and patterns; their great

care and skill in breeding, hatching, and propagating their worms; and their excellent way of cultivating mulberry-trees to the best advantage for their nourishment.

The Chinese appear to have strong claims to the credit of having been indebted to themselves only, for the invention of the tools required in the primary and necessary arts of life. The traveller will observe, in relation to common tools, such as the plane and anvil, that whether in India or in Europe, in ancient or in modern times, they are found fabricated in the same form, denoting one common origin. In China alone, these tools have something peculiar in their construction, clearly indicating that they are of an original invention. Thus, the upper surface of the anvil, elsewhere flat and somewhat inclined, is among the Chinese swelled into a convex form. The common plane, too, is distinguished by some minute particulars, which characterize it to be original. There is reason to believe, that not only inventions of the first necessity, but those of decoration and refinement, were known among the Chinese in remote antiquity. The annals of the empire bear testimony to the fact, and it is confirmed by a consideration of the natural progress of those inventions, and of the state of the Chinese artists at this time. In the first establishment of an art, it is practised awkwardly, and this state is supposed to continue stationary, until at length it advances to its second period, when it becomes improved, and the artist is enabled to avail himself to the utmost of every tool and machine that can assist him. The last period of perfection is that in which the artist is become so dextrous, as to complete his work with few, or awkward tools, and with little or no assistance. And such is the character of the Chinese potter, weaver, worker in precious metals, and in ivory, and of most others in the several trades commonly practised in the country. The process of smelting iron from the ore is well known to them, and their cast ware of this metal is, as we have already observed, remarkably thin and light. Of all the mechanical arts, that in which they seem to have attained the highest degree of perfection, is the cutting of ivory. Nothing can be more exquisitely beautiful than the fine open work displayed in a Chinese fan, the sticks of which would seem to be singly cut by the hand; for, whatever pattern may be required, as a shield with a coat of arms, or a cypher, the article will be finished according to the drawing, at the shortest notice. Out of a solid ball of ivory, with a hole in it not larger than half an inch in diameter, they will cut from nine to fifteen distinct hollow globes, one within another, all loose, and capable of being turned round in every direction, and each of them carved full of the same kind of open work that appears on the fans. A very small sum of money is the price of one of these difficult trifles. Models of temples, pagodas, and other pieces of architecture, are beautifully worked in ivory, and from the shavings, interwoven with pieces of quills, they make baskets and hats, which are as light and pliant as those of straw. In short, all kinds of toys and trinkets are executed in a neater manner, and for less money, in China, than in any other part of the world.

The various uses to which that elegant species of reed called the bamboo, is applied, would require a volume to enumerate. Their chairs, their tables, their screens, their bedsteads and bedding, and many other household moveables, are entirely constructed of this hollow reed. It is used on board ship for poles, for sails, for cables, for rigging, and for caulking. In husbandry, for carts, for wheelbarrows, for wheels to raise water, for fences, for sacks to hold grain, and a variety of other utensils. The young shoots furnish an article of food, and the wicks of their candles are made of its fibres. It serves to embellish the garden of the prince,

and.

and to cover the cottage of the peasant. It is the instrument in the hand of power that keeps the whole empire in awe. Indeed there are few uses to which a Chinese cannot apply the bamboo, either entire, or split into thin laths, or divided into fibres, to be twisted into cordage, or macerated into a pulp, to be manufactured into paper. The discovery of making paper from straw is of very ancient date in China. The straw of rice and other grain, the bark of some trees, and various plants, are employed in the paper manufactories of China, where sheets are prepared so large, that a single one will cover the side of a room. The finest sort of paper for writing upon, has a surface as smooth as vellum, and is washed with a solution of alum to prevent it from sinking. Many old persons and children obtain a livelihood by washing the ink from written paper, which is afterwards re-manufactured into new sheets; the ink is also separated from the water, and preserved for future use. See PAPER.

There is no doubt that the art of printing is of great antiquity in China, yet they never proceeded beyond a wooden block. With the Chinese the art consists in nothing more than in cutting in relief the forms of written characters on wood, daubing afterwards those characters with a black glutinous substance, and pressing upon them different sheets of paper. It has not yet occurred to them to form moveable and separate types; they are satisfied, whenever the same characters very frequently occur, as in the public calendars and gazettes, to use types for such cut apart and occasionally inserted. See PRINTING.

In China, the chain-pump, nearly in its primitive state, constitutes an essential part in their ships of war, and other large vessels; the principal improvements since its first invention, consist in the substitution of boards, or basket-work for wisps of straw. Its power with them has never been extended beyond that of raising a small stream of water upon an inclined plane from one reservoir to another, to serve the purposes of irrigation. They are of different sizes, and worked in different ways, some by oxen, some by treading in a wheel, and others by the hand. The power of the pulley is understood by the Chinese, and is applied on board all their large vessels, but always in a single state. The lever is also well known among them, and is applied to weighing all their valuable wares; and the tooth and pinion wheels are used in the construction of their rice-mills, that are put in motion by a water-wheel. But none of the mechanical powers are applied on the great scale to facilitate and to expedite labour. Simplicity is the leading feature of all their contrivances, that relate to the arts and manufactures. The tools of every artificer are of a simple construction, and yet each tool is contrived to answer several purposes; thus the bellows of the blacksmith, which is nothing more than a hollow cylinder of wood with a valvular piston, besides blowing the fire, serves for his seat when set on end, and as a box to contain the rest of his tools. The joiner makes use of his rule as a walking stick, and the chest that holds his tools serves him as a bench to work on. The pedlar's box and a large umbrella are sufficient for him to exhibit all his wares, and to form his little shop. Besides the variety of trades which are stationary in China, there are many thousands of the people, in every large city, who cry their goods about, as is done in our metropolis. Barbers also are seen running about the streets with instruments for shaving the heads and cleansing the ears. They carry with them, for this purpose, a portable chair, a portable stove, and a small vessel of water; and, whoever wishes to undergo either of these operations, sits down in the street, while the operator performs his office. To distinguish their profession, they carry a large pair of steel tweezers, with

which they make a great noise, in order to obtain employment. There are persons also engaged in the open streets selling off their goods by auction, and the butchers of Peking not only sell, but dress the meat for their customers, who eat in the shops what is necessary, and having paid the price, go about their business.

The Chinese government has, in all ages, bestowed the first honours on every improvement in agriculture. The husbandman is considered an honourable as well as a useful member of society; he ranks next to men of letters or officers of state, of whom he is frequently the progenitor. The soldier, in China, cultivates the ground. The priests also are agriculturists whenever their convents are endowed with land. The emperor is considered as the sole proprietor of the soil, but the tenant is never turned out of possession as long as he continues to pay about the tenth part of what his farm is supposed capable of yielding. And, though the holder of lands is only considered as a tenant at will, it is his own fault if he is dispossessed. If any one happens to hold more than his family can conveniently cultivate, he lets it to another, on condition of receiving half the produce, out of which he pays the whole of the emperor's taxes. A greater part of the poor peasantry cultivate land on these terms. In China there are no immense estates, no monopolizing farmers, nor dealers in grain. Every one can bring his produce to a free and open market; no fisheries are here let out to farm. Every subject is equally intitled to the free and uninterrupted enjoyment of the sea, of the coasts, of the estuaries, of the lakes, and rivers. There are no manor lords with exclusive privileges, nor any game laws.

The Chinese never divide their fields into ridges and furrows, but plant their grain in drills on an even surface. They are not inattentive to the direction of their rows, or dibbling their grain, as may be inferred from the solemn regulations, made concerning the annual ceremony of the emperor's act of husbandry in ploughing the ground. It is settled that he shall stand with his face turned towards the south, and taking hold of the plough with his right hand, he shall turn up a furrow in that direction. The collection of manure is an object of so much attention with the Chinese, that a prodigious number of old men, women, and children, incapable of much other labour, are constantly employed about the streets, public roads, banks, of canals and rivers, with baskets tied before them, and holding in their hands small wooden rakes to pick up the dung of animals, and offals of any kind, that may answer the purpose of manure; this is mixed sparingly with a portion of stiff loamy earth, and formed into cakes, dried afterwards in the sun. It sometimes becomes an object of commerce, and is sold to farmers, who never employ it in a compact state. Their first care is to construct very large cisterns for containing, besides those cakes, and dung of every kind, all sorts of vegetable matter, as leaves, or roots, or stems of plants; mud from the canals, and offals of animals, even to the shavings collected by the barbers. With all these, they mix as much animal water as can be collected, or of common water, as can dilute the whole; and, in this state, generally in the act of putrid fermentation, they apply it to the ploughed earth. In various parts of a farm, and near the paths and roads, large earthen vessels are buried to the edge in the ground for the accommodation of the labourer or passenger who may have occasion to use them. In small retiring houses, built also upon the brink of roads and in the neighbourhood of villages, reservoirs are constructed of compact materials, to prevent the absorption of whatever they receive, and straw is carefully thrown over the surface, from

from time to time, to prevent evaporation. Such a value is set upon the principal ingredient for manure, that the oldest and most helpless persons are not deemed wholly useless to the family by which they are supported. The quantity of manure collected by all these means is still inadequate to the demand. It is reserved, therefore, for the purpose of procuring a quick succession of culinary vegetables, and for forcing the production of flowers and fruit. Among the vegetables raised in the greatest quantities, is a species of brassica, called by the Chinese Pe-tsai, which resembles coss lettuce, and is much relished both by foreigners and natives. Whole acres of it are planted in the neighbourhood of populous cities, and it is difficult on a morning to pass through the crowds of wheel barrows and hand-carts loaded with this plant, going into the gates of Peking. It is sated for winter consumption, and, in that state, exchanged, in some of the provinces, for rice. That grain and that herb, together with onions, serve as a meal for the Chinese peasants and mechanics. The husbandman always keeps the grain he intends to sow in liquid manure until it germinates, which has the effect of hastening the growth of plants, as well as defending them from insects. The great object of Chinese agriculture, the production of grain, is generally obtained with little manure, and without letting the land lie fallow. A mixture of earth, in due proportion, is sometimes substituted with success in the deficiency of manure; and a surface of strong loamy clay may, with the addition of sand and water, be rendered an advantageous medium of support of vegetable life. Sea-sand is likewise used for this purpose, and, if laid on in proper proportions, it tends to promote fermentation, which is favourable to the growth of vegetables. By practices similar to these, the Chinese supply the deficiency of manure. They are constantly changing earth from one piece of ground to another; mixing sand with that which they find to be too adhesive, and clay or loam where the soil appears too loose; and having thus given their land the consistency that it requires, their next care is to prevent it from becoming dry.

Besides the great plenty of corn, grain, and pulse of all sorts, which almost every part of this country produces, it hath likewise a sufficient quantity of pasture-ground, which feeds a vast quantity of cattle of all sorts; whilst their spacious woods and forests supply them with as great plenty and variety of wild beasts; such as buffaloes, wild boars, deer of several kinds, elephants, leopards, tigers, bears, wolves, foxes, and a variety of others, not known to us, which afford the Chinese the diversion of hunting, as well as the commerce and profit of their furs, which are commonly very fine and valuable. This country also produces the musk-cat, a profitable creature. They have, likewise, a sort of roebuck which they call hyang-chang-tse, the male of which has a bag of a very odoniferous substance. This creature, which breeds mostly on the northern ridge of mountains beyond Peking, is first hunted, then killed; the bag above-mentioned is immediately cut off and tied very hard, that it may lose none of its effluvia. The flesh is also good to eat; but the bag is esteemed of more value than the rest of the carcase. The most delightful, however, of the whole quadruped kind, is a small stag bred in the province of Yun-nan, and no where else; bought at a high rate by the princes and nobles, merely to be kept for show in their gardens. These are exactly shaped like the common sort, but their size scarcely exceeds that of our ordinary dogs, on which account they are esteemed as curiosities: but they have a great variety of stags of different kinds in the other provinces, some of which are reckoned as extraordinary for their large size. Birds and fowl, both of the wild and tame

kind, are here in great plenty and variety; such as eagles, cranes, storks, hawks, falcons, pelicans, birds of Paradise, peacocks, pheasants, partridges, turkeys, geese, ducks, swans, cocks, and hens, and a vast variety of water fowl on their lakes, rivers, and canals. Among the tame and curious sort, they have a variety of beautiful parrots, not inferior, either in plumage, colours, or facility of talking, to any that are brought from America: but the most surprising and delightful of all the flying kind, is the little bird called kin-ki, or golden-hen, which is commonly found in the provinces of Yun-nan, Shen-si, and Se-chwen. This admirable creature derived its name from the exquisite symmetry of its shape, the beauty, lustre, and variety of its plumage, the complete mixture and arrangement of light and shade, both in its wings and tail, and the fine plume that crowns its head: but what renders it still more valuable among the epicures is the delicate taste of its flesh, which, we are told, greatly excels that of pheasants. China seems to be designed by nature to produce not only all the fruits which grow in other parts of the world, but likewise many others peculiar to its soil and climate; so that, if they have not so great a plenty and variety of the former, it is owing to their neglect of cultivating them; for, in general, they grow naturally almost in every province, and many of the more delicate kind in the southern parts to greater perfection than any in Europe. Apples, pears, plums, quinces, apricots, peaches, figs, pomegranates, mulberries, nectarines, grapes, oranges, lemons, citrons, melons, walnuts, chestnuts, pine-apples, and other fruits, grow almost every where in great plenty. Yet they are not so curious as the Europeans in cultivating and improving them, but content themselves with having three or four different sorts of apples, seven or eight sorts of pears and peaches; and as for their cherries, they are hardly worth eating. The only fruits that exceed ours are their pomegranates, a fine sort of muscadine grapes of exquisite taste and flavour, and their tse-tse, called by the Portuguese macau, which is a kind of fig. Olives are here in great plenty and variety, and, though different from ours, have a very fine taste; but whether out of dislike, or that they do not think it worth their while, they extract no oil from them. Among those fruits which grow in the southern provinces, the li-chi is most esteemed. It is shaped like a date, and hath an oblong stone. The fruit is full of moisture, of an excellent taste and flavour when full ripe; but shrivels, and grows blackish, like our prunes, by keeping. Next to that is the long-yen, or dragon's-eye, which is round, and yellowish, the pulp white, and a little acid. Both these are esteemed very wholesome, especially the latter, which is taken to create an appetite. They have likewise some singular as well as useful trees, particularly that which they style the pepper-tree, which bears a sort of grain like a pea, but of too hot a nature to be eaten; but the husk, which is less pungent, is used by the common people. The pea-tree produces a sort of pulse, like our common pea, only a little more rank. Their wax-tree is so called from the wax that is produced on it by a kind of little worm which runs up and fastens to its leaves, and quite covers them with combs. This wax is hard, shining, and considerably dearer than that of common bees; though this last they likewise have in much greater quantities. When these worms are once used to the trees of any district, they never leave them, unless something extraordinary drives them away. The nau-mu is a tall straight tree, the wood of which is incorruptible like the cedar: it is commonly used to make pillars, doors, windows, or ornaments for palaces, temples, and large buildings; but it is in other respects much inferior to the tze-tau, or rose-wood, which is of a reddish black, streaked,

and full of fine veins, which appears to be painted by some artist. The furniture and ornaments made of this wood are much esteemed all over the empire, and sell at a greater price than those which are varnished or japanned. We omit a great variety of other valuable and curious trees, such as the cedar, ebony, sanders, pines, oaks, &c. which we have not room to describe. But that which is justly esteemed the most profitable among the Chinese, and hath most excited the envy of the Europeans, is their *tsi-shu*, or varnish-tree, that yields the gum with which they make their fine *giran-varnish* or *japan*, which keeps such an infinite number of hands employed in most provinces of the empire, and furnishes it with such a prodigious variety of chests, cabinets, boxes, and other household ornaments, so beautifully painted and varnished, and sent abroad into most parts of the world. The next to that in usefulness is the *tong-shu*, or oil tree, from which a liquor or oil is drawn, not much differing from the varnish above-mentioned, and used almost to the same end, but chiefly in larger work, such as pillars, cornices, galleries, triumphal arches, and fine floors. This oil, when boiled into a consistency, not only preserves the wood over which it is laid, but gives it a fine lustre, and, like the varnish, may be mixed with any colour to great advantage. China is likewise famous for producing the *camphor-tree*, which grows to a prodigious size, and rises often to the height of 300 feet; its wood is of a firm texture, of great use in ship-building, as well as in joiners' work, from the beautiful gloss it acquires in polishing; but the most valuable part is the gum, which the Chinese are extremely expert at extracting, percolating, purifying, and subliming. The last of the tree kind, worth our particular notice, is what they call *tie-li-mu*, or iron-wood, from its extreme hardness. It is, indeed, very remarkable for its strength and durability, beyond any other wood; the tree is as tall and spreading as our large oaks, and the wood is of a much deeper brown, as well as more weighty and tough.

Almost every part of the country being intersected by rivers and canals, abundance of water is always near at hand; and it remains only for them to contrive the means to convey as much of it as is necessary to the planted grounds. Thus they reap full and constant crops without fallowing, and sometimes without manure. The draught cattle mostly generally in use are oxen, mules, and asses; horses are scarce, of a miserable breed, and incapable of much work. No pains, however, are bestowed to improve the breed, for the Chinese imagine that this animal requires no other attention than that of giving him food.

The taxes raised for the support of government are neither exorbitant nor burdensome: they consist in the tenth of the produce of the land, in a duty on salt, on foreign imports, and a few smaller taxes that do not affect the bulk of the people. The total amount of taxes and assessments, which each individual pays to the state, does not exceed four shillings a year. With such advantages and such encouragements given to agriculture, one would imagine that the condition of the poor must be better than elsewhere. Yet, in years of scarcity, either from unfavourable seasons of drought or inundations, which are perpetually occurring, in one province or other, thousands perish from an absolute want of food. There are few public charities; no poor laws; and it is not a common custom to ask alms: Mr. Barrow says he did not see a single beggar from one end of China to the other, except in the streets of Canton. The children, or next of kin, must take care of their aged relations; and the parents dispose of their children in what manner they may think best for their family interest. As several generations live together, they are subsisted at a cheaper rate than if they had separate house-

holds; and in cases of real distress, the government is supposed to act the parent; and whenever any of its officers, through neglect or malice, withhold grain from the poor, they are punished with singular severity, and sometimes even with death. Another great advantage enjoyed by the Chinese subject is, that the amount of his taxes is ascertained. He is never required to contribute, by any new assessment, to make up a given sum for the extraordinary expenses of the state: except in cases of rebellion, when an additional tax is sometimes imposed on the neighbouring provinces.

We shall conclude this article with a short account of their coin. Silver and copper are the two current metals in China; gold being on the same footing as precious stones, purchased, like other valuable merchandizes, according to its weight and fineness. Silver, though used in payment, is not coined, but cut into pieces, smaller or larger, as occasion requires; so that its value is rated according to its weight and goodness. The scales, or rather steelyards, with which they weigh the silver or gold, and which they commonly carry about them in a neat japan case, consist of a little round plate, an ebony or ivory beam, and a weight. The beam, which is divided into minute parts on three sides, is suspended by fine silken strings at one of the ends, in three different points, that they may more easily weigh their pieces. These kinds of steelyards are so exceedingly exact for weighing any money, or small pieces of silver, that from fifteen or even twenty crowns, down to the twelfth part of a penny, and less, may be weighed in them with so great a nicety, that the one thousandth part of a crown will turn the scale. The Chinese chuse to have it in that manner rather than coined. If, like the Europeans, they had stamped pieces of determinate value, they say their country would swarm with clippers and coiners, and the dealers be forced to have still recourse to their scales and touchstone. The only expeditious way they have to pay any sum in silver, is to keep by them a variety of plates of that metal, beaten, either thinner or thicker, besides the ingots, which are reserved for larger sums; and these, by long use, they can cut to a very great nicety. The only coin, properly so called, in use among them, is of copper, and of a very inconsiderable value, scarcely amounting to the third part of one of our farthings. It is of a round figure, with some Chinese characters on each side, and a square hole in the middle, through which they may be strung to any number. They, however, had, in ancient time, a great variety of coins of gold and silver, which are now only to be seen in the cabinets of the curious, and more particularly in that of the late emperor Kang-hi, who caused a noble collection to be made of all that could be found of that kind in the empire, and to be deposited there as curiosities. The Chinese pound, or *lyang*, weighs sixteen ounces, but is divided into only ten parts, called *tsyen*, this into ten *wen*, which are equivalent to about seven pence English; the *wen* into ten *li* of silver. The beam of the Chinese scale carries these divisions no farther; and yet, with respect to gold or silver of a considerable weight, the division is more minute, and almost extends to imperceptible parts, for which reason it is scarce possible to convey a just idea of them in our language. They divide the *li* into ten *wha*, the *wha* into ten *se*, the *se* into ten *fu*, the *fu* into ten *chin*, which last signifies a grain of dust; this again into ten *yay*, the *yay* into ten *myau*, the *myau* into ten *mo*, the *mo* into ten *tsyun*, and the *tsyun* into ten *sun*. There were periods at which the scarcity of specie obliged their monarchs to raise the value of the small copper pieces so excessively high, that one of them was worth ten of the same sort current in former times. This scarcity of copper coin, occasioned either by some violent

lent irruption of foreigners, who came and carried it away, or through the cautiousness of the people, who buried it in time of war, and died, without discovering where it lay hid, hath been so terribly felt, that at one time an emperor caused near fourteen hundred temples of Fo to be demolished, and all the images and copper work to be cast into coin; and at other times the people have been expressly forbid the use of any vessels, or other utensils of copper, and obliged to deliver up those they had to the mint.

Penal Laws and Punishments. The laws of China define, in the most perspicuous manner, almost every shade of criminal offences, and the punishment awarded to each crime, and the greatest care has been taken in constructing the scale of crimes and punishments, which are very far from being sanguinary. Of all the despotic governments existing, there is certainly none where the life of man is held so sacred as in the laws of China. A murder is never overlooked, except in the horrid practice of exposing infants; nor dares the emperor himself take away the life of the meanest subject without the formality of a regular process. So tenaciously, however, do they adhere to the principle, "At the hand of every man's brother will I require the life of man; whose sheddeth man's blood, by man shall his blood be shed," that the good intention is oftentimes defeated by requiring of the person last seen in company with one who may have received a mortal wound, or who may have died suddenly, a circumstantial account, supported by evidence, in what manner his death was occasioned. In attempting to proportion punishments to the degrees of crimes, the Chinese seem to have made too little distinction between accidental manslaughter and premeditated murder. To constitute the crime it is not necessary to prove intention or malice; if a man should kill another by accident, his life is forfeited by the law. And however favourable the circumstances may be, the emperor alone has the power of remitting the sentence; a power which he rarely, if ever, exercises, to the extent of a full pardon. The process of every trial for criminal offences, of which the punishment is capital, must be transmitted to Peking, and submitted to the supreme tribunal of justice, which affirms or alters according to the nature of the case. The execution of all capital crimes takes effect once a year, at the same time; and the number, seldom above two hundred, is very small for so populous an empire. In most cases, indeed, fine and imprisonment, flagellation and exile, are the usual inflictions, except in cases of murder, and in crimes against the state or emperor. The punishment of treason extends even to the ninth generation. A traitor's blood is supposed to be tainted, though they usually satisfy the law by including only the nearest male relations, then living, in the guilt of the culprit, and by mitigating their punishment to that of exile. Theft is never punished with death; nor is robbery, unless it be accompanied with personal injury. The moderation of those punishments seems to imply the infrequency of the offence. In a variety of capital punishments, strangulation is deemed less infamous than decapitation: the separation of any part of the body from the remainder being considered as particularly disgraceful. The punishment of the *Cangue*, which consists of an enormous block of wood, with a hole in the middle, to receive the neck, and two smaller ones for the hands of the offender, is generally inflicted for petty crimes. This ambulatory pillory the culprit is sentenced to wear for weeks or months together, provided he is able to walk about, but he is generally glad, for the support of his degrading burthen, to lean against a wall or a tree. If a servant of a civil magistrate takes it into his head that the culprit has rested too long, he beats him with a leathern whip till he rises. The punishment of the bamboo, however degrading it must appear to

an European, is ordered upon a very summary hearing upon any individual not in the rank of mandarins; and a viceroy has not only the power of degrading lower officers, but directing, without the form of a trial, any punishment, not capital, on them. Every mandarin may make use of the baton, or pan-tzee, which is a flat piece of bamboo, broad at the bottom, either when any one forgets to salute him, or when he administers public justice. On such occasions, he sits at a table, upon which is placed a bag filled with small sticks, while a number of petty officers stand around him, each furnished with some pan-tzees, and waiting only for a signal to make use of them. The mandarin takes one of these little sticks and throws it into the hall of audience, upon which the culprit is seized, and receives five smart blows from the pan-tzee; if the mandarin draws another stick from the bag, a second officer bestows five more blows, and the punishment is thus continued till the judge is pleased to make no more signals; when the criminal is expected to prostrate himself in gratitude for the paternal discipline. Some crimes are punished either with banishment, or by being condemned to drag the royal barks for a term of years, or to have their cheeks branded with a hot iron. Children who are deficient in duty, are condemned to receive a hundred blows; and if they lift up their hands against their parent, or use abusive language, they are punished with death. The slightest punishment in China is the bastinado, which is only used for chastising those who are guilty of very trivial faults, and the number of blows is estimated according to the nature of the offence. The lowest number is twenty, when the punishment is considered as paternal correction. The emperor even orders it to be inflicted upon some of his courtiers, which, however, does not prevent them from being afterwards received into favour.

The order and administration of the jails are said to be remarkably good. The debtor and felon are confined in separate places, it being thought impolitic and immoral to associate guilt with imprudence or misfortune. The two sexes are likewise kept carefully apart. Confinement for debt is only temporary; but if after the delivery of all, the debtor's property be insufficient to satisfy the demands against him, he is liable to wear a neck-yoke in public, for a certain period, to induce his family, if able, to discharge the debt. If his insolvency has been incurred by gaming or other improper conduct, he is subject to corporal punishment and exile. A man may sell himself in China in certain cases, such as discharging a debt to the crown, or to assist a father in distress, or to bury him in due form. If his conduct is unimpeachable, he is entitled to his liberty at the end of twenty years; but if otherwise, he continues a slave for life, as do his children also, if he had included them in the original agreement. The emperor's debtors, if fraudulently so, are strangled; if through misfortunes, their wives and children, and property of every kind, are sold, and they themselves are sent to the new settlements in Tartary. In China, the interests of the emperor are always made the first object; no property can be secure against his claims. Disputes among individuals concerning property, do not fill up a large space in the transaction of Chinese affairs. Property, whether real or personal, is held by tenures too simple to occasion much difference of opinion as to the right to it. There are no entails nor settlements, and the little commerce they maintain with foreigners, together with the uniformity of their own principles, customs, and opinions; but above all, the union which exists in families, among whom, elsewhere, the exclusive rights of individuals occasion the greatest feuds; and the sort of community in which most of them continue in China, cut off the principal sources of dissension.

The halls of audience are, in fact, more engaged in solicitations than in contests; and men of talents are employed, sometimes, to support the cause of others, who are young, ignorant, or incapable; but there is no particular order of men, who subsist in affluence, as lawyers and attorneys; or who arrive at dignities like the former. The impartiality of the judge is endeavoured to be secured by appointing no man to that office in the province of which he is a native. He is, however, liable to be swayed by the weight of presents. Such offerings are universal from an inferior to a superior, and from a pleader to his judge. They are paid by both parties, and the value of the presents is not ascertained; it is even expected, that the offerings should be in proportion to the opulence of the donor. By the laws relating to property, women in China are excluded from inheriting, where there are children, and from disposing of property; but where there are no male children, a man may leave by will the whole of his property to the widow. The reason assigned for women not inheriting is, that a woman can make no offering to deceased relations, in the hall of ancestors. And it is deemed one of the first blessings of life, for a man to have some one to look up to, who will transmit his name to future ages, by performing, at certain periods, the duties of this important ceremony.

Natural Productions and artificial Curiosities of China.
Among the natural productions of China must be mentioned the tallow-tree, called by Linnæus *croton sebiferum*, from which the Chinese obtain a vegetable fat for their candles. This fruit, in its external appearance, bears some resemblance to the berries of the ivy. As soon as it is ripe, the capsule opens and divides into two or three divisions containing kernels, each attached by a separate foot-stalk, and covered with a white fleshy fat substance. The fat is separated from the kernels by crushing and boiling them in water, and the candles made of it are firmer than those made of tallow, and free from all offensive smell; the wicks are generally made of a light inflammable wood, in the lower extremity of which is pierced a small tube, to receive an iron pin, which is fixed on the flat top of a candlestick, and thus supports the candle without the necessity of a socket. The tallow-tree is said to have been transplanted to Carolina, where it flourishes as well as it does in China. Sugar canes are very much cultivated in China; the plantations of which, belonging to individuals, and being but of little extent, the expense of erecting sugar-mills is too heavy to have one upon each plantation. The business of extracting the juice of the cane, and of boiling it into sugar, is there a separate undertaking from that of him who cultivates the plant. The boilers of sugar travel about the country, with a small apparatus sufficient for their purpose, but which a West India planter would consider as inefficient and contemptible. It is not a matter of great difficulty to travel with this apparatus, as there are few plantations of which some part is not accessible by water-carriage. A few bamboo poles and mats are deemed sufficient for a temporary building; within which, at one end, is fixed a large iron cauldron, with a fire-place and flue, and about the middle, a pair of cylinders or rollers, fixed vertically in a frame. Upon the top of the axis of one of the cylinders, prolonged above the frame, are fixed two shafts or levers, curved in such a manner as to clear the frame in turning round the rollers, and to the end of these shafts are yoked two buffaloes, who, moving round as in a common cattle mill, press the canes between the cylinders, and express their juice, which is conveyed through a tube into the cauldron. The canes, deprived of their juices, become fit fuel, by means of which those juices are boiled into a proper consistence for

granulation. The boiler of sugar endeavours to enter into an agreement with several planters at a time, so that his works, erected near the centre of their several plantations, may serve them all, without changing his establishment. During the time he is employed, the servants and children of the planter are busily engaged in carrying canes to the mill. The canes are planted very regularly in rows, and the earth carefully heaped up about the roots; and under the roots of the canes is found a large white grub, which, fried in oil, is eaten as a dainty by the Chinese. In the neighbourhood of the canes are likewise several groves of orange trees, of the fruit of which there is a great variety in size and colour. The pines, which bear large cones, have kernels much relished by the Chinese; and every mountain, either too steep, or too rocky, to be applied to any other use, is planted to the top with various kinds of pines, but most generally with the larch, as preferred for the purposes of building.

On the sides and tops of earthen embankments, dividing the garden grounds and groves of oranges, the tea-plant is seen growing like a common shrub scattered carelessly about. Wherever it is regularly cultivated, it rises from the seed sown in rows, at the distance of about four feet from each other, and is kept very free from weeds. Vast tracks of hilly land are planted with it, particularly in the province of Fo-chien; its perpendicular growth is impeded for the convenience of collecting its leaves, which is done first in spring, and twice afterwards in the course of the summer. The largest and oldest leaves, which are the least esteemed, and destined for the uses of the lowest classes of the people, are often exposed to sale with scarcely any previous preparation, but the young leaves require much trouble before they are fit to be delivered to the purchaser. Every leaf passes through the fingers of a female, who rolls it up almost to the form it had assumed before it became expanded in the progress of its growth. It is afterwards placed upon thin plates of earthen ware or iron, made much thinner than can be executed by artists out of China: these plates are placed over a charcoal fire, which draws all the remaining moisture from the leaves, and renders them dry and crisp. The colour and astringency of green tea is derived from the early period at which the leaves are plucked. The tea is packed in large chests, into which it is pressed down by the naked feet of the Chinese labourers. It is sometimes made up into balls, and sometimes a black extract is drawn from it, to which many virtues are attributed. This plant is cultivated in several of the provinces of China, seldom more northerly than about thirty degrees beyond the equator. It thrives best between that parallel and the line that separates the temperate from the torrid zone. Such immense quantities of tea are raised in China, that a sudden failure of a demand from Europe would not be likely to occasion any material diminution of its price at the Chinese markets, though it might be attended with inconvenience to particular cultivators. See THEA.

Another natural production of China is the pe-tun-tse, used in the manufactory of porcelain, which is a species of fine granite, or a compound perhaps of quartz, felspar, and mica, in which the quartz seems to bear the largest proportion. It appears from experiment that it is the same as the *growan stone* of the Cornish miners. The micaceous part, in some of this granite, often contains particles of iron; in which case it will not answer the potters' purpose. This material can be calcined and ground much finer by the mills of England than by the imperfect machinery of the Chinese, and at a cheaper rate than the prepared pe-tun-tse of their country, notwithstanding the cheapness of labour there. See PORCELAIN.

The bamboo is a curious and beautiful, as well as a valuable plant. It is properly a reed, hollow, and generally jointed; it is supposed to flourish most on dry ground in the neighbourhood of running water. Its growth is quick, attaining its height, about twenty feet, in a year and a half. It has the properties of being equally light and solid, and it rises out of the ground with a trunk of which the diameter contracts as its length increases; the branches of the bamboo are few, and of a light shining green; the leaves are long and delicate. Within the hollow of its joints is frequently found a singular substance of a siliceous nature, which has been used in some countries as a medicine. The Chinese reckon above sixty varieties of the bamboo, and apply it perhaps to as many uses. See ARUNDO.

Of all the artificial curiosities in China, their stately towers are the most striking to strangers, though built in a style peculiar to this country. There are two of these without the walls of Nanking, the most beautiful of which, styled the Porcelain Tower, because it is lined all over the inside with China tiles, beautifully painted, is the most admired by all travellers, for its height, symmetry, and variety of carving, gilding, and other ornaments. It is of an octagonal form, nine stories, or two hundred feet high, and forty feet in diameter; so that every side is fifteen feet in length. The whole is built on a large basis of brick, strongly cemented, which forms a stately perron, or flight of nine or ten steps, likewise of an octagonal figure, by which you ascend to the first story; and this perron is surrounded with a balustrade of unpolished marble on the outside. The first story, or, as it is called, the hall, is the highest of all, but has no windows, nor any light but what comes in at three spacious gates, which open into it. The wall is said to be about twelve feet thick, and eight and a half high, cased with porcelain, but of the coarser sort, and not a little damaged by age. From this you ascend to the second, and thence to all the other stories, which are of equal height, by a very inconvenient stair-case, the steps of which are ten inches high, and very narrow. Every story has eight large windows, one at every front. They all lessen, as they mount one over the other, so as to form, in the whole, a kind of cone, or sugar-loaf; and between each of them is a penthouse or shed, which projects some yards from the wall all around, and lessens in the same proportion the higher they rise. Each room is adorned with paintings and other ornaments, after the Chinese style, both on the sides and on the ceiling, whilst the outside is embellished with variety of work in basso-relievo, niches, and imagery. But the most beautiful part of the whole fabric is a kind of cupola, which arises thirty feet higher than the uppermost story, and is supported by a thick mast, fixed at the bottom of the floor of the eighth story. This piece seems to be inclosed in a large iron hoop, all the way, which winds round it like a spiral line or screw, at the distance of several feet, so that the whole looks like a hollow cone rising in the air, and supporting on the top a golden ball of an extraordinary size. Such is the structure of that famed tower, which, whether of brick, marble, or whatever other material, is looked upon by Le Compte, and other authors, as the best contrived, most solid and magnificent work in all the East. Nieuhoff adds two circumstances concerning it, viz. that the ball, or pine-apple on the top, is reported by the Chinese to be of massy gold; and the other, that the tower hath stood seven hundred years, and was erected by the Tartars, as a monument of their having made themselves masters of the Chinese empire; whereas Le Compte affirms it to have been, in his time, of no more than three hundred years standing, and to have been built, together

with the Temple of Gratitude, by the emperor Yong-lo; to which opinion Du Halde seems to subscribe. Most of these towers have in the uppermost gallery, and at every angle, small bells hanging at some distance, by chains or wires, which are easily moved by every blast or wind, and make an agreeable tinkling. But the greatest delight which these kinds of structures afford, is the charming prospect of all the country, exhibiting an incredible number of villages, orchards, gardens, meadows, towns, and monuments. They have a prodigious number of temples, both in town and country. The most celebrated of them are built in barren mountains; to which, however, the industry of the natives hath given beauties which were denied to them by nature; such as canals, cut at a great expence, to convey the water from the adjacent heights into proper reservoirs, for the use of the bonzes and their votaries; gardens, groves, and deep grottoes, cut into the rock, to shelter them from the excessive heat; circumstances which render these solitudes delightfully romantic. These structures consist partly of fine porticos, paved with large square polished stones, and partly of halls and pavilions, reared in the corners of the courts, having a communication with each other by galleries, adorned with statues either of stone or brass. The roofs of these buildings shine with beautiful japanned tiles, of green or yellow, and are embellished at the corners with dragons of the same colour. The rest of those buildings are built of timber, and most of them have high towers. Most of the cities have large bells set up in their high towers, by which they give notice of the different watches of the night; and those which have no bells make use of large drums. Some of their bells are of a monstrous bigness and weight; but the largest of all are those of Nanking and Peking. Le Compte mentions seven they have in the latter of these cities, that weigh one hundred and twenty thousand pounds. This is nearly five times the weight of that at Erfurth in Saxony, which Kircher supposed to be the largest in Europe. But the Chinese bells are very much inferior to those of Europe in sound; their clappers are of a hard wood. Their metal is very coarse, and full of knots, and their shape ill-contrived, for they are almost as wide at top as at bottom, their thickness gradually lessening from the bottom upwards; so that, upon the whole, they are mere unwieldy masses of metal, without musical tone, or any thing worth notice, but their huge, dull, heavy sound, and prodigious weight. The last artificial curiosity we shall mention, is their surprising fire-works, in which they may be justly said to excel all other nations. This was the chief use they made of gun-powder, which it is said they had among them many centuries before it was known in Europe; they used to exhibit these fire-works at their solemn festivals and other grand occasions, and in a great variety of figures and representations. They have carried this art to such perfection, that they can give to every object its true form and natural colour. Magaellan relates, that he saw one of them which represented a vine-arbour, that burned without consuming, the root, branches, leaves, and grapes of which appeared all in their true shape and colour; the grapes were red, the leaves green, and the stem and branches exactly imitated nature.—*Asiatic Researches*. *Univ. Hist. Anc. and Mod. Hist.* *Univ. d'Anquetil*. *Playfair's Chron.* *Sir George Staunton's Embassy*. *Phillips's Inland Navigation*. *Grosfier's Description of China*. *Barrow's Travels*. *Pinkerton's Geography*.

CHINA, or *China-ware*, in the *Manufactures*, a fine sort of earthen-ware, otherwise called *porcelain*; which see.

CHINA, *gilding on*. See GILDING *on China*.

CHINA, *party*. See PARTY.

CHINA, *broken*, a cement for. See CEMENT.

CHINA *pink*, in Botany. See DIANTHUS *Chinensis*.

CHINA *rose*. See HIBISCUS; ROSA *Chinensis*.

CHINALAPH, in *Ancient Geography*, a river of Africa, the most considerable in the Numidia *Maffylorum*, or present state of the Algerines, who call it *Shellif*. It takes its rise in the Sahara, or Desert, at the distance of about 80 miles to the S.E. in N. lat. $35^{\circ} 2'$. The fountains which form its source, from their number and contiguity, are known amongst the Arabs by the name *Sebbiene Aine*, or *Sebaoun Aïoun*, the fountains. In its course it receives the *Midroe*, the *Harbene* at the town of *Medea*, the *Toddah*, or *Silver river*, the *Archew*, the *Mina*, *Woriffa*, and *Fagia*. See SHELLIF.

CHINCHA, in *Geography*, a fertile valley of South America, in the province of Peru, where the ancient Incas had a temple dedicated to the Sun. It was formerly very populous, but now contains about 500 families. The town, whence the valley derives its name, is situated about 10 miles N. of *Pilco*.

CHINCHE, in *Zoology*: Buffon calls the *Viverra Mephitis* by this name. *Skunk zweefel* of Pennant.

CHINCHILLA, in *Geography*, a town of Spain, in the province of Murcia; 25 leagues S.W. of Valencia.

CHINCHIMEN, in *Zoology*, a name given by Molina and Pennant to the *Lutra felina*, or otter, with the shape and appearance of a cat; its length from nose to tail is 20 inches. Molina (*Chili*, 265), says, that it inhabits the sea of Chili. It swims about in pairs, and loves to bask in the sun, on the tops of rocks; and, when taken, has all the fierceness of a wild cat.

CHINCHINA, in Botany. See CICHONA.

CHINCHIO, in *Geography*, a town of European Turkey, in the province of Dalmatia; 6 miles E. of *Spalatro*.

CHINCON, a town of Spain, in New Castile; 18 miles E.S.E. of Madrid.

CHIN COUGH, also called *Kink-cough*, and *Hooping-cough*. See PERTUSSIS.

CHINCULAGUA, in *Geography*, a snowy mountain of South America, in the Cordilleras of the Andes, in the province of Quito, N. of *Cotopaxi*, and of a somewhat less size.

CHINE, in the *Manege*, is used for the back-bone, or the ridge of the back of a horse. The French call it *echine*; and the ancient Italian masters *esquine*.

CHINE, *La*, in *Geography*, a village of Canada, seated on the island of Montreal, about 9 miles higher up, whither goods are sent from Montreal in carts, on account of the rapids in the river St. Lawrence just above the town. This village is built on a fine gravelly beach, at the head of a little bay near the lower end of lake St. Louis, which is a broad part of the river St. Lawrence. Its situation is very agreeable; and from some of the storehouses belonging to the king and to the merchants of Montreal, are charming views of the lake and of the country on its opposite side. In the king's storehouse, the presents for the Indians are deposited as soon as they arrive from England. In sight of La Chine, on the opposite side of St. Lawrence, stands the village of the *Cachenonaga* Indians, containing about 50 log-houses and a Roman Catholic church, built in the Canadian style, and ornamented within with pictures, lamps, &c. The number of the *Cachenonagas* in this village is estimated at about 150; the other Indian villages in the civilized parts of Lower Canada are, one of the *Canasadogas*, situated near the mouth of the *Utas* river; one of the little *Algonguins*, near *Trois Rivières*; one of the *Aberachies*, near the same place on the opposite side of the river;

and one of the *Hurons*, near *Quebec*; but none of these villages are as large as that of the *Cachenonagas*. The *bateaux* that navigate the river St. Lawrence ascend from this place by means of poles, oars, and sails.

CHINESE *Chronology*. See CHINA and CHRONOLOGY.

CHINESE *Coin*. See CHINA.

CHINESE *Language*. See CHINA.

CHINESE *Music*. This subject, of which we knew so little, except from *Pere du Halde*, whose information did not much enlighten us, has been so amply treated of late years, by *Pere Amiot*, the *Abbé Rouffier*, *M. La Borde*, and the authors of the *Encyclopédie Méthodique*; that little would remain to be said, if we had not other resources from which to draw that which may, perhaps, vary our narrative, if not instruct the reader. The author of the present article, when collecting materials for his "General History of Music in every civilized part of the Globe," did not forget China, the most ancient, extensive, and polished, empire that exists. He sent queries to an English gentleman, a good judge of music, who had resided many years at Canton, and who transmitted them to different distant provinces, whence he obtained answers in French and Italian, from missionaries long resident there; and our correspondent at Canton not only transmitted to us their answers, but sent with them a complete set of Chinese instruments; among which there was every species of flutes, several stringed instruments of the lute and guitar kind, the *pao*, formerly called *yu*, *teheo*, *he*, and *ching*, the appellation to which we shall adhere in the course of this article. The *ching* is a beautiful instrument, which has a gourd, or bamboo, for its basis, and represents in the arrangement of its reeds or bamboo pipes, the column of an organ; with these we received the largest gong which had ever been brought to England. These instruments were accompanied by Chinese airs in Chinese characters of notation, and in those of Europe, with a treatise on music translated into French from the Chinese, and a poem by the late emperor, *Kien-Long*, on the suppression of a rebellion in a distant province from the capital. These are dated Canton, 1775 and 1777. Further information from books and various other inquiring friends, was accumulated before lord Macartney's embassy took place; when, by his lordship's friendship and liberal spirit of research, not only for the satisfaction of his own mind, but the service of others, he extended his patronage so far as to desire the musical historian to write down a series of questions, not only concerning music, but any thing else that was wished to be investigated; and satisfactory answers were received to most of the queries delivered, at his lordship's return; drawn up by the learned and ingenious Mr. Hüttner, travelling tutor to the son of the late sir George Staunton, a gentleman, who, previous to the Chinese voyage, had resided a considerable time at Naples, and is a well-informed musician. Another chest of instruments, and a gong were added to the collection by the kindness and liberality of lord Macartney, and from all these materials, we shall endeavour to furnish curious inquirers after Chinese music, with as much information as can be compressed into the space usually allowed to articles of a similar kind.

Music has powers so opposite over human affections, that wherever it is cultivated it is sure of at least two sets of friends of very different dispositions, the *grave* and the *gay*. It can equally soothe and exhilarate. The Chinese, the most grave, formal, and frigid people on the globe, boast the having framed the proportions of musical tones into a regular system 4000 years ago, not only long before the time of Pythagoras, but that of the Egyptian "Hermes Trismegistus,"

CHINESE MUSIC.

megistus," or the establishment of their mystagogues or priests. But music, like other ancient arts, has so much depended on the tranquil and prosperous state of the nations by which it has been patronized, that, after being invented, cultivated, and brought to a certain degree of perfection, it has partaken of all the vicissitudes and calamities of states, and has been so totally lost during the horrors of invasion, revolution, and ruin, that if, in a long series of years, prosperity should return, neither its music nor its system is to be found, unless a such fragments as, according to M. Baillie's astronomy, we now possess of the theory and practice of the ancient Greek music. The Chinese in their old books have the numbers of their ancient scales as we have at present the ratios of Euclid and Ptolemy, which give us (according to the abbé Rouffier) the "true dimensions of each tone, and their reciprocal generation," which are insupportable on our keyed-instruments. So that music being lost after the crush of kingdoms, is again to be found by long labour, study, and experience; again to be lost, and again to be found! *per omnia secula seculorum*.

It is well known in Europe (says and believes Pere Amiot) that Egypt had its Mercury Trismegistus, (thrice great,) who, by the sweetness of his lyre, civilized mankind. It is likewise as well known that Greece had its Orpheus and Amphion, who by their strains stopt the course of rivers, made rocks dance, and even in the infernal regions silenced Cerberus himself; but Europe has still to learn that China has had its philosophical musician, its Lyng-tun, its Kouci, and its Pin-mou-kia; whose strains have been equally miraculous in taming the most furious wild beasts, and in civilizing mankind, often more ferocious than beasts themselves. Pere Amiot de la Musique Chinoise.

The first chapter in the history of every great nation is mythological, and never to be literally understood. And to say the truth, there seems at present in the music of China less enchantment than in our own. Yet the vulgar of all nation prefer their old traditional tunes to the finest compositions, and most exquisite performances that have ever been heard in an opera-house.

"During the first years of my residence at Peking," says the reverend missionary, "I lost no opportunity of trying to convince the Chinese, that our music was superior to theirs. I was pretty well versed in the art; I performed on the German flute and harpsichord, and those I wished to please were not of an ignorant or mean order, but persons well educated and qualified to compare and judge; in short, persons of the first rank, who, honouring the French missionaries with their benevolence, frequently came to their house to converse with them on objects of science, and such arts as were cultivated in China.

"Les Sauvages, and Les Cyclopes, the most admired harpsichord lessons of the celebrated Rameau, the most beautiful and brilliant solos of Blavet for the German flute, made no impression on the Chinese. I saw in their countenances only a cold and absent air, which convinced me that nothing I played was at all felt. I asked them one day what they thought of our music, and begged them to speak sincerely. They answered with the utmost politeness possible, that, "our music not being made for their ears, nor their ears for our music, it was not surprising that they did not feel its beauties, as they did those of their own country." "The airs of our music (adds a doctor among them, called Han-lin, and then in the service of the emperor) pass from the ear to the heart, and from the heart to the soul." We feel, we understand it: what you have been playing has no effect on us: the airs of our ancient music were still of a higher order. They were not to be heard without rapture. All

our books abound with the most pompous encomiums of its charms; but at the same time they inform us how much the excellent methods employed by the ancients in producing such marvellous effects were lost, &c."

If Pere Amiot had tried to convert the Chinese to a love for European music by French singing, we should not have wondered at his failure; but the instrumental pieces of Rameau and Blavet were justly admired in their day; and there have been long a neatness and precision in the execution of instrumental music in France, which has not been exceeded in any other country; so that if Pere Amiot did justice to the touch-stones with which he tried the feelings of the Chinese, it was natural to expect a different result.

But a similar disappointment happened to the English musicians during lord Macartney's embassy. His lordship took with him a complete military band of wind instruments, several of whom were able occasionally, to perform well on the violin and the violoncello. But the Chinese seemed wholly unmoved by the perfect execution of the best pieces, of the best composers, in Europe. Among the presents which his excellency took to the court of China, was a good barrel organ, made by Gray, as a curious specimen of our mechanism, upon which, besides our best popular tunes, were set several favourite airs of their own country; to some of which a base was added, and others were set on the barrel in their native state, without any accompaniment whatever. The first they did not feel, and the others, perhaps, from not being played in the time and with the expression to which they were accustomed, they would hardly acknowledge. As it was well known that, with all their long cultivation of music, the Chinese had not arrived at counterpoint, or music in parts, the author of this article tried to betray them into a love of harmony, and "the concord of sweet sounds."

Being in possession of the melody to the hymn that is annually sung by the Chinese with the utmost pomp, reverence, and solemnity, in honour of their ancestors, in the presence of the emperor, entitled, "The Son of Heaven," attended on this occasion by his sons, all the princes of the blood, the great officers of state, the Mandarins, the lettrés, men of science, &c. and whose arrival is the signal for the commencement of the hymn; and the melody to this hymn being, like our psalmody, entirely composed of slow notes of equal length, it was thought a good foundation on which to build harmony in plain counterpoint; and as there are many stanzas to this hymn, a fundamental base only was added to the melody at first; then a second treble; and, afterwards, a tenor; after which a little motion was given to the base, followed by other additional notes to the tenor and base, but always taking care to enforce the principal melody by one of the other parts, either in unison, or in the octave. But this had no other effect than to try the patience and politeness of the Chinese, who heard it without emotion of any kind. And when it was over, one of the Mandarins, an accomplished man of good sense and good breeding, who attached himself to our ambassador, and seemed impressed with a sincere friendship for him, said, but with the utmost politeness, that "he doubted not but that our music was very fine to ears accustomed to it; but that they were not able to understand it. The additional parts confused and bewildered them; they disguised the air, and rendered it doubtful which was the principal sound, adding that such music was too complicated for them, and required more attention than they were accustomed to give to their own airs."

Such are the effects which our harmony has on the ears of the most enlightened Chinese, and indeed on those of all nations out of Europe. So that the opinion of Rousseau,

that...

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that "our harmony is only a Gothic and barbarous invention, which we should never have thought of, if we had been more sensible to the true beauties of the art, and to music truly natural," almost ceases to be a paradox.

We shall now endeavour to give a synopsis of the ancient musical system of the Chinese, which, if its chronology is just, must have preceded every other regular system upon earth.

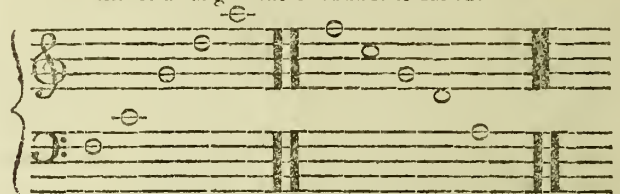
The system of Chinese music bears date from the beginning of the monarchy, at least 2637 years before the Christian era; a proof, according to Pere Amiot, that the Chinese are the original authors of the system of music, which has been so long known in their country; and if it has been altered and abridged in later ages, it must have been from the corruption and decay of the first principles upon which it was founded; and from its being mixed and united with vain and absurd sciences, such as divination by numbers, and judicial astrology, that men of true science have abandoned.

The Chinese have had, at every period of their history, an universal system, united in all its points, to which every thing was connected and referred, as well in politics, as physics and morality. To this system they have wished, in some way or other, to make the rules of music accord as well as those of other sciences, connected with their religious and civil establishments. And Pere Amiot, being pressed to declare what were the peculiar excellencies of the primitive music of the Chinese, from which it derived its miraculous powers, and whether he thought they had ever known harmony or music in parts, similar to that of modern times? he answered in the affirmative; and added, that he thought the Chinese were probably the nation in the world that has best known harmony, and most universally observed its laws. But what is this harmony? "It is that which consists in the general accord of all things natural, moral, and political, including whatever constitutes religion and government; an accord of which the science of sound is only the representation and the image." So that the expressions concerning this divine music, of which the learned missionary and the Abbé Rouffier have laboured so much to explain the laws, are only allegorical and figurative! even the form of their musical instruments was metaphorical.

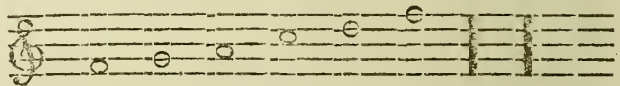
Their historians tell us that Fohi, the founder of the Chinese empire, 2952 B.C., was likewise the inventor of music; that in framing the instrument called *kin*, a long instrument strung with silken strings; the belly of which was curved to represent the heavens; the back was level to represent the earth; he placed the dragon (the symbol of China) eight inches from the bridge to represent the eight points of the winds, and gave four inches to the neck of the *Foung-Hoang* to represent the four seasons of the year. This instrument was furnished with five strings to represent the five planets and the five elements, and its total length is fixed at seven feet two inches to represent the universality of things. By means of this instrument he began by regulating his own breast, and confining his passions within just bounds; he afterwards laboured at the civilization of mankind; he rendered them capable of obeying laws, performing actions worthy of recompence, and of peaceably cultivating the earth, which gave birth to the arts. Fohi had patriarchal longevity, having reigned 115 years.

This is all symbolical and imaginary music; all that concerns real music that is intelligible is, that (according to Pere Amiot) long before Pythagoras, or any of the ancient sages of Greece, had travelled into Egypt, before the establishment of Hierophants, and even before the time of Mercury himself, the Chinese knew the division of the octave into twelve semitones produced by a gammut or series of fourths

and fifths by the Abbé Rouffier's favourite *triple progression*. Of this series of perfect fifths, however, the ancient Chinese used only five, beginning at F, the fundamental of their system, which produced the following treble scales either way, by beginning at the top or bottom of their great *Lu*, as each distinct arrangement of sounds is called.



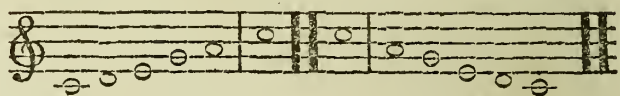
And by giving to these sounds a regular diatonic progression, they furnish the following scale without semitones:



and which is, in fact, the precise Scots scale, that may be played on the short keys of a harpsichord, or piano forte, in G b or F *, for example:



Beginning in C, the scale would be equally deficient.



Had they pursued the series of 5ths two degrees further, they would have had E and B; which would have furnished the two semitones necessary to complete the scale in C natural.

The *kin* (which may be called the lyre of Fo-hi), all agree, had at first but five strings, which were afterwards increased to seven. But in process of time, they were again reduced to five, on which the tunes in present use seem chiefly to be formed, as those that are genuine, and not adulterated by Europeans, who write them down by memory, have no semitones.

Pere Amiot's book is crowded with scales, systems, calculations, and diagrams, which leave us as much in the dark as ever; as to what this learned music was, which ancient sages regarded as the universal science, the science of sciences, whence all other sciences flowed.

Father Amiot did not well know what to do with his Chinese musical discoveries, till he saw the Abbé Rouffier's Treatise on the music of the ancients; nor the Abbé how to illustrate his Pythagorean ideas, till he saw the papers of Pere Amiot, of which papers he afterwards became the editor, and published them in the sixth vol. *des Mémoires concernant l'Histoire, les Sciences, les Arts, &c. des Chinois*. In explaining and commenting the work of Pere Amiot, the Abbé had a good opportunity, which he did not neglect, of harmonizing the Chinese system with his own.

Not a passage of the ancient music is preserved, or the least

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least idea suggested of what kind it literally could be; but after all these scales and calculations which seem to imply that real practical music, "which at once delighted the sense and gratified the mind, by the evidence of demonstration;" we find that it was an allegorical music, as inaudible as that of the spheres.

Father Amiot observing that the Abbé Rouffier spoke favourably of the Chinese, in his *Memoire sur la Musique des Anciens*, says, the Abbé Rouffier might, with the assistance of the Chinese, have become the flambeau; at once to enlighten men of letters and harmonists; the first by a research into ancient usages, and the last in recovering to China that kind of musical omnipotence which it formerly enjoyed, and which it has unhappily since lost.

This is another specimen of the wide extent of father Amiot's musical creed.

But one of his countrymen, a gentleman to whom queries concerning Chinese music had been sent, who had resided many years at Peking, and who seems to have understood the subject better than Pere Amiot, says, "To hear the Chinese talk of their music in ancient times, we should suppose it to be something marvellous; they confess, themselves, that not a vestige of it remains, and never cease deploring its loss: but for my part, I can hardly believe that their ancestors had carried the art of music to such a high degree of perfection; if they had, the present Chinese could not fail to have a kind of music at least tolerable, and I am inclined to be of the same opinion as one of their lettrés, who told me, that what we read in their books concerning the excellence of their ancient music, should not be understood literally, but figuratively, of the good harmony between the prince and people, and the different orders of the state."

The emperor Kan-hi, the grand-father of the late emperor Kien-long, who began his reign in 1662, and reigned 61 years (*Eloge de la Ville de Moukden, Poeme par l'Empereur Kien-long, 1770, 8vo.*), was a true lover of arts and sciences, who tried to procure from the Europeans residing at Peking all the knowledge possible on every sort of subject. With their assistance he had new books written in the Chinese language upon astronomy, mathematics, geography, medicine, &c. which ought to be recorded in our histories, that if in future times it is said that excellent books on these subjects have been written in China, it might be known to whom the best are due.

The ancient Chinese had no notation; but at present they express sounds by the characters of their language, in imitation of the Europeans. But they have no modulation, and consequently know not what is meant by a ♮, ♯, or half note.

In the southern part of China they have only five notes or tones in the octave; but in the north, bordering on Tartary, seven can be distinguished. The generation of the 12 *lu*, or scales, in this MS. tract, differ considerably from those of Pere Amiot. But these scales, in Chinese characters, for which we have no types, though they might gratify curiosity, could convey no more intelligence to the reader concerning the practical music of the Chinese, than those in the treatise of Alypius, in Meibomius, of the practical music of the Greeks, concerning which we know little more than the alphabet.

After the scales and table of the twelve *lu*, or orders of sounds, combined with the five tones, or rather table of the variations of different *lus*, the very intelligent correspondent of our zealous friend (Mr. R.) concludes thus: "This, sir, is all that I can at present communicate concerning the music of the Chinese, of which Kan-hi said with great truth, the more pains were taken to understand it, the more obscure

and perplexing it became, for want of being able to trace it up to its true principles.

"It was asked, whether eunuchs were employed as singers on the stage, or in the palace; and the answer was, that some from Europe had been introduced in the palace early in the reign of the late emperor, as musicians, to sing, play on instruments, and teach others; but that was not of long continuance; and now, as formerly, no other use is made of them than as guardians of the wives and concubines of the emperor and of great personages." This communication bears date, Peking, 1780.

We have a letter, likewise procured by Mr. R. from an Italian missionary, on the same subject, who had been near thirty years in China, and had been admitted into the imperial palace to perform to the emperor, among European musicians, who had been sent for, expressly, for that purpose.

Of the ancient music of the Chinese we can have no account but from books, equally fabulous with Egyptian mythology and the Grecian pantheon. But of the modern, we can form an idea, not very wide of the truth, by correspondence and conversation with intelligent persons, judges of European music, who have long resided in China, as well as by drawings of their instruments, and by the instruments themselves in our possession, and by specimens of Chinese melodies (they have had nothing else) current from time immemorial, and they are still current throughout the empire.

But the national airs of China being appropriated to particular times and occasions, are constantly recognized, felt, and understood; so that no Chinese Fontenelle need ask, "Sonate que vent-tu?" the times and the seasons would save him that trouble. Some of these airs are only publicly performed once a year, others twice, and the rest are usually confined to one particular occasion. In high antiquity the *nomoi* of the Greeks had all appropriate names and applications; and their ancient modes the same, which must greatly heighten their popular effects. "God save great George our King," in turbulent times, and "Rule Britannia" (which has supplanted "Britons strike home") in time of war, are proofs of the effects of appropriate tunes.

But the variety after which musicians and dilettanti are ever craving in Europe, prevents all popular effects from new music, however good the composition and performance. Fine music can never have the general effect of familiar and simple airs, which require no science to comprehend. Mr. R.'s friend says, that Pere Amiot has written a treatise of great length on the music of the Chinese, chiefly the ancient, which has certainly suffered many changes from time, and which is now very difficult to verify. It is by the Europeans that the notation which the Chinese now have has been furnished, from their own alphabetic characters. That given for the instruments does not correspond with the same European notes as the vocal.

The Chinese, formal and symmetric in every thing, have a specific number of airs for great occasions, which are never changed or varied.

1. *The court airs*, performed on the emperor's birth-day, and on days of ceremonial, but always when his imperial majesty is present.

2. *Airs to inspire true concord and national felicity*, performed at the beginning and end of each year, when the emperor ascends his throne.

3. *Airs of incitement to virtue*, when an eulogy on the emperor is read, and his imperial majesty offers sacrifice in a temple to the souls of his ancestors.

4. Ditto, on another day of sacrifice.

5. When his imperial majesty dines in public.

6. Airs performed after a grand council has been held, and the emperor returns to his apartments.

7. Ditto at the solstitial ceremonies, when the emperor offers sacrifice on a round altar.

There is a certain number of mandarins to superintend the musicians on all these occasions; the musicians, too, are limited to a certain number, and to instruments of different kinds, on different occasions.

This will account for the torpid state of the art, and the insensibility of the ingenious inhabitants of China to European music. People must learn to hear music, as well as to perform it. There is no forcing pleasure on any animal, and every man will be pleased his own way — “Not by compulsion, Hal!”

The Chinese began with simplicity, and habit has fixed that simplicity into an immutable law. The Europeans began their present poliphonic music with complication and eternal change of style; and effusions of unbounded imagination will preclude simplicity, and prevent any music from living to be superannuated, or becoming venerable for its antiquity.

On the grand annual feast given by the emperor when he receives the homage of governors of provinces, chiefs of tribes, tributary princes, &c. the grand music begins. It has nine strains, or movements, performed between the several courses, which are eight in number. The first music precedes the first course, the other seven are severally performed between and after the eight courses. Pere Amiot.

Of all the Chinese instruments which we have seen, or which have been described in books, there is no one which seems likely to please Europeans, except one instrument made of a sonorous stone, and another of small reeds of the bamboo. The instrument formed of the *pierre sonore* is of the highest antiquity, and mentioned with great encomiums in their most ancient book.

It is hard to say whether it was an invention of the original inhabitants, or brought thither by colonial invaders. The instrument is called the *king*, is made of all shapes and sizes, hanging like a bell, and beat with a covered mallet, like a *gong*. Its tone is as clear as if of glass or metal. This sonorous stone Pere Amiot believes to be metalline crystallized, of five different properties; hardness, weight, colour, grain, and tone. It is as hard as agate and precious stones; so that it resists the best tempered steel. The harder it is, the higher it can be polished, and the clearer its sound. It is so heavy, that a rude piece of it, such as one man might be thought able to carry, requires four to move it. As to colour, it partakes of yellow, carnation, white, red, cinnamon, and deep brown. It oft resembles marble of five colours.

The principal use made of these *pierres sonores*, is giving signals for a concert to begin or end: the entrance or exit of the emperor, or other great personage, as in Europe by a great bell or cannon.

As to the pitch and tuning of these lapidary instruments, the Abbé Roussier tries hard to prove it to be from the datum F, in the triple progression.

These instruments are suspended by a ring, or rings, to a frame, and the largest give the national pitch, F, to which the rest are proportioned. (See *Plates, Music*.)

One of the most useful qualities of the *King*, is, that its pitch is never subject to variation, by heat or cold, like instruments of wood or metal.

The Chinese have such a reverence for this instrument, that they hold it profanation to use it on common occasions, as the Germans do an organ; and think the English very profligate in using it any where but in a church.

Pliny l. 3. c. 10. mentions a sonorous stone, under the

title *Καλυφωνος*. “*Calcyphonos nigra est; sed illisa, æris tinnitum reddit.*”

But the Ching is the only instrument that we have received from China which would please European ears. It is composed of reeds of different lengths, arranged into columns of organ pipes. See *Plate, Music*. Its tone is more sweet and delicate than that of any of our wind instruments. It is not loud enough for a theatre or concert room; but in a small apartment of a mansion, if cultivated by a musician of taste and science, it might be made the most exquisite and captivating of instruments. It has from 13 to 19 pipes, which speak either by blowing or inhaling, so that a tone may be continued to any length. It never speaks till a hole is stopp'd, and as many ventiges as are covered by the fingers, so many sounds will be produced; so that duets may be played on a single individual instrument, or even chords, which, if harmonically proportioned, like the tones of our instruments, would greatly delight ears well organized. But no scale has ever been sent to Europe which has come to our knowledge. Pere Amiot evades giving one. The master of the Ching is equivalent to organist or maestro di capella. These regals, as we may call them, are of different size and compass, and composed of a different number of reeds. The small Ching, of which we have three in our own possession, has 13 pipes or reeds, which, says the Abbé Roussier, give the 12 semitones of the octave above the generator, or principal. But query, how can we reconcile this to there being no semitones in Chinese melodies?

The belly of several stringed instruments in China is a section of the gourd or pumpkin.

Such is that of the Yee-Yen, which is played with a bow, and has two strings which are tuned fifths.

But the Ching has sometimes a section of the cocoa-nut for its basis. This instrument is composed of many pipes; each of its reeds has a different tone, produced by a very narrow, thin, brazen or copper plate, such as is used in the reed-work of an European organ.

The scale to this sweet little instrument, remains the grand desideratum in Chinese music.

The Chinese vocal music is not likely to please any other ears than their own. Most of them, even boys not excepted, sing in falsetto, and it seems as if a natural voice was as much disliked by them, as the original shape of a woman's foot. Nor did the officers or attendants in lord Macartney's embassy ever hear in China a base or tenor voice. This unnatural method of singing is not improved by the perpetual tumultuous motion of the voice.

The sound of a double base they detest; yet, notwithstanding their dislike of low tones, on their seeming to like the bassoon better than any other of our wind instruments, lord Macartney offered to give it them; but they declined the acceptance, and immediately set a joiner to work, who placing it on the ground, took the exact dimension of its several joints, keys, &c. and made one for themselves.

The Chinese have theatrical dramas, with and without music. Of the latter kind are their comedies and farces. But their tragic scenes are generally accompanied with all the noise of drums, gongs, &c., and the screaming and bawling of mandarins, after which they commonly introduce love scenes and pastoral entertainments.

All the Chinese airs which we have seen or heard, are in common time. “At Canton (says Mr. Hüttner) we were surprised by an opera consisting of recitatives and airs that did not want expression. At least I observed that most of our party seemed to be highly pleased with them, and though ignorant of the Chinese language, to understand in some measure the meaning of the words, which, if I am not mistaken, was entirely

entirely owing to the excellent imitation of the different accents of the passions, and to their adequate movements and gestures. These players, natives of Nanking, reminded me of the famous music of ancient Rome. The instrumental music which constantly accompanied both recitatives and airs, was very pleasing and in excellent time.

"The military music of the Chinese is indeed miserable, and certainly not at all calculated to inspire courage. It has neither melody, expression, nor time. Hautbois and horns together make such a continued and jarring noise, as if they vied with each other to imitate the wawling of cats. Their horns, however, have a very good tone, and resemble our serpents.

"The best music we heard, was at the presentation of the ambassador at Geho. After the emperor had ascended the throne and a religious silence prevailed through the numerous assembly, we were struck with a delightful music from the great tent. The soft sound, the simple melody, the solemn progress of a slow hymn, gave at least to my mind that elevation to which only Handel's music can raise it. For a long time I remained doubtful whether I heard human voices or instruments, till the latter were seen by some that stood nearer; they were stringed instruments, and a sort of bamboo-syrinx. The hymn resembled those sung in protestant churches, but had no parts. Between each bar a seemingly metal cymbal sounded the tone of the following bar, which had a very good effect; but this was probably a large pierre sonore, and the bamboo syrinx was doubtless a ching.

"What the Chinese judged of the ambassador's band, I am not able to determine, but our interpreter told me, they liked their own music much better. They took great notice of the construction, neatness, and management of our musical instruments, as well as of our musical notation.

"For though the missionaries have introduced musical signs in China, they seem to be known only by a few individuals, more as a curiosity, than as the easiest and most accurate method of communicating musical ideas. All the music we heard was played by rote, yet I have seen several printed Chinese books of music or musical notes.

"The gentlemen in the ambassador's suite, who are fond of music, sometimes used to take a part in the concerts performed by the band. At this some of the mandarins were surprised: upon my inquiring the reason, I learnt that they, like the Romans, thought music no proper amusement for a gentleman."

That the exquisite harmony with which Mr. Hüttner was so surprised and pleased on the day of presentation in the great imperial tent, was produced by the Ching, we have no doubt. That instrument, of which the tones are so extremely sweet, has harmony in itself, as every ventage in the swazuds, or pipes of which it is formed, when itopt by a finger of the player, produce a different tone; and as many holes as are itopt produce an equal number of sounds; and though we know not the scale, nor how to find the several notes, so as to form melody or harmony, yet by chance at different trials, we have found 3ds, 5ths, 8ths, and every interval consonant and dissonant in the diatonic scale.

Mr. Barrow's account of the music that was prepared for the ambassador and his suite at Canton, is the following:

On the arrival of lord Macartney and his officers at the factory, they found in the midst of a garden prepared for them on the opposite side of the river, "a company of comedians hard at work in the middle of a piece, which it seemed begun at sun-rise; but the squalling, and their shrill and harsh music, were so dreadful, that they were prevailed upon, with difficulty, to break off during dinner,

which was served up in a viranda directly opposite the theatre.

"Next morning, however, at sun-rise, they set to work a-fresh, but at the particular request of the ambassador, in which he was joined by the whole suite, they were discharged, to the no small astonishment of our Chinese conductors, who concluded, from this circumstance, that the English had very little taste for elegant amusements. Players, it seems, are here hired by the day, and the more incessantly they labour, the more they are applauded. They are always ready to begin any one piece out of a list of 20 or 30 that is presented for the principal to make his choice." *Travels through China.*

But though the music of the Chinese is severely censured by the gentlemen of the embassy, they all agree that they are excellent actors. The best of those that perform at Canton generally come from Nanking.

CHINESE *Philosophy, Poetry, &c.* See CHINA.

CHINESE *Stores.* See KANG.

CHINESE *Wall.* See CHINA and WALL.

CHINESE *Weights.* See CHINA and WEIGHT.

CHINESE *Wheel.* See WHEEL.

CHINEY, or CINEY, in *Geography.* See CHINY.

CHING, a town of China, of the third rank, in the province of Tche-kiang; 10 leagues S. of Chao-hing.

CHING, or CHING-TING-FU, a town of China of the first rank, in the province of Pe-tche-li, seated near a fine river, of an oblong figure, and walled, and near 4 miles in circuit. Under this are 32 cities, 5 of the second, and 27 of the third rank. Upon the adjacent mountains N. of it, which produce a great variety of medicinal herbs, are several superb monuments erected to the heroes of the Chinese, and one in particular, consecrated to the memory of the first emperor of the dynasty of Han.

CHING-CHEW, a city of China of the first rank, in the southern district of the province of Hou-quang.

CHINGE, in *Zoology*, the name given by Molina, who has first described it, (Chili 269,) to the *Viverra Chinge*, or black weazle, with changeable casts of blue, with a row of white spots from head to tail. In shape and general form, it resembles the *Chincha*, which see. It is a native of Chili; and Molina says, that the smell issuing from it is owing to a certain greenish oil, ejected from a follicle or receptacle near the tail. The Indians are said to value the skin of this species on account of its beauty, and to use it for various purposes, quilts, &c. &c. Shaw.

CHING-HAI, in *Geography*, a town of Asia, in the kingdom of Corea; 60 miles E.S.E. of Kang-tcheou.

CHING-HO-ANG, a mountain of China, in the province of Tche-kiang, near its capital, Hang-cheu, or Hang-tcheou-fou; on which stands a high tower, which, by the help of a large water-glass that is made to turn the hand of a dial, shews the hour of the day at a considerable distance; the figures of the hours being gilt, and about 18 inches long.

CHING-KYANG, or TCHING-IANG-FOU, a city of China, of the first rank, in the province of Yun-nan.

CHINGOLEAGUL, a small American island, near the coast of Virginia. N. lat. 37° 56'. E. long. 75° 26'.

CHING-GONGO, a river of Hindoostan, which rises in the Ellichpour country, and runs into the Godavery, 16 miles S.W. of Necmul.

CHING-NGHAN, or TCHIN-NGAN-FOU, a city of China, of the first rank, in the province of Quang-si.

CHING-TU, or TCHING-TOU-FOU, a city of China, the capital of the province of Se-chwen, or Se-tchuen, formerly the residence of the emperors, and one of the largest

and most beautiful cities of China; but in 1646, it was almost entirely destroyed during the civil wars which preceded the last invasion by the Tartars; its temples, bridges, and the ruins of its ancient palaces, are still objects of admiration to strangers. Father Martini, in his Chinese Atlas, mentions a singular bird that is seen in the neighbourhood of this place, called "tong-hoa-fang," or the bird of the flower; "tong-hoa," from which the vulgar pretend that it is produced, on account of the resemblance of its plumage to the colours of this flower; so that it is called the "living flower." This city has under its jurisdiction 6 cities of the second, and 25 of the third rank.

CHINIAN, *Str.*, a town of France, in the department of Hérault, and chief place of a canton, in the district of St. Pons. The place contains 2338, and the canton 7105, inhabitants; the territory includes 230 kilometres, and 10 communes.

CHINIZ, a town of Persia, in the province of Farfistan, situated on the Persian gulf; 140 miles W. of Schiras.

CHIN-KIEOU, a town of China, of the third rank, in the province of Ho-nan; 15 leagues N.E. of Yun-hing.

CHIN-LI, a town on the N.W. coast of the island of Hainan, of the third rank; 12 miles W. of Kiong-tcheou.

CHIN-MOU, a town of China, of the third rank, in the province of Chen-fi, on the river Kin; 50 miles N.N.W. of Kia.

CHINNA, in *Ancient Geography*, a town of Europe, in Dalmatia. Ptolemy. This is named Cinna in Antonine's Itinerary.

CHINNABALABARAM, in *Geography*, a town of Hindoostan, in the Myfore country; 85 miles N.E. of Seringapatam. N. lat. 13° 25'. E. long. 77° 56'.

CHINNAPUTTUN, a city of Hindoostan, with a fort of stone, in the Nizam's territories, 37 cosses, or about 56½ geographical miles W.N.W. from Sanore-Bancapour.

CHINNOR, an instrument of music among the Hebrews, consisting of thirty-two chords. Kircher has given a figure of it.

CHINON, in *Geography*, a town of France, and principal place of a district, in the department of the Indre and Loire; situated on the Vienne, and defended by a strong castle. The place contains 6106, and the canton 15,040 inhabitants; the territory includes 247½ kilometres, and 13 communes. It is distant 8 leagues W. S.W. from Tours, and 4½ S.E. from Saumur.

CHINQUIS, in *Ornithology*, the name given by some writers to the Tibet peacock, *Pavo Tibetanus*, which see.

CHINSE, in *Sea Language*, is used for thrusting oakum into a seam or chink, with the point of a knife or chissel.

CHIN-SHAN, or the *Golden Mountain*, in *Geography*, an island of China, situated in the middle of the river Yangtse-kiang, which rises almost perpendicularly out of the river, and is interspersed with gardens and pleasure-houses. Art and nature seem to have combined in giving to this spot the appearance of enchantment. It belongs to the emperor, who has built upon it a large and handsome palace, and on the highest eminence several temples and pagodas. The island also contains a large monastery of priests, by whom it is chiefly inhabited. In one of the plates annexed to the "Embassy to China," we have a view of this island.

CHINSURAH, called also *Houghy*, a town of Hindoostan, in the province of Bengal, situated on the western bank of the Ganges, 40 leagues from its mouth at Ingellee, about 19 from Patna, and 17 miles N. from Calcutta. The Dutch, who established a settlement in this place, obtained it by gift, or rather by purchase, from the Moorish government. It is partly built along the river, and requires three-

quarters of an hour to walk round it. On the land side it is closed by barrier-gates; within, it is very irregularly built; it has many markets or bazars, which are plentifully supplied with all kinds of goods and provisions; that of the money-changers, which is a long and broad street, is the handsomest. The principal houses are built of brick, with terrace-roofs, in the Moorish style; they consist only of one story, and are whitened on the outside with lime, which gives them an elegant appearance. Little wood is used in the buildings, because it is liable to be destroyed by the white ants. Instead of glass windows, frames of twisted cane are used. The apartments, thus guarded from the extreme heat which prevails for 8 or 9 months in the year, are spacious and airy, and provided on the south side with galleries or porticos, resting upon pillars. On the terrace-roofs the inhabitants take the evening air, and sometimes pass a part of the night with their friends. The houses, or rather the huts, of the poor Bengalees are mostly made of mud and straw, and receive their light through the entrance. The town has a handsome little church with a steeple. The lodge, formerly belonging to the Dutch East-India company, is an oblong square with stone walls, and called Gustavus fort. A battery of 21 pieces of cannon is thrown up, by the river side, for the purpose of firing salutes. Houghy is a Moorish fort, about half an hour's walk from Chinsurah; but it is not in a very defensible state. The English are now in possession of Chinsurah.

CHIN-TCHEN, a town of China, of the third rank, in the province of Chen-fi; 20 miles N. of To-g.

CHINY, or CINEY, a town of France, in the department of the Sambre and Meuse; and chief place of a canton, in the district of Dinant, seated on the Semoy, 9 leagues W. of Luxembourg. The place contains 1055, and the canton 5978 inhabitants; the territory includes 255 kilometres and 18 communes. Before the revolution, this town was the capital of a comté in the duchy of Luxembourg, which was of great extent, and included 13 cities or capital towns, and it was sometimes called imperial. After passing through the possession of several proprietors, since Bruno, the 27th archbishop of Cologne, and chancellor of the empire, erected it into a comté, about which time it was surrounded with walls; it was adjudged to the house of Austria, by the treaty of Ryfwick.

CHIN-YANG. See CHEN-YANG.

CHIO pear, a name given to a small species of pear, called also by some the bastard musk pear, from its resembling the little musk pear in its sweet flavour. Its skin is yellow streaked with red; it is of a roundish shape, and does not hang in clusters, but singly on the tree.

CHIOCCO, ANDREW, in *Biography*. 'Of the life of this ingenious and learned physician, we have few memorials. We only know he was a native of Verona, where he appears to have practised medicine, towards the end of the 16th and the beginning of the 17th centuries, and that he died there on the 3d of April, 1624. From his works it is that we obtain the information that he was well versed in the learning of the schools; that is, that he was intimately acquainted with the writings of Aristotle, and of Galen, whose dogmas he every where defends; and that he was more than moderately imbued with classical and polite literature. The following are among the most esteemed of his productions. "Questionum Physicarum et Medicarum Libri tres," 4to. 1564. He defends the practice of giving antimonial vomits, and insists that the source of urinary calculi is more frequently in the bladder, than in the kidneys. "Pforicum, seu de Scabie Libri duo, de contagii natura, &c. Carmina descripta," 4to. 1797. Haller gives a good character

character of this poem, which we have not seen, as also of his defence of the Siphilis of Fracastorius, against the strictures of Scaliger. "De Aeris Veronenfis elementia," 1597, 4to.; from the general longevity of the inhabitants, many of them having attained a great age, he argues for the salubrity of the soil and atmosphere of that city. He also wrote a treatise on contagious fevers, and of the utility of bleeding, with the view of removing obstructions: Alho "De Collegii Veronenfis illustribus Medicis et Philosophis, &c." 1623, 4to. The account of the writings of the persons commemorated, which should have formed a principal feature in the work, is very imperfectly performed. Haller Bib. Med.

CHIOCOCCA, in *Botany*, (from *χιν*, *snow*, and *κοκκος*, *a berry*.) Linn. Gen. 231. Schreb. 305. Gært. 150. Juss. 204. Vent. 2. 551. Cioccoque; Lam. Encyc. Clafs and ord. *Pentandria monogynia*. Nat. ord. *Aggregate*, Linn. *Rubiaceæ*, Juss.

Gen. Ch. *Cal.* Perianth small, superior, five-toothed. *Cor.* monopetalous, funnel-shaped; tube long, spreading; border five-ct-ft; segments equal, acute, reflected. *Stam.* Filaments five, filiform, the length of the corolla; anthers oblong, erect. *Pist.* Germ inferior, roundish, compressed; style filiform, the length of the stamens; stigma simple, obtuse. *Peric.* Berry roundish, compressed, crowned with the calyx, one-celled, (two-celled, Gært. and Brown). *Seeds* two, roundish, compressed, distant, (one in each cell, pendulous. Gært.)

Eff. Ch. Corolla funnel-shaped, equal; berry two-seeded, inferior.

Sp. 1. *C. racemosa*; climbing Snowberry-tree, or David's-root, Linn. Spec. Mart. 2. Lam. 1. Willd. Jacq. Amer. 68. Pic. tab. 69. Brown, Jam. 164. No. 1. 2. Lam. Illust. Pl. 160. (Lonicera, Linn. Spec. Edit. 1. Periclymenum; Plum. tab. 217. fig. 2. Dill. Elth. tab. 228. fig. 295. Jasminum; Sloan. Jam. tab. 188. fig. 5. (The Pandacqui of Sounerat Nouv. Guin. tab. 19. quoted by the younger Linnæus as a synonym of this species, does not belong to the genus, nor even to the natural order of Rubiaceæ, but is a species of Tabernamontana.) "Somewhat climbing; leaves broad-lanceolate; flowers in loose, lateral racemes: with one stipular tooth." Linn. jun. *Stem* six feet high or more. *Branches* smooth, loose, spreading out horizontally. *Leaves* petioled, opposite, acuminate, nerved, smooth, shining on the upper surface. *Stipules* minute, acuminate, within the petioles. *Racemes* axillary, opposite to the branches, simple, or subdivided, scarcely longer than the leaves, many-flowered. *Flowers* pale yellow, peduncled, usually in pairs, directed one way. *Berry* snow-white. There is a variety found in woods (No. 2. Brown) which grows to a much more considerable height, with long, cylindric, weak branches, which cannot support themselves without the aid of the neighbouring trees or shrubs. Its leaves are said to be smaller, somewhat convex, a little rigid; the racemes short and simple; the corollas a little larger, pale coloured, but purple at the corners. Jussieu seems inclined to regard it as a distinct species, but La Marck attributes the difference solely to the plant's being drawn up to a greater height in woods. The root has much the same bitter acrid taste with the seneka snake root, and is a strong resolutive and attenuant; a decoction of it is administered with success in obstinate rheumatisms and venereal complaints. A native of Jamaica, St. Domingo, and the neighbourhood of Carthage. 2. *C. barbata*, Mart. Willd. Forst. Flor. Austral. No. 96. "Erect; leaves egg-shaped; peduncles axillary, one-flowered; corollas bearded in the throat." A

native of the Marquesas, Society and Friendly islands in the South Seas.

CHIOCOCCA nocturna, Jacq. See *CESTRUM nocturnum*.

CHIOCOCCA paniculata, Linn. jun. Lam. See *PSYCHOTRIA paniculata*.

CHIONANTHUS, (from *χιν*, *snow*, and *ανθος*, *a flower*.) Linn. Gen. 21. Schreb. 26. Willd. 37. Juss. 105. Vent. 2. 302. Gært. 29. Lam. Ill. 23. Clafs and ord. *Diandria monogynia*. Nat. ord. *Sepiaria*, Linn. *Famineæ*, Juss.

Gen. Ch. *Cal.* Perianth one-leaved, four-cleft, erect, acute, permanent. *Cor.* one-petalled; tube very short, the length of the calyx, spreading, segments of the border four, linear, erect, acute, oblique, very long. *Stam.* Filaments two, three, or four, very short, awl-shaped, inserted into the tube: anthers heart shaped, erect. *Pist.* Germ egg-shaped; styles simple, the length of the calyx. *Peric.* Drupe round, one-celled. *Seed*, nut striated.

Eff. Ch. Corolla quadrid; divisions extremely long; drupes with a striated nut.

Sp. 1. *C. virginica*. Virginian snow-tree or fringe-tree, Linn. Sp. Pl. 1. Mart. 1. Lam. Encyc. 1. Illust. 1. tab. 9. fig. 1. Willd. 1. (*C. latifolia* and *angustifolia*; Hort. Kew. 1. 14. Amelanchier, Catf. Car. 1. tab. 68. "Peduncles three-cleft, three flowered." Linn. "Leaves ovate-lanceolate, somewhat pubescent underneath; drupes globular." Lam. A shrub from six to ten feet high. *Leaves* opposite, petioled, entire, from five to seven inches long, and about three broad. *Flowers* white, in pendulous paniced racemes; segments of the corolla eight or nine lines long, whence it has been called fringe-tree. Lam. A native of South Carolina and Virginia, in moist places on the banks of rivers; flowering in June. 2. *C. zeylanica*, Linn. Sp. Pl. 2. Mart. 2. Lam. Encyc. 2. Illust. 2. tab. 9. fig. 2. (*C. cotinifolia*, Willd. *Arbuscula zeylanica cotini foliis*, Pluk. Alm. 241. fig. 4.) "Peduncles paniced, many-flowered." Linn. "Leaves egg-shaped, villous underneath; drupes inversely egg-shaped." Lam. Nearly allied to the preceding, but differs in the shape of the leaves; the segments of the corolla also, as figured by Plukenet, are five in number, and shorter in proportion than those of *C. virginica*. A native of the isle of Ceylon. 3. *C. purpurea*, Lam. Ill. 3. (*C. zeylanica*, Willd.? *Thouinia nutans*, Linn. jun. Sup. 89.) "Leaves elliptical, quite smooth, veined; flowers purple, nodding." Lam. A native of Ceylon. 4. *C. domingensis*, Lam. 4. "Leaves egg-shaped, smooth on both sides: panicle terminal, somewhat cymose, calyxes with an even surface." A native of St. Domingo. Jos. Martin. 5. *C. compelta*, Swartz. Prod. Vahl. Symb. Mart. 3. Willd. 3. (*C. caribæa*, Jacq. Collect. tab. 6. fig. 1. Lam. Illust. 5.) "Panicles trichotomous; the last flowers somewhat capitate; calyxes villous; leaves lanceolate-oblong; anthers acuminate." Swartz. "Leaves smooth on both sides, very acuminate; calyxes ciliated." Jacq. A tree fifteen feet high, with a dusky ash-coloured bark. *Leaves* about half a foot long, an inch and a half broad, opposite, on short petioles, quite entire, thickish, firm, shining. *Flowers* snow-white, with long linear segments; bractes at the divisions of the peduncles, opposite, small, narrow, concave, sharp, somewhat villous; calyx deeply cleft; segments egg-shaped, acute, somewhat villous, ciliated at the edge; styles twice as long as the calyx. Jacq. A native of the Caribee islands. 6. *C. gheri*, Lam. Illust. 6. Gært. Fruct. tab. 39. fig. 6. "Drupe egg-shaped, attenuated at both ends, angularly furrowed." Fruit described and figured by Gartner from a specimen belonging to the botanic garden

den at Leyden. Plant unknown. 7. *C. incrassata*, Swartz. Prod. 13. Willd. 5. (*C. mayepea*, Vahl. Symb. 2. 1. Mart. 4. *Ceranthus Schreberi*, Gmel. Syst. Veg. 1. 26. *Mayepea guianensis*, Aub. Guin. tab. 31. Lam. Encyc. Illust. tab. 72. Juss. 319. Vent. 2. 312.) "Panicles axillary, trichotomous; flowers all distinct; anthers obtuse." A shrub five or six feet high, covered with a whitish bitter bark. Leaves seven inches long and two broad, oval-oblong, entire, thin, firm, ending in a point; petioles short, swollen and hard at the base. Flowers bracteate, small, white, of an agreeable smell. Fruit oblong, about the size of an olive; the fleshy part two lines thick, violet, succulent, bitter. In deference to the high authority of Swartz and Vahl, we have placed this plant under the present genus; although we are sensible that, if we can rely on the accuracy of Aublet's description, which appears to be the only original one in existence, a very considerable alteration must be made in the genuine character, before it can be fairly admitted. This alteration, however, we have not ventured to make, much doubting whether it would not be better to follow the French botanists in keeping it distinct. See *MAYEPEA*. A native of the forests of Guiana.

CHIONIS, in *Ornithology*, one of the synonymous names of the Sheathbell, *VAGINALIS ALBA*. *Forster; Lath. &c.*

CHIONITÆ, in *Ancient Geography*, a people of Asia, neighbours and allies of the Persians, according to Ammianus Marcellinus, who inhabited the vicinity of the Caspian sea, near the Geloni and Albani.

CHIORME, a band or crew of galley-slaves, and of *Bonavogliers*, or volunteers, who pull the oars in a galley.

CHIOS, now *Scio*, in *Ancient Geography*, an island of the Ægean sea, about 900 leagues in circuit, lying between Lesbos and Samos, and opposite to the peninsula of Ionia, from which it was probably detached, as it is now separated from the continent only by a canal or strait three leagues wide. To the ancients this island was known by the names of Æthalia, Macris, and Pithuyfa; but the most prevalent name was Chios, which some have derived from the Greek word *χιων*, *chion*, signifying snow, the mountains of the island being often covered with snow; but others, as Isidorus, are of opinion, that the name of Chios was borrowed from the Syriac, in which language it signifies mastich, with which this island abounds. Athenæus calls it a rugged and mountainous country; however, it produced excellent wine, and, on that account, it is highly commended by the ancients. Athenæus suggests, on an ancient authority, that the Chians were taught the manner of cultivating the vine by Oenopion, the son of Bacchus, and that they communicated this art to the rest of mankind. He adds, that the first red wine was made in this island. Strabo mentions the quarries of this island; and Pliny says that here was discovered the first jasper; but its chief produce is mastich. Vitruvius mentions a spring in Chios, the water of which deprived those of their senses who tasted of it, and therefore passengers were warned of the danger by an epigram inscribed over it.

Chios was also the name of the chief town of the island, which was seated on the eastern coast, in the most pleasant and fruitful part, and, according to Strabo, was 40 stadia in circumference. This city pretended to be the birth-place of Homer; however this be, it had the honour of producing several extraordinary persons; such were Ion, who flourished in the eighty-second olympiad, and is celebrated as an elegant writer of tragedies:—Theopompus, the disciple of Iſocrates, who, as some have thought, excelled his master, and wrote several books, and who flourished in the reigns of Artaxerxes Ochus in Persia, and Philip

the father of Alexander the Great, in Macedon:—Theocritus, the contemporary of Theopompus, who wrote some learned epistles, and the history of Libya:—and Metrodorus, a philosopher and physician, and the author of several books relating to physic, who flourished in the reign of Artaxerxes Mnemon, king of Persia, and, according to Suidas, was preceptor to Hippocrates and Anaxarchus. This city had a spacious harbour, capable of containing 80 vessels. Strabo says that this island was first peopled by the Pelasgians: Diodorus maintains that Macaræus and his followers settled here, after they had made themselves masters of Lesbos; but Herodotus's opinion, that the Chians were Ionians, has been more generally received. Their first government was monarchical; but Hippocles, one of their kings, being murdered by his subjects, for a pretended affront offered to the bride of one of the chief men of the island, the Chians formed themselves into a republic. In process of time, by the assistance of Iſocrates, they formed their republic on the plan of that of Athens; but they did not long enjoy the blessings of liberty, being, like the other small states of Greece, brought under subjection by their domestic tyrants. In ancient times, the Chians seem to have been a numerous and powerful people. They assisted the Milesians against the kings of Lydia; but after the defeat of Cræsus by Cyrus, they submitted, with the other islanders, to the conqueror; and in recompence for having delivered up Pactyas the Lydian who had excited his countrymen to revolt against the Persians, Mazares, the Persian general, conferred upon them the city of Atarneus in Mysia, reduced by the Persians; they were employed in all their naval expeditions, and they served Darius against the Scythians. However, in the Ionian revolt, the Chians readily joined Aristagoras, shook off the Persian yoke, and equipped 100 ships, each of which had 40 chosen citizens on board. In the sea-fight at Lade they distinguished themselves by their persevering valour; but at length, abandoned by their allies, they were overpowered, and obliged to run their ships aground at Mycale; whence they marched into the territory of Ephesus. Arriving thither in the night, while the women were celebrating the rites of Ceres, the Ephesians supposed them to be robbers, who were come to strip the women, sallied out of the city with their whole force, and killed them on the spot. After the defeat of the Ionians, Histæus, who had been the principal cause of their revolt, availing himself of the assistance of the Lesbians, reduced the whole island. But Histæus, unable to maintain possession of it, abandoned it to the Persians, who punished the Chians with the utmost severity. The most handsome of their youths they made eunuchs, and their daughters they sent to the king of Persia, after having destroyed their houses and temples, ravaged their territories, and reduced the few inhabitants that remained to a state of slavery. Having for some time continued subject to the Persians, they recovered their liberty, and flourished, according to Thucydides, above all the states of Greece, Lacedæmon alone excepted. They were favoured by the Athenians, who obtained the supreme command, above all their other allies, being exempted from tribute, and obliged only to furnish a certain number of ships. After some severe conflicts with the Athenians and with the Lacedæmonians, they returned to their ancient confederacy, in which they continued till the social war, when, become weary of their alliance with Athens, they joined the Rhodians and others, with a view of emancipating themselves from the Athenian yoke. After a war which lasted three years, they concluded an advantageous peace. Until the destruction of the Persian empire, they enjoyed uninterrupted tranquillity, and then they, together with the

the other Greek states in Europe and Asia, became subject to the Macedonian princes. Their city was unsuccessfully besieged by Philip, father of Perseus; and when he had abandoned the siege, they joined the Æolians in their war against him, and Prusias, king of Bithynia; and, in consequence of this impolitic alliance, their territories were laid waste, and all the open places in the island were utterly destroyed by the troops of the confederate princes. For the assistance they afforded to the Romans in their wars against Philip and his son Perseus, and Antiochus the Great, king of Syria, they were not only declared free, but honoured with the appellation of the friends and allies of the people of Rome. Sylla recompensed their persevering attachment to Rome, by restoring them to the possession of all their ancient rights and privileges, which they maintained, without disturbance, living in ease and plenty, till the reign of Vespasian, who reduced Chios, with the other islands of the Ægean sea, to the state of a Roman province; but at the same time he allowed the Chians to live according to their own laws, under the superintendence of a Roman prætor, whose province comprehended all the islands in the Ægean sea, from the mouth of the Hellespont to Rhodes. See SCIO.

CHIOS, a town of the island of Eubœa. Steph. Byz.

CHIOURLIC, in *Geography*, a town of European Turkey, in Romania, the see of a Greek bishop situated on a river of the same name; 50 miles N.W. of Constantinople.

CHIOZ, a town of Poland, in the palatinate of Sandomirz; 36 miles N. of Malogocz.

CHIOZZA, a small island of the Adriatic, near the coast of Italy, not far from the mouth of the Brenta, with a town of the same name, the see of a bishop, suffragan of Venice, containing three churches and eight monasteries; 31 miles S. of Venice. N. lat. $45^{\circ} 15'$. E. long. $12^{\circ} 14'$.

CHIPAWAS. See CHEPEWYANS.

CHIEPAU, (Buffon), in *Ornithology*, the *anas strepera* of Linnæus.

CHIEPOS, in *Geography*. See PAMPAS del Sacramento.

CHIEPEWYAN. See CHEPEWYANS.

CHIPPENHAM, a market and borough town of Wiltshire, in England, is situated on the banks of the river Avon, and on the great road leading from London to Bath; at the distance of 93 miles west of the former, and 13 east from the latter. It is noted in the Anglo-Saxon annals as a principal place of residence for the West-Saxon kings, and was bequeathed by the great Alfred to his youngest daughter, Ethelfleda. Of the ancient history of this town we have little on record; the most to be depended on is, that when Alfred, with inferior forces, had conquered the Danes, and made them sign a treaty, by which they engaged to quit the kingdom, they treacherously possessed themselves of this place, and, being strengthened by numbers of their countrymen, soon obliged the Saxons to disperse, and their monarch to seek security in disguise, and take refuge in the cottage of a neatherd.

This town, in the time of Richard II., belonged to the Hungerford family, but reverting to the crown by the death of lord Hastings, was given, by Richard III., to John Howard, duke of Norfolk. It was restored by Henry VII. to the heirs of its former possessors.

Chippenham was a borough by prescription; but queen Mary, by charter, dated the 2d day of May, in the first year of her reign, ordained, "that the village, town, and borough of Chippenham, should be a free borough, corporate in deed, fact, and name for ever, of one bailiff and twelve burgesses." The charter then states the limits of

the borough, names of burgesses, manner of appointing them; and for keeping in repair the bridge and causeway, gives to the bailiff and burgesses several parcels of grounds, the names and extent of which are specified, and called the "borough lands." This, with many other charters of the kingdom, were surrendered into the hands of Charles II. A.D. 1684. Another charter was granted by James II. in the first year of his reign, by which the same privileges were restored, and the revenues of the corporation were valued at 9l. 10s. 8d. The free-houses, at this period, amounted to 129 in number; and the spots then occupied are the only parcels of *free-land* where burghage houses are still kept up, and the inhabitants of which, with the bailiff and burgesses, have the exclusive privilege of returning two members to parliament. The town is populous, and of considerable extent; the principal street is about half a mile in length. Chippenham, like many other towns in this part of the country, is celebrated for its cloathing manufactories. The church is a large pile of building, displaying some curious specimens of ancient architecture; but the greatest part of it is modern. On the north of the town there is a handsome free-stone bridge of twenty-one arches, ornamented with balustrades, lamps, &c. and near the middle a road branches off to Bath and Bristol. Close to this is a large modern factory. On the banks of the river are several dying-houses. Chippenham has a weekly market on Saturdays, and four annual fairs. By the last returns made to parliament of the population, &c. of the county, here were 683 houses, and 3366 inhabitants, most of whom were employed in manufactures. For more copious particulars relating to the borough history, and manufactures of the town, see Beauties of Wiltshire, 2 vols. 1801.

CHIPPEWAY, FORT, a small stockaded fort of Lower Canada, situated on the borders of a creek of the same name, about 200 yards distant from Niagara river. The fort occupies about one rood of ground, and consists of a small block-house, enclosed by a stockade of cedar posts, about 12 feet high, which is merely sufficient to defend the garrison against musket shot. Adjoining to the fort, there are about seven or eight farm houses, and some large store-houses, where goods are deposited preparatory to their being conveyed up the river in bateaux, or across the portage in carts, to Queenstown. A canal from hence to Queenstown would be extremely convenient. About 15 men, under the command of a lieutenant, are usually quartered at fort Chippeway, who are mostly employed in conducting, in bateaux from thence to fort Erie, the stores for the troops in the upper country, and the presents for the Indians.

CHIPPEWAY River, a river of N. America, that runs south-westward into Mississippi river, in that part where the confluent waters form lake Pepin, in N. lat. 44° , and W. long. $93^{\circ} 54'$.

CHIPPING, in the *Manufactures*, a term used by the potters and china-men to express that common accident both of our own stone and earthen ware, and the porcelain of China, the flying off of small pieces, or breaking at the edges. Our earthen wares are particularly subject to this, and are always spoiled by it before any other flaw appears in them. Our stone wares escape it better than these, but less than the porcelain of China, which is less subject to it than any other manufacture in the world. The method by which the Chinese defend their ware from this accident, is this: they carefully burn some small bamboo canes to a sort of charcoal, which is very light, and very black; this they reduce to a fine powder, and then mix into a thin paste, with some

some of the varnish which they use for their ware : they next take the vessels when dried, and not yet baked, to the wheel, and turning them softly round, they, with a pencil dipt in this paste, cover the whole circumference with a thin coat of it : after this, the vessel is again dried ; and the border made with this paste appears of a pale greyish colour when it is thoroughly dry. They work on it afterwards in the common way, covering both this edge and the rest of the vessel with the common varnish. When the whole is baked on, the colour given by the ashes disappears, and the edges are as white as any other part ; only when the baking has not been sufficient, or the edges have not been covered with the second varnishing, we sometimes find a dusky edge, as in some of the ordinary thick tea-cups.

It may be a great advantage to our English manufactures to attempt something of this kind. The willow is known to make a very light and black charcoal ; but the elder, though a thing seldom used, greatly exceeds it. The young green shoots of this shrub, which are almost all pith, make the lightest and the blackest of all charcoal ; this readily mixes with any liquid, and might be easily used in the same way that the Chinese use the charcoal of the bamboo cane, which is a light hollow vegetable, more resembling the elder shoots than any other English plant. It is no wonder that the fixed salt and oil contained in this charcoal should be able to penetrate the yet raw edges of the ware, and to give them in the subsequent baking a somewhat different degree of vitrification from the other parts of the vessel, which, though if given to the whole, it might take off from the true semivitrified state of that ware ; yet at the edges is not to be regarded, and only serves to defend them from common accidents, and keep them entire.

The Chinese use two cautions in this application : the first in the preparation ; the second in the laying of it on. They prepare the bamboo canes for burning into charcoal, by peeling off the rind. This might easily be done with our elder shoots, which are so succulent, that the bark strips off with a touch. The Chinese say that if this is not done with their bamboo, the edges touched with the paste will burst in the baking : this does not seem indeed very probable ; but the charcoal will certainly be lighter made from the peeled sticks, and this is a known advantage. The other caution is, never to touch the vessel with hands that have any greasy or fatty substance about them ; for if this is done, they always find the vessel crack in that place. *Obs. sur les Cout. de l'Asie.*

CHIPPINGAVEL, or CHEAPINGAVEL, in our *Old Writers*, toll paid for buying and selling

CHIPPING-NORTON, in *Geography*. See NORTON.

CHIPPING-ONGAR. See ONGAR.

CHIPPING-SODBURY. See SODBURY.

CHIPPIONA, a town of Spain, in the country of Seville, seated on a rock near the coast of the Atlantic ; 5 miles S.W. of San Lucar de Barremeda.

CHIQUE, in *Commerce*, a weight in Smyrna, equal to 5lb. 7oz. 10dr. avoirdupois.

CHIKUITOS, a chain of mountains in South America, lying between 15° and 23° of S. latitude. This chain of primitive mountains unites the Andes of Peru and Chili with the mountains of Brasil and Paraguay, stretching from La Paz, Potosi, and Tucuman, through the provinces of Moxos, Chiquitos, and Chaco, towards the government of the mines, and of St. Paul in Brasil. The highest summits appear to be between 15° and 20° ; the rivers there passing to that of Amazons, or that of La Plata.

CHIKUITOS, INDIOS, or *Little Indians*, a name given by the Spaniards to Indians of South America, on account of

the extreme smallness of the doors of their houses. The country lies between Santa Cruz de la Sierra, a province of the second bishopric in the audience of Charcas, or new vice-royalty of Buenos Ayres, and the lake Xarayes, where the river Paraguay has its rise, and being increased by the conflux of others, forms the famous river de la Plata. The Jesuit missionaries are said to have begun their preaching to this nation about the close of the 17th century, and their success is reported to have been so great that, in 1732, they had formed seven towns, each consisting of above 600 families ; and the number of their converts has since considerably increased. These Indians Chiquitos are well made and active ; and their courage has been often experienced by the Portuguese, who used to make incursions, in order to carry off the inhabitants for slaves ; but the valour of these people has taught them to desist from such inhuman attempts, and, for their own safety, to keep within their limits. The arms of these Indians are muskets, sabres, and poisoned arrows. Though their language is different from that of the other nations of Paraguay, the same customs nearly obtain here as among the other Indians. These Chiquitos have no regular form of government, or civil life, but in matters of public concern they listen to the advice of their old men, and usually follow it. The dignity of cazique is not hereditary, but conferred according to merit, as the reward of valour in war. The union among them is imperfect. Their society resembles a republic without any head, in which every man is master of himself, and upon the least disgust, separates from those with whom he seemed to be connected. The tree which bears the quinquina or jesuit's bark, is frequent among the Chiquitos ; and vanilla is also found among them, though not equal to that of New Spain.

CHIRA, an island on the N.W. coast of New Mexico, 15 leagues to N.N.W. from Herradura cape ; having the town of Landecho, about midway between them, and the river of Cipanfo, two leagues beyond it. Close by Chira is another small island ; and both abound with cattle, especially sheep and hogs.

CHIRAC, PETER, in *Biography*, born at Couques, a small town in Languedoc, in the year 1650, was at first intended for the church. In 1678 he was sent by his father to Montpellier, to complete his education. As the allowance made for his provision was scanty, he undertook to instruct the son of an eminent apothecary at Montpellier in classical literature, and by conversing with that family was induced to turn his mind to the study of medicine. In this he made such progress, that Michael Chicoyneau, chancellor of the university, placed two of his sons under his tuition. As he had paid particular attention to the study of anatomy, he was soon enabled to give lectures in that branch of science. In 1683 he was admitted doctor in medicine, and under the patronage of Barbeyrac, the first physician at Montpellier, obtained a considerable share of practice. In 1692 he was appointed by the duke de Noailles, physician to the army of Rouffillon, and at the siege of Roses, in which the army was engaged, was singularly successful in stopping the ravages of the dysentery, with which the men were severely afflicted. He was next appointed physician to the port at Rochford, and obtained similar credit for his success in treating the disease called " Le Mal de Siam," then epidemic there, and for his management of persons afflicted with the small pox, whom he frequently directed to be blooded, contrary to the generally received opinion, and practice in that complaint. After residing two years at Rochford, he returned to Montpellier, much elated with the success, and consequent reputation he had acquired. At Montpellier he continued until the year 1706. In this inter-
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val he published his hypotheses on the structure of the hairs. He supposes them to be derived from the tendons of the skin, and to contain in their bulbs, and to the extent of about two inches, a medulla: Also "De Motu Cordis," which, he contends, depends upon an innate power in its muscular fibres. These opinions engaged him in controversies with Senac, Vieussens, and other anatomists, which were on his part conducted with great acrimony. In 1706 he accompanied the duke of Orleans, who went with the army, first to Italy, then to Spain. On his return he went to Paris, where he passed the remainder of his life. In 1715, Homberg, the duke's physician, being dead, he was advanced to that honour. He was soon after made honorary member of the Academy of Sciences, and in 1718, on the death of M. Fagan, he was appointed superintendant of the royal garden. Some time after he projected a plan for the improvement of medicine. A society was proposed to be formed of thirty or forty physicians, who were to hold their meetings at Paris. They were to solicit the correspondence, and observations on the methods found most successful in curing diseases, of physicians and surgeons to public institutions, in all parts of Europe. From these he hoped a code of practical maxims might be drawn, that would have been generally beneficial. A more useful project, or one promising more advantage to the public, could not well have been conceived, and it would have succeeded, had it been proposed by a character less haughty and ostentatious. It failed through the want of the concurrence of his brethren, who wished to humble, rather than increase, his importance. His reputation, however, was not diminished by their jealousy and opposition. In 1728 letters of nobility were accorded to him, and in 1730 he was made first physician to the king, though, as he was then 80 years of age, it could scarcely be with the view of using his assistance. Two years after he died. By his will he left a considerable legacy to the university of Montpellier, for the foundation of two lectureships, one on comparative anatomy, the other for the explanation of Boerhaave's doctrine on animal motion. For an account of the remainder of his works, see Haller Bib. Eloy. Dict. Hist. Gen. Biography.

CHIRAC, in *Geography*, a town of France, in the department of the Lozere, and chief place of a canton in the district of Marvejols: one league S.W. of it. The place contains 2032 and the canton 7987 inhabitants: the territory comprehends $22\frac{1}{2}$ kilometres and 8 communes.

CHIRAGRA, in *Medicine*, from *χειρ*, the hand, and *αργεω*, I seize, the gout in the hand. The gout attacks the ligaments about the hand and wrist occasionally, as well as those of the feet. The local and general symptoms which accompany it, are the same in both instances, and require similar treatment. See PODAGRA.

CHIRAMAXIUM, in *Antiquity*, a kind of chariot, or conveyance, which was drawn by men instead of horses. This word is derived from *χειρ*, the hand, and *μαρξα*, a chariot.

CHIRCEES, or CHIRCHEES, a small town of Hindoostan, about $1\frac{1}{2}$ league from Amedabad. It has a great number of the tombs of the kings and princes of Guzerat, which have led the Indians to believe, that it was, in ancient times, the capital of that kingdom; but it is more probable that it was only the burial-place of their kings, and that Amedabad was the capital. The Dutch, in 1620, established a factory in this place for the purchase of indigo; but it was abandoned before the year 1670.

CHIRCHSED. See CHURCH-SCOT.

CHIRENS, in *Geography*, a town of France, in the de-

partment of the Isere, and district of La Tour-du-pin; 5 leagues N.N.W. of Grenoble.

CHIREZOUR, a town of Asiatic Turkey, in the province of Kurdistan; 60 miles S. of Mosul.

CHIRIGUANOS, or CHIRIGUANACS, a tribe of Pagan Indians in South America, bordering on the Chiquitos, who have always refused to listen to the missionaries; though the fathers who visit them, when accompanied with some Chiquitos for their security, occasionally succeed in making a few converts, who are sent to their towns, and there lead a social life. This commonly occurs after some misfortune that happens in the wars continually carried on between them and the Chiquitos; when in order the more easily to obtain a peace, and to prevent being exterminated by the Chiquitos, they send for missionaries; but soon dismiss them again, pretending that they cannot bear to see punishments inflicted on persons merely for deviating from the rules of reason. This, it is alleged, is a proof that the object of their wish and aim is an unbounded licentiousness of manners.

CHIRIPHE, in *Ancient Geography*, a town of Asia, in Babylonia, according to Ptolemy; situate near the marshes of Arabia Deserta.

CHIRIQUI, or CHIRIQUITA, in *Geography*, a town of New Mexico, in the province of Veragua, on the coast of the Pacific ocean, with a harbour about a league from the sea, and 8 miles from the town: 30 leagues west of St. Jago. N. lat. $11^{\circ} 20'$. W. long. $83^{\circ} 36'$.

CHIRITES, in *Natural History*, a name given by authors to a stone resembling the human hand. The accounts we have of it say, that it is of a white colour, and of the nature of gypsum or plaster stone; and that it represents the palm of the hand, with the fingers, and their nails on the other side. This seems to have been a name given to some single specimen in a cabinet of some collector; for it is certainly no distinct species of fossil, but a mere *lusus naturæ*, in the configuration of some accidental piece of gypsum.

CHIRIVICOLA, in *Geography*, a town of Naples, in the province of Capitanata; nine miles S.W. of Viella.

CHIROGRAPH, *Chirographum*, compounded of *χειρ*, hand, and *γραφω*, scribo, I write, q. d. hand-writing, every public instrument or gift of conveyance, attested by the subscription and crosses of witnesses, so called in the time of the Saxons, which being somewhat changed in form and manner by the Normans, was by them styled "charta." In succeeding times, for the prevention of frauds and concealments, they made their deeds of mutual covenant in a "script" and "rescript," or in a part and counterpart; and in the middle, between the two copies, they drew the capital letters of the alphabet, and then tallied or cut asunder, in an indented manner, the sheet or skin of parchment; which being delivered to the two parties concerned, were proved authentic, by matching with and corresponding to one another; and when this prudential custom had for some time prevailed, then the word "chirographum" was appropriated to such writings. When they amicably made a chirograph or deed, which required a counterpart, they engrossed it twice on the same piece of parchment, counterwise; leaving a space between, wherein was wrote chirograph; through the middle whereof the parchment was cut, sometimes straight, sometimes indentedly; and a moiety given to each of the parties. This was afterwards called *dividenda* and *charta divisa*; and was the same with what we now call charter-party.

The first use of these chirographs with us, is said to have occurred in the time of king Henry III.

According

According to some, a deed was properly a chirograph, when it was subscribed by the hand writing of the vendor, or debtor, and delivered to the vendor, buyer, or creditor. These authors make the chirograph differ from a "syngraph," in this; that in the latter, the word syngraph was wrote in the middle, and cut through, in the manner just observed of chirograph. Those authors therefore make the syngraph and the chirograph a different thing.

Chirograph was also anciently used for a fine: the manner of ingrossing the fines, and cutting the parchment in two pieces, is still retained in the office called the chirographer's office.

CHIROGRAPHER *of fines*, an officer in the common pleas, who ingrosses fines, acknowledged in that court, into a perpetual record (after they have been examined and passed by other officers); and writes and delivers the indentures of them to the party. He makes two indentures; one for the buyer, the other for the seller: and a third indented piece, containing the effect of the fine, and called the *foot of the fine*; and delivers it to the *custos brevium*.

The same officer also, or his deputy, proclaims all fines in court every term, and indorses the proclamations on the back-side of the foot; keeping always the writ of covenant and the note of the fine. The chirographer shall take but 4s. for a fine, on pain of forfeiting his office, &c. Stats. 2 Hen. IV. c. 8. 23 Eliz. c. 3. 2 Inst. 468.

CHIROGYLIUM, in *Ancient Geography*, an island of the Mediterranean, placed by Pliny on the coast of Lycia.

CHIROMANCY, from *χειρ*, hand, and *μαντεια*, divination, the art of divining the fate, temperament, and disposition, of a person, by the lines and lineaments of the hand: this is otherwise called *palmistry*.

We have a great number of authors on this vain and trifling art; as Artemidorus, Fludd, and Johannes de Indagine. Taifnerus, and M. de leChambre, are esteemed the best.

CHIRON, in *Biography*, denominated, by Plutarch, the "wise centaur," was born in the first age after Deucalion's deluge, commonly called the golden age, according to sir Isaac Newton; who adds, that he formed the constellations for the use of the Argonauts, when he was 88 years old; for he, as well as his daughter Hippo, are said to have been practical astronomers. By this account, Chiron must have flourished in the earliest ages of Greece, as he preceded the conquest of the golden fleece and the Trojan war. He is generally called the son of Saturn and Philyra, and is said to have been born in Thessaly, among the centaurs, who were the first Greeks that had acquired the art of breaking and riding horses. See **CENTAURS**.

Chiron was regarded by the ancients, as one of the first inventors of medicine, botany, and surgery, or chirurgery, which some etymologists have derived from his name. He inhabited a grotto, or cave, called "Chironicum Specus," at the foot of Mount Pelion, which, from his wisdom, and universal knowledge, became the most famous and frequented school throughout Greece. Almost all the heroes of his time were ambitious of receiving his instructions; and Xenophon classes in the number of his disciples, several of the most illustrious personages of antiquity; and yet he has omitted, in his enumeration, some of his most celebrated scholars. Among these we may reckon the Grecian Bacchus, who, as it is pretended, was the favourite scholar of the centaur, and learned of this master, the revels, orgies, Bacchanalia, and other ceremonies of his worship. Plutarch says, that Hercules studied music, medicine, and justice, at the school of Chiron; but among all the heroes who have been disciples of this centaur, no one reflected so much honour upon him

as Achilles, whose renown he in some measure shared, and to whose education he particularly attended, being his grandfather by his mother's side. Apollodorus informs us that the study of music employed a considerable part of the time, which he bestowed upon his young pupil, as an incitement to virtuous actions, and a bridle to the impetuosity of his temper. One of the best remains of antique painting now subsisting is a picture upon this subject, dug out of Herculaneum, in which Chiron is teaching the young Achilles to play upon the lyre. See **ACHILLES**.

The death of this philosophical musician was occasioned, at an extreme old age, by an accidental wound in the knee with a poisoned arrow, shot by his scholar Hercules, at another. After his death he was placed by Musæus among the constellations, from respect for his virtues, and gratitude for the great services which he had rendered the people of Greece. Accordingly sir Isaac Newton alleges, (Chronology, p. 151) as a proof that the constellations were formed by Chiron and Musæus for the use and honour of the Argonauts, that nothing later than that expedition was delineated on the original sphere; and the same author intimates, that Chiron lived till after the Argonautic expedition, in which he had two grandsons. The ancients have attributed to Chiron several writings; among which, according to Suidas, are precepts, *υποθηκαι*, in verse, composed for the use of Achilles; and a medicinal treatise on the "Diseases incidental to Horses," and other quadrupeds, *ἰππιατρικον*; and the lexicographer even pretends, that it is from this work that Chiron derived his name. Fabricius (Bib. Græc. vol. i.) gives a list of the works ascribed to Chiron, and discusses the claims which have been made for others to the same writings; and in vol. xiii. he gives him a distinguished place in his catalogue of ancient physicians. Burney's Hist. Music, vol. i.

CHIRONIA, in *Botany*, (so called from Chiron the centaur, physician and tutor to Achilles,) Linn. Gen. 255. Schreb. 349. Willd. 394. Juss. 142. Vent. 2. 416. Gært. 667. Clats and Ord. *Pentandria monogynia*. Nat. Ord. *Rosaceæ*; Linn. *Gentianeæ*; Juss.

Gen. Ch. *Cal.* Perianth one-leaved, five-cleft, erect, permanent; segments oblong, acute. *Cor.* monopetalous, salver-shaped, or almost wheel-shaped, regular; tube scarcely longer than the calyx; border five-cleft, spreading; segments egg-shaped, open. *Stam.* Filaments five, short, attached to the tip of the tube; anthers oblong, erect, converging, spirally twisted after shedding the pollen. *Pist.* Germ superior, egg-shaped; style filiform, a little longer than the stamens, declining; stigma capitate, ascending. *Pericarp.* Capsule or berry egg-shaped, two-celled. Linn. Smith (one-celled; Lam. Gært.) valves inflexed. Smith. *Seeds* numerous, small, attached to the sides of the receptacle.

Effl. Ch. Corolla salver-shaped. Stamens inserted into the tube; anthers finally becoming spiral. Style declining. Pericarp superior, two-celled; valves inflexed. Smith.

Obf. In some of the species the anthers have not been observed to become spiral.

Sp. 1. C. *trinervia*. Linn. Sp. Pl. 1. Mart. 1. Lam. Encyc. 1. Ill. 1. Willd. 1. (Lythmachia; Burm. Zeyl. tab. 67.) "Stem herbaceous; segments of the calyx membranaceous-keeled." Root annual. Stem smooth, quadrangular. Leaves opposite, lanceolate, acuminate at each end, quite entire, waved, smooth, three-nerved. Flowers blue, large, from the upper axils, solitary, peduncled. Fruit an oval capsule. A native of Ceylon. 2. C. *jasminoides*. Linn. Sp. Pl. 3. Mart. 2. Lam. Encyc. 2. Ill. 2. Willd. 2. "Stem herbaceous, four-cornered; leaves lanceolate, shorter than

than the internodes." Stem about two feet high, glossy, with few leaves near the top. *Leaves* opposite, sessile, erect, smooth, quite entire. *Panicle* terminal, dichotomous, erect, few-flowered; bractes opposite, awl-shaped; segments of the calyx, narrow, lanceolate, very acute, as long as the tube of the corolla; corolla divided half way down; segments oval-lanceolate, acute, spreading. A native of the Cape of Good Hope. 3. *C. lychnoides*, Linn. Mant. 207. Mart. 3. Lam. Encyc. 3. Ill. 3. Willd. 3. "Stem simple; leaves linear lanceolate, longer than the internodes." *Stem* a foot high or more, herbaceous, cylindrical, stiff and straight. *Leaves* opposite, sessile, somewhat decurrent, smooth, erect. *Flowers* purple, disposed three or four together in a terminal panicle; peduncles longer than the leaves; lateral ones with a pair of awl-shaped bractes; segments of the calyx lanceolate-awl-shaped, keeled; tube of the corolla the length of the calyx; segments acute, longer than the tube. (Anthers not becoming spiral, Lam.) A native of the Cape of Good Hope, at the foot of mountains. 4. *C. melampyrisfolia*, Lam. Illus. 4. "Leaves lanceolate, sessile, decurrent; calyx shorter than the tube." Border of the corolla longer than the tube. A native of the Cape of Good Hope. From a specimen in the herbarium of La Marck. 5. *C. campanulata*, Linn. Sp. Pl. 4. Mart. 4. Lam. Encyc. 4. Illust. 5. Willd. 5. "Stem herbaceous; leaves nearly linear; calyxes the length of the corolla." *Stem* a foot high, round, with long branches. *Leaves* lanceolate-linear, glossy. *Flowers* purple, terminal, solitary, wheel-shaped, on long peduncles; segments of the calyx awl-shaped, anthers spiral. A native of Canada. Kalm. 6. *C. angularis*, Linn. Sp. Pl. 5. Mart. 5. Lam. Encyc. 5. Illus. 6. Willd. 6. "Stem herbaceous, acutely angular; leaves egg-shaped, embracing the stem." In habit extremely similar to *C. centaurium*, or the lesser centaury. *Stem* a foot high, four-cornered, with membranous wings, smooth, branched and paniced near the top. *Leaves* opposite, short, smooth. *Flowers* red, growing from two to five together at the end of the branches; segments of the calyx narrow, acute; of the corolla oblong; anthers spiral. A native of Virginia. Kalm. 7. *C. cynosfa*, Lam. Ill. 7. (*C. lanceolata*; Walt. flor. Car.) "Stem herbaceous, four-cornered; leaves lanceolate, sessile; cyme terminal; bractes linear." A native of Carolina. 8. *C. nudicaulis*, Linn. jun. Supp. Mart. 7. Lam. Encyc. 10. Illust. 8. Willd. 4. Thunb. Prod. 35. "Stem herbaceous, quite simple, one-flowered, with one or two pairs of leaves about the middle. *Leaves* oblong, rather obtuse; teeth of the calyx bristle-shaped." *Stems* several, elongated. *Root-leaves* often forming a turf. A native of the Cape of Good Hope. 9. *C. uniflora*, Lam. Encyc. 10. Ill. 9. Pl. 108. fig. 3. "Stem simple, rod-like, angular; leaves linear-lanceolate, a little shorter than the internodes; flower large, terminal." *Stem* at least a foot high, very slender. *Leaves* opposite, sessile, acute, smooth, about five lines long. *Flower* seven lines long, erect; segments of the calyx erect, acute, with a prominent membranous angle; tube of the corolla the length of the calyxes; border bell-shaped; segments oblong, obtuse; anthers not spiral. A native of the Cape of Good Hope, communicated by Sommerat. 10. *C. chilensis*, Willd. 8. (*Gentiana Cachaulatum*; Molina Chilens. 130. *Centaurium vulgo cachan*; Feuille Peruv. 2. tab. 35. "Stem herbaceous; leaves lanceolate, veinless; stem dichotomous, corymbose; segments of the calyx close-pressed." In habit much resembling the next species. *Root* annual. *Branches* opposite, spreading. *Flowers* funnel-shaped. A native of Chili. 11. *C. centaurium*, Willd. 9. Curt. Flor. Lond. fasc. 4. tab. 22.

Smith Flor. Brit. Eng. Bot. Pl. 417. Woodville Med. Bot. tab. 157. Schmidt bohem. 1. n. 130. (*Gentiana Centaurium*; Linn. Sp. Pl. Mart. Lam.) Common centaury. "Stem herbaceous, dichotomously paniced; leaves ovate-lanceolate, three-nerved; calyx shorter than the tube." *Root* annual, small, branched. *Stem* about a foot high, erect, solitary, with four sharp edges, seldom branched from the bottom. *Leaves* opposite, sessile, quite entire, smooth. *Flowers* pink-coloured, proceeding from the forks of the stem, sessile, erect, expanding only to a bright fun; calyx semiquinquefid; segments awl-shaped, erect, adnate to the tube of the corolla, and only half as long; border of the corolla equal, spreading, shining; segments elliptical, somewhat concave; stamens declining; anthers thrice spiral; stigma capitate; with a transverse notch. Whole plant smooth, and very bitter. A native of dry gravelly pastures in Great Britain, and other parts of Europe. Obs. Dr. Bostock, and Mr. Shepherd of Liverpool, have observed two remarkable varieties growing intermixed with the common plant on the sandy shores of that neighbourhood. The first resembles the common plant in its size, general appearance, and the form of its flowers; but differs in having narrow, spatulate-linear leaves; the segments of its calyx elongated and narrowed, exceeding the tube of the corolla. The other is a much humbler plant; with broad, almost orbicular leaves; small, clustered flowers; segments of the calyx longer, but not so much narrowed as in the preceding variety. Dr. Smith expresses a doubt whether they may not be distinct species. See Flor. Brit. vol. iii. p. 1392. 12. *C. pulchella*, Willd. 7. Swartz. Aët. Holm. 1783. p. 85. tab. 3. fig. 8, 9. Smith Flor. Brit. Eng. Bot. pl. 458. (*Gentiana Centaurium* β; Linn. Sp. Pl. *Centaurium minus palustre*; Vaill. Paris. 32. tab. 6. fig. 1.) "Stem herbaceous, sometimes simple, but generally branched, and often much so; leaves egg-shaped; segments of the calyx awl-shaped, a little shorter than the tube." *Root* annual, small, branched. *Stem* scarcely two inches high, dichotomous, with four sharp edges. *Leaves* ovate-elliptical; lower ones very broad; upper ones lanceolate, shining, three or five-nerved. *Flowers* pink-coloured, from the forks of the stem, often peduncled, erect; calyx five-cleft to the base; segments awl-shaped, attenuated, free, about the length of the tube; corolla very slender; segments of the border elliptic-lanceolate; anthers not twisted so much as those of the preceding species, scarcely making one turn. A native of dry places about the sea coast in Great Britain and other parts of Europe, flowering in August and September. 13. *C. inaperta*, Willd. 10. (*C. Vaillantii*; Schmidt bohem. 1. n. 132. *Centaurium palustre flore inaperto*; Vaill. Paris. 32. tab. 6. fig. 2.) "Stem herbaceous; much branched, dichotomous; leaves oblong, three-nerved; segments of the calyx awl-shaped, somewhat spreading; border of the corolla connivent." Allied to *C. centaurium*, but not a variety of it. A native of pastures on the continent of Europe. 14. *C. spicata*, Willd. 12. (*Gentiana spicata*; Linn. Mart. Lam. *Centaurium minus spicatum*; Bauh. pin. 278. Prod. tab. 130.) "Stem herbaceous, bifid; leaves lanceolate, three-nerved; flowers alternate, sessile." Differs from *C. centaurium* chiefly in the disposition of its flowers. *Root* annual. *Stem* from six to ten inches high, erect, branched, angular. *Leaves* opposite, smooth, sessile; lower ones egg-shaped; middle ones lanceolate; upper ones linear-lanceolate, almost awl-shaped. *Flowers* purple, sometimes white, sessile, alternate, forming a loose terminal spike; segments of the corolla very acute. A native of moist places in Italy and the south of France. 15. *C. linoides*, Linn. Sp. Pl. 2. M. 6. Lam. Encyc. 6. Ill. 10. Bot. Mag. 511. "Stem somewhat

somewhat shrubby; leaves linear, glaucous; calyxes cloven half way down; segments rather obtuse." *Stem* a foot high or more, slender, cylindrical, smooth, branched near the top. *Leaves* an inch long, narrow, acute, sessile, smooth, rather erect. *Flowers* pale red, solitary, at the summit of the upper branches; calyx a little bell-shaped, narrowed at the base; tube of the corolla shorter than the calyx; segments of the border oval-oblong, almost erect; anthers not becoming spiral. A native of the Cape of Good Hope. 16. *C. baccifera*, Linn. Sp. Pl. 7. Mart. 9. Lam. Encyc. 7. Ill. 11. Willd. 14. Gært. tab. 114. Bot. Mag. 233. (*Centaurium pulpiferum*, Comm. Rar. tab. 9.) " *Stem* shrubby at the base, much branched, four-cornered; leaves linear, green; pericarp resembling a berry." *Root* perennial. *Stem* two feet high, cylindrical, naked near the bottom, panicked upwards; branches slender, smooth, compound. *Leaves* near an inch long, opposite, narrow, acute, smooth, spreading, decurrent. *Flowers* pale red, small, terminal, on short peduncles; calyx short; segments almost obtuse, keeled; tube of the corolla shorter than the calyx; segments oval-oblong; anthers not becoming spiral. Lam. Pericarp resembling a berry, succulent, somewhat transparent, globular, didymous, red, or saffron-coloured, one-celled; skin very thin; pulp watery; receptacles two, spongy, fixed to the internal side of the berry, corresponding with the external groove; two-lobed within; lobes curved back to the sides. Gært. A native of Africa. Mr. Curtis (Bot. Mag.) observes, that the seed-vessel is by no means a proper berry, for when cut transversely, it is hollow, and divided into two cells, the sides of which are fleshy, and do not appear to split in any regular manner for the discharge of the seeds. 17. *C. frutescens*, Linn. Sp. Pl. 8. Mart. 10. Lam. Encyc. 8. Ill. 12. Bot. Mag. 37. (*Centaurium*, Comm. Rar. tab. 8. Burm. Afr. tab. 74. fig. 1.) " *Stem* shrubby; leaves linear-lanceolate, fleshy, somewhat tomentous; calyxes somewhat egg-shaped, inflated, pubescent." *Stem* a foot and half high, woody; branches upright, cylindrical, pubescent. *Leaves* an inch and half long, opposite, obtuse. *Flowers* bright red, at the summits of the branches; anthers spiral. Gærtner observes, that the seed-vessel of this species has somewhat of the appearance of a berry, but less so than the preceding, lying entirely concealed within the calyx. It is egg-shaped, acuminate, red, and finally divides by the suture into two valves; so that it is a proper capsule, and forms the connecting link between *C. baccifera* and the other species. We are even inclined to conjecture, that the seed-vessel of *C. baccifera*, if observed in its last stage, may be found to split into regular valves. A native of Africa. 18. *C. decussata*, Bot. Mag. 707. Ventenat Hort. Cels. 31. " *Stem* shrubby, somewhat tomentous; leaves crowded, decussate, oblong, obtuse; calyxes globular, five-cleft." According to Ventenat it is distinguished from the preceding by its simpler stem, its very short branches, its larger flowers, and more globular calyx, deeply divided into five segments, and its broader leaves growing in two ranks. But Dr. Sims observes (Bot. Mag.), that there are so many intermediate varieties, as to leave it doubtful whether it be a genuine species. It has been long known in the English nurseries by the name of latifolia. 19. *C. angustifolia*, Bot. Mag. 818. " *Stem* shrubby, smooth; leaves linear, spreading; calyxes egg-shaped; segments connivent; segments of the corolla wedge-shaped, ending abruptly in a remarkable tooth-like point." Whole plant smooth. Tube of the corolla longer than in the preceding, extending considerably beyond the calyx. Raised from Cape seeds by Mr. Whitely of Brompton. 20. *C. tetragona*, Linn. jun. Sup. 151. Mart. 8. Lam. Encyc. 11. Illust. 12. Willd. 16. " *Stem* shrubby; leaves egg-shaped, three-nerved, rather

obtuse; segments of the calyx rather obtuse, keeled." *Flowers* large, yellow. A native of the Cape of Good Hope.

CHIRONIA maritima, Willd. See *GENTIANA maritima*.

CHIRONIA dodecandria, Linn. Sp. Pl. See *CHLORA dodecandria*.

CHIRONIS, *VILLA*, in *Ancient Geography*, a town of Greece, in the Peloponnese, according to Polybius; who places it near the town of Messena, and says that it was destroyed by pirates.

CHIRONIUM, in *Medicine*, is sometimes used to signify a great ulcer, and of difficult cure.

CHIRONOMI, on the *Grecian Stage*, were those actors who performed, without using words, by the motions of the hand.

CHIRONOMIA, in *Antiquity*, the art of representing, by the motions of the hand, and other gestures of the body, any past transactions, whether of true or fabulous history. This made a part of a liberal education among the ancients: it had the approbation of Socrates, and was ranked by Plato among the political virtues.

CHIROPER, in *Geography*, a bay on the W. coast of New Mexico, situated in about N. lat. 7°; into which the river of Piara discharges itself, about 40 miles from Payta. This bay being full of shoals, is seldom frequented.

CHIROTHECA. See *GLOVE*.

CHIROTHECA marina, in *Natural History*, the name under which Rumphius describes *Spongia aculeata*, which see.

CHIROTHESIA, the imposition of hands on conferring any priestly orders. The word comes from *χειρ*, *manus*, and *τιθημι*, *pono*, which signifies the laying hands upon another.

CHIROTANIA, the stretching forth, or holding up of hands, in electing any magistrate, &c.

The word comes from *χειρ*, *manus*, and *τινω*, *tendo*, the action of stretching out the hands; and because the ancients gave their suffrages by stretching out their hands, they gave the name chirotonia to the election of magistrates.

This custom was first established in Greece; as appears from an oration of Demosthenes against Neæra, and that of Æschines against Ctesiphon: thence it passed to the Romans. From profane authors it passed to ecclesiastical ones; and was used by them, not only in speaking of elections, but also of ordinations. See *IMPOSITION*, and *ORDINATION*.

For the difference between chirothesia and chirotonia, see Harrington's *Prer. of Popular Government*.

CHIRP, in *Ornithology*, is the name of the first sound which a young bird utters, as a cry for food, and is different in all nestlings, if attentively regarded; so that the hearer may distinguish the species of the birds, though the nest should hang out of his sight and reach. This cry is weak and querulous; it is dropped entirely as the bird grows stronger, nor is it afterwards intermixed with its song: the chirp of a nightingale (e. g.) being hoarse and disagreeable. The chirp consists of a single sound repeated at very short intervals, and is common to nestlings of both sexes. Phil. Trans. vol. lxiii.

CHIRURGEON, an obsolete word, from *χειρ*, the hand, and *εργον*, work; denoting a manual operator, and now always pronounced, as well as written, *SURGEON*. The conduct of surgeons was formerly so much under the guidance and controul of physicians, that Dr. Samuel Johnson defines a surgeon to be "one whose duty is to act in external maladies by the direction of the physician." See the article *SURGEON*.

CHIRURGERY, belonging to the practice of a surgeon,

geon, and now universally written and pronounced SURGERY.

CHIRURGICAL, pertaining to surgery, or manual operations.

CHIRURGIEN *noir*, in *Ornithology*, the Black Jacana, *PARRA nigra* of Gmelin, is so named by Buffon.

CHIRY, in *Geography*, a town of France, in the department of the Oise and district of Compiègne, 3 miles S.S.W. of Noyon.

CHISELY *land*, in *Agriculture*, a term appropriated to that sort of land which breaks, when it is turned up by the plough, into pieces like the chips made by the stone-cutter's chisel in the hewing of stones. It is of a middle nature, between the sandy land that falls off from the plough-share, like bran or saw-dust, and the clayey, that is raised in large glebes.

It is of several colours, grey, brown, reddish, and blackish, and usually contains a large quantity of sand, and no small number of pebbles.

CHISHULL, EDMUND, in *Biography*, a learned divine and antiquary, was born at Eyworth, in Bedfordshire, and educated at Corpus Christi college, Oxford, where he obtained the degree of master of arts in 1693, and was also chosen a fellow of his college; previously to this he had published a Latin poem, on the battle of La Hogue, and in 1694 he published another ode on the death of the queen, which is preserved in the third volume of the *Musæ Anglicanæ*, though it does not display poetical fervour so much as a true classical taste. Four years afterwards Mr. Chishull obtained a traveller's exhibition from his college, and sailed for Smyrna. Before he left his native country, he preached a sermon to the Levant company, which was published, and which obtained for him the chaplainship to the English factory at Smyrna, in which station he continued till the spring of 1702. In June 1705 he was admitted to the degree of bachelor of divinity, and soon after he engaged in a controversy with the learned Mr. Dodwell, by publishing "A Charge of Heresy maintained against Mr. Dodwell's Discourse concerning the Mortality of the Soul," which is reckoned one of the principal books written in this controversy. In 1707 Mr. Chishull preached a sermon against the absurdities and enthusiasm of the French prophets, which he published in the ensuing year, with an historical appendix, containing collections applicable to all such prophecies as were condemned in the sermon. Immediately after this, he was presented with the vicarage of Walthamstow in Essex, and in 1711 he was appointed one of the chaplains in ordinary to queen Anne. Besides the above, he published several other theological discourses; of which, one was on duelling, preached before the queen, and published by her special command. As an antiquarian, one of his first works was entitled "Inscriptio Sigææ antiquissima *Βουσιγοφάνδου* exarata," this was illustrated with a learned commentary; to which he afterwards added "Notarum ad Inscriptionem Sigæam appendicula." These pieces were afterwards incorporated in his "Antiquitates Asiaticæ." When Dr. Mead published his Harveian oration in 1724, Mr. Chishull added to it, as an appendix, "Disertatio de Nummis quibusdam a Smyrnæis in Medicorum honorem percussis." This dissertation excited a controversy concerning the condition of physicians at ancient Rome. The question was whether they were not usually vile and despicable slaves; or, at least, some among them, those who enjoyed the privileges of a free condition. The greatest literary work of Mr. Chishull was entitled "Antiquitates Asiaticæ Christianæ: æram antecedentes, ex Primariis Monumentis Græcis Descriptæ, Latinè versæ, Notisq; et Commentariis illustratæ. Accedit Monumentum Lati-

num Ancyranum." This work was printed by subscription, to which Dr. Mead contributed fifty-one guineas. The inscriptions contained in it were collected by consul Sherrard, Dr. Pichenini, and Dr. Lisle, afterwards bishop of St. Asaph; they were afterwards deposited in the Earl of Oxford's library, and are now preserved in the British Museum. Mr. Chishull added to his "Antiquitates" two small pieces addressed to the Rev. John Horn. He formed a design of publishing a second volume, the printing of which was actually begun, when death put a stop to its progress, and it has never been ascertained in what manner the manuscripts were disposed of. In 1731 Mr. Chishull was presented with the rectory of South-church in Essex, which he did not long enjoy. He died at Walthamstow on the 18th of May 1733, sincerely regretted by his friends, and by those who were capable of duly appreciating his learning and talents. One of his contemporaries, Dr. Taylor, styles him "Vir celeberrimus ingenii acumine et literarum peritia, quibus excelebat maximè;" and Dr. Mead has bestowed on him a very high encomium in the preface which introduced Mr. Chishull's dissertation on the Smyrnan coins; he likewise testified a sincere regard to the memory of his friend, by publishing an account of his travels in Turkey. Mr. Chishull sustained an excellent character as a divine.

CHISOING, or CISOING, in *Geography*, a town of Flanders, with an abbey; 2 leagues N.N.W. from Orchies.

CHISME, or CISME, a sea-port town of Asiatic Turkey, on the west coast of Natolia, opposite the island of Scio, between which and the continent is a narrow strait, where the Turkish fleet was destroyed by the Russians in the year 1770; 40 miles W. of Smyrna. The ancient name of this town was Cyllus. N. lat. 38° 24'. E. long. 36° 16'.

CHISSAMA, a province of the kingdom of Angola in Africa, situated under the 9th degree of S. lat. near the mouth of the river Coanza. It is a Portuguese settlement, consisting of three commanderies, whose despotic governors exercise a tyrannic cruelty over the natives. The soil abounds with a peculiar salt, formed of a briny water, which the inhabitants cast into oblong pieces like bricks, about 5 or 6 inches long, and exchange with the Portuguese for meal, oil, and other commodities. This salt is reckoned of such excellent quality, not only for food, but also for physic, that the merchants convey it through all Ethiopia, and derive from it an extraordinary gain. The province affords likewise fine honey and wax; but water is extremely scarce, as this province has no rain from May to October, and its mountains are destitute of springs; so that the inhabitants who are near the Coanza supply themselves from that river, at the hazard of being devoured by the wild beasts, which swarm along its banks.

CHISSEL, an instrument much used in sculpture, masonry, joinery, carpentry, &c.

There are chisels of different kinds; though their chief difference lies in their different size and strength, as being all made of steel well sharpened and tempered: but they have different names, according to the different uses to which they are applied.

The chisels used in carpentry and joinery are, 1. The *former*, which is used first of all before the paring chisel, and just after the work is scribed. 2. The *paring-chisel*, which has a fine smooth edge, and is used to pare off or smooth the irregularities which the *former* makes. This is not struck with a mallet, as the *former* is, but is pressed with the shoulder of the workman. 3. *Skew-former*: this is used for cleaning acute angles with the point, or corner of its narrow edge. 4. The *mortise-chisel*, which is narrow, but very thick and strong, to endure hard blows; and it is cut to a

very broad basil: its use is, to cut deep square holes in the wood, for mortises. 5. The *gouge*, which is a chissel with a round edge; one side whereof serves to prepare the way for an augre, and the other to cut such wood as is to be rounded, hollowed, &c. 6. *Socket-chissels*, which are chiefly used by carpenters, &c. to have their shank made with a hollow socket at top, to receive a strong wooden sprig, fitted into it with a shoulder. These chissels are distinguished, according to the breadth of the blade, into half-inch chissels, three quarters of an inch chissels, &c. 7. *Ripping-chissel*, which is a socket chissel of an inch broad; having a blunt edge, with no basil to it; its use is to rip or tear two pieces of wood asunder, by forcing in the blunt edge between them.

CHISSEL, in *Geography*, a fort in the state of the Tennessee, $2\frac{1}{2}$ miles from the English ferry on New River, 43 from Abingdon, and 107 from Long island, on Holston.

CHIT, is the name of an instrument used in cleaving laths.

CHITARONE. A large Spanish guitar.

CHITARRA, *Ital.* See GUITAR.

CHITI, in *Geography*, a town of the island of Cyprus, near Larnica, much celebrated among the ancients. See CITIUM.

CHITIQUE, Du, lake, called also *Pelican lake*, a lake of North America, separated from lake Miron, in N. lat. $55^{\circ} 7'$, by a short, narrow, and small strait. It is not more than 7 miles long, and its course is about N.W. and is succeeded by the lake Des Bois, which runs about 21 miles in a S.S.E. and N.N.W. course, and is full of islands; the passage to it being through an intricate, narrow, winding, and shallow channel for 8 miles.

CHITON, in *Conchology*, a genus of TESTACEA, or shells, the animal inhabitant of which is a doris (see DORIS), and the shell, which is multivalve, consisting of several segments or valves disposed down the back.

Species.

HISPIDUS. Shell of six striated valves. Schroet.

This is of a moderate size; the colour blackish-grey, with white spots and dots, and very finely marked with minute granulated striae. A native of America.

TUBERCULATUS. Shell of seven valves; body tuberculated. Gmel. *Chiton oscabrion*, Linn. Mus. Ad. Fr. *Chiton cylindricus*, Schroet.

Inhabits America. The form is an oblong-oval, narrow, with tubercles above disposed in a quincunx; sides cinereous, mixed with white and marked with brown undulated bands; back greenish, with a broad deep band of black.

ACULEATUS. Shell of eight valves, striated; body somewhat aculeated. Linn. Amoen. Acad. *Limax marina*, Rumpf.

An Asiatic species. The shell is tuberculated, oval, rough on the upper part, with narrow, subulate, somewhat curved, unequal red prickles.

FASCICULARIS. Shell of eight valves; body with a tuft of hair on each side of the valves. Schroet.

Described as a native of the coast of Barbary; the valves are cinereous, smooth, and slightly carinated; the lateral tufts of hair whitish.

SQUAMOSUS. Shell of eight valves and semi-striated; the margin covered with minute scales. Linn. &c.

There are many varieties of this species; one (β) is rough and variegated, *Chiton scaber variegatus*, Chemn. And another smooth and variegated (γ) *Chiton levis variegatus*, Chemn. The *oscabrion gallicum* of Argenville, and *Chiton squamosus*, *testa septemvalvis* of Schroeter, are also deemed varieties of this species. The valves are partly granulated, and partly stri-

ated very finely; the extreme valves lunulated. Found chiefly in America.

RUBER. Shell of eight valves; somewhat striated, the striae curved; body red. Linn. Fn. Succ.

This is of an oval and sub-oblong form, with the back carinated or elevated into a keel. Colour tawny, with a darker streak on the back bordered with white; margin of the animal brown or yellow with red spots and dots.

Inhabits the North seas. Chemnitz describes a variety of this species that is marbled with white and red.

PUNCTATUS. Shell of eight valves, and smooth; body with excavated dots. *Chiton corpore punctato testis aceto*, Linn. *Calva serpentis diadema*, Eph. nat. cur. A general inhabitant of Europe, Asia, and Africa.

ALBUS. Shell of eight valves, smooth, first emarginate behind; body white.

This is of an oval shape. It inhabits the North Seas. Linn. Fabr. &c.

CINEREUS. Shell of eight valves, smooth, and carinated; body reddish, with a somewhat ciliated border. O. Fabr. Found among the roots of the ulvæ in the Norway seas. It is of a small size, measuring only two lines in length; the form is depressed, and narrower before, with two longitudinal grooves down the back, one on each side the middle dorsal ridge. Colour reddish when the animal is alive.

BICOLOR. Shell of eight valves, thick; outside sea green; inside snowy white, edged with black. Gmel. &c. Native country unknown. The size is rather large.

CERASINUS. Shell of eight valves, smooth, and cherry-coloured, with snowy marginal teeth. Chemn. &c. Native place unknown.

MAGELLANICUS. Shell of eight valves, thick, black-brown; above convex, with a blackish band in the middle of the back, and lateral yellowish striae. Gmel. Seba. &c.

Inhabits the straits of Magellan. This species is of a large size; shell fine green, bordered with brown, and black within the middle.

FUSCUS. Shell of eight valves, brown, smooth; inside and teeth of the margin snowy; back with triangular black spots, and obscure yellowish bands on each side. Chemn. &c.

This is found in India. It is of a narrower form than the last; marginal teeth are numerous, and largest on the two extreme valves; and the back is more elevated and carinated.

MACULATUS. Shell of eight valves, smooth; within sea-green; margin covered with greyish white scales; anterior part of the middle valves, and sides of some spotted with brown. Chemn. A rare species. Country unknown.

MARMORATUS. Shell of eight valves, smooth, black and white varied; middle valves greenish within. Gmel. Chemn. &c.

Inhabits the American seas. Size variable; colours black and white, variously disposed in alternate blackish and white bands, streaks, veins, and spots; the scabrous border tumid with alternate whitish, steel blue, and blackish patches. A variety with seven valves is described by Schroeter.

GRANULATUS. Pitchy, above flat, with numerous elevated dots disposed in regular series; border broad, coriaceous, spinous, with alternate black and white patches. Chemn.

A native of the American ocean. Valves usually eight, rarely seven.

PICEUS. Shell eight valved, above smooth, pitchy, black varied with white. Chemn.

Inhabits the American and Red seas. This is allied to the preceding species. The inside of the shell is black in the

the middle, at the sides greenish; and the back is marked with alternate black and white spots, bands, and veins. Rarely found with only six or seven valves.

INDUS. Shell of eight valves; whitish ash colour, with the border scaly; middle valves very finely punctured. Chemn. A native of the American seas.

MINIMUS. Shell of eight valves, smooth black, and sprinkled with farinaceous or powdery patches. Chemn.

Inhabits the Norway seas, near Bergen. Size very small.

CIMEX. Shell of eight valves, carinated, diaphanous, and banded; each of the extreme valves very finely punctured. Chemn.

This species is of a small size, and inhabits the Norway seas. Within the colour is whitish-ash, with alternate blackish and paler bands.

ASELLUS. Shell of eight valves; deep black; above convex, with a yellowish spot on each of the valves. Chemn.

Inhabits the North seas, affixed to the large muscle, *mytilus modiolus*.

GIGAS. Shell of eight valves, thick, convex, and white; first valve crenated, the middle ones emarginated, and the extreme one armed with teeth. Chemn. &c.

Length four inches; border tumid, coriaceous, and black brown. This inhabits the Cape of Good Hope.

THALASSINUS. Shell of six valves, glossy, oval; sea-green, with a pale line above, in the middle; border thin and hyaline. Schroet. Native place unknown.

ISLANDICUS. Shell of eight valves, sub-cylindrical, very finely punctured, black with cinereous border. Schroet. &c. This is of a small size, and narrow at each end.

CRINITUS. Shell of seven valves, and thickly beset with short hairs. Gmel.

This is described by Gmelin, on the authority of Pennant, as a species inhabiting the sea near Aberdeen, Scotland. The species occurs on several other of the British coasts, and has commonly eight valves.

MARGINATUS. Shell of eight valves, smooth, with serrated reflected margin. Gmelin, &c. Found on the sea-coast of Scarborough, and on the western coasts, and those of Scotland.

LEVIS. Shell of eight valves, very glossy, with elevated dorsal band. Gmel. Inhabits the Scottish shores.

AMICULATUS. Shell of eight valves, reniform, very fragile, and covered externally with a coriaceous membrane. Pallas.

Length about six inches; the valves are imbricated. This inhabits the coast of the Kurile islands.

CHITORE. See **CHEITORE**.

CHITPOUR, or **CHITTIPUR**, probably the ancient *Supara*, in *Geography*, a town of Hindoostan, in the country of Guzerat; celebrated for its manufacture of chintzes; 172 miles S.W. of Amedabad. N. lat. 21° 20'. E. long. 75° 30'.

CHITRO, a town of European Turkey, in the province of Macedonia, situated in the bay of Salonichi; 36 miles S.S.E. of Edeffa. N. lat. 40° 30'. E. long. 23° 10'.

CHITSEE, in *Botany*, the name of a Chinese tree, called also *Setfe*.

CHITTAGONG, **CHITTIGONG**, or **ISLAMABAD**, in *Geography*, the name of a province of the peninsula, which separates the gulf of Bengal from the Chinese sea, between the Burrampooter river and the borders of Arracan, and the Birman empire. Its chief town of the same name, situated at a considerable distance from the river Naaf, which bounds the British and Birman territories, is the seat of the pro-

vincial government, and residence of the English magistrate. The banks of the river are covered with deep jungles, interspersed with scanty spots of cultivation, and a few wretched villages, inhabited by the poorest class of herdsmen, and the families of roving hunters, whose occupation it is to catch and tame the wild elephants, with which the forests abound. Such unfrequented places afforded to persons, concerned in a lawless traffic, an asylum, where they escaped the cognizance of the English officers of justice, and furnished the emperor of the Birmans with occasion for complaint and remonstrance, or rather for aggression on the territories of the English East-India company, which terminated, after a threatened conflict, in compromise and conciliation. The Portuguese made their first settlement in this country. The capital, called also Islamabad, is 4° 53' E. of Balasore, in N. lat. 22° 20', and E. long. 91° 55'. From this town the coasts of Arracan and Pegu take a S.S.E. course to Cape Negrais, the extreme point of Pegu to the S.W. the latitude of which is under 16 degrees, and distance from Islamabad about 420 geographical miles.

CHITTELDROOG, a town of Hindoostan, and capital of a province of the same name, in the Mysore country; though which passes the river Hoggy. It is distant 85 miles N.N.W. from Seringapatam, and 95 E. of Bedanore. N. lat. 13° 50'. E. long. 73°.

CHITTENDEN, a county of America, in the state of Vermont, situate on the lake Champlain, between Franklin county on the N. and Addison S.; the Maille river passes through its N.W. corner, and Onion river divides it nearly in the centre. Its chief town is Burlington. This county contained, by the census of 1791, 44 townships, and 7301 inhabitants. Since that time the northern counties have been taken from it, so that neither its size nor number of inhabitants can now be ascertained.—Also, a township in Rutland county, and state of Vermont, containing 159 inhabitants. The road over the mountain passes through this township. It is distant 7 miles E. from the fort on Otter creek, in Pittsford, and about 60 N. by E. from Bennington.

CHITTENENGO, or **CANASERAGE**, a considerable stream, which runs northerly into lake Oncida, in the state of New York.

CHITTEPUT, a town of Hindoostan, in the Carnatic; 14 miles N. of Gingee.

CHITTIGONG, or **ISLAMABAD**. See **CHITTAGONG**.

CHITTIM, in *Scripture Geography*, denote, according to Bafnage, the Cuthæans, who inhabited Susiana, near Babylon, and who, marching under Nebuchadnezzar, contributed to the siege of Tyre. Bochart supposes the Romans to be meant by Chittim: but as the Cuthæans are never called Chittim in Scripture, and the Romans were not concerned in the siege of Tyre, mentioned by the prophet Isaiah (ch. xxiii. v. 1, &c.), Calmet supposes that the appellation of Chittim is applied to the Macedonians, and that the prophet speaks of the country of Macedonia as an island, (denominating it the isles of Chittim,) after the manner of the Hebrews, who thus call peninsulas and maritime countries. However, there seems to be no sufficient reason for restraining the term Chittim to Macedonia, which was not particularly a maritime country, but it may include all Greece; and more especially the islands of the Archipelago, and perhaps up the Bosphorus, since vessels might navigate from thence to Tyre, as they now do to Egypt, &c. The Greek colonies, dispersed about the Mediterranean, might also be comprehended under the denomination; and, consequently, Sicily, Sardinia, and a great part of Italy.

CHITTING, in *Gardening*. A seed is said to *chit*, when it first shoots its small roots into the earth.

CHITTOOR, in *Geography*, a town of Hindoostan, in the Carnatic; 28 miles N.W. of Arcot, and 70 W. of Madras.

CHITTRA, a town of Hindoostan, in the Bahar country; 85 miles S. of Patna, and 72 S.S.W. of Bahar.

CHI-TUA, in the *Materia Medica*, a name used by some authors for a kind of *lignum aloes*, which is reddish, and of a very fine scent.

CHITWA, in *Geography*, a town of the peninsula of India, in the province of Cochin, near the coast of Malabar. N. lat. 10° 33' 15". E. long. 76° 5'.

CHIVA, a town of Spain, in the province of Valencia; 15 miles W.N.W. of Valencia.

CHIVAGE. See **CHEVAGE**.

CHIVALRY, in *Antiquity*, an institution which, according to some writers, took its rise from the *crusades*, but according to others, gave occasion to that enterprise; and which, though founded in caprice, and productive of extravagance, had a very considerable influence in refining the manners of the European nations, during the 12th, 13th, 14th, and 15th centuries. This institution naturally arose, says Dr. Robertson, (*ubi infra*,) from the state of society at that period. The feudal state was a state of perpetual war, rapine, and anarchy; during which the weak and unarmed were exposed to perpetual insults or injuries. The power of the sovereign was too limited to prevent these wrongs; and the administration of justice too feeble to redress them. Against violence and oppression there was scarcely any protection, besides that which the valour and generosity of private persons afforded. The same spirit of enterprise which had prompted so many gentlemen to take arms in defence of the oppressed pilgrims in Palestine, incited others to declare themselves the patrons and avengers of injured innocence at home. When the final reduction of the Holy Land under the dominion of Infidels, put an end to these foreign expeditions, the latter was the only employment left for the activity and courage of adventurers. The objects of this institution were to check the insolence of overgrown oppressors, to succour the distressed, to rescue the helpless from captivity, to protect or to avenge women, orphans, and ecclesiastics, who could not bear arms in their own defence, to redress wrongs, and to remove grievances. These were considered as acts of the highest prowess and merit. Valour, gallantry, and religion, were blended in this institution; humanity, courtesy, justice, and honour were its characteristic qualities; the enthusiastic zeal produced by religion served to give it singular energy, and to carry it even to a romantic excess: men were trained to knighthood by long previous discipline; they were admitted into the order by solemnities no less devout than pompous; every person of noble birth courted the honour; it was deemed a distinction superior to royalty, and monarchs were found to receive it from the hands of private gentlemen. These various circumstances contributed to render a whimsical institution of substantial benefit to mankind.

Another ingenious writer, who traces the origin of chivalry to the crusades, thus represents the occasion and manner of its introduction. On the crumbling of the western empire into small states, with regular subordinations of vassals and their chiefs, who looked up to a common sovereign, it was soon found that these chiefs had it in their power to make themselves very formidable to their masters; and just in that crisis of European manners and empire, the Saracens having expelled Christianity from the East, the western princes seized the opportunity, and with great craft turned the warlike genius of their feudatories, which would

otherwise have preyed upon themselves, into the spirit of crusades against the common enemy. See **CRUSADE**. But when, afterwards, the ardour of the crusades was somewhat abated, though not extinguished, the Gothic princes and their families had settled into established monarchies. At this juncture, when the restless spirit of their vassals had little employment abroad, and was restrained, in a considerable degree, from exerting itself with success in domestic quarrels, it broke out in all the extravagance of "knight-errantry." Military fame, acquired in the Holy Land, had entitled the adventurers to the insignia of arms, the source of heraldry; and inspired them with the love of war and the passion of enterprise. Their late expeditions had given them a turn for roving in quest of adventures; and their religious zeal had infused high notions of piety, justice, and chastity. The scene of action being now more confined, they turned themselves from "the world's debate," to private and personal animosities. Chivalry was employed in rescuing humble and faithful vassals from the oppression of petty lords; their women from savage lust; and the hoary heads of hermits (a species of eastern monks, much revered in the Holy Land) from rapine and outrage. In the mean time the courts of the feudal sovereigns became magnificent and polite; and, as the military constitution still subsisted, military merit was to be upheld; but, destitute of its former objects, it naturally softened into fictitious images and courtly exercises of war, in "Jousts" and "Tournaments;" where the honour of the ladies supplied the place of zeal for the holy sepulchre; and thus the courtesy of elegant love, but of a wild and fanatic species, as being engrafted on spiritual enthusiasm, came to mix itself with the other characters of the knights-errant.

Dr. Hurd, in his "Letters on Chivalry and Romance," observes, that *chivalry*, properly so called, and under the idea of "a distinct military order, conferred in the way of investiture, and accompanied with the solemnity of an oath and other ceremonies, as described in the old historians and romances," was of later date than the feats of Charlemagne and our Arthur, and seems to have sprung immediately out of the feudal constitution. This constitution produced a very great change in the politics of Europe; and its first and most sensible effect was the erection of a prodigious number of petty tyrannies, exercised by the great barons over their dependent vassals. These barons, though closely attached to the service of their prince by the conditions of their tenure, became a kind of absolute sovereigns, at least with regard to one another; and as their aims and interests often interfered, the feudal state was, in a great degree, a state of war; the several combinations of feudal tenants were so many separate armies under their head or chief; and their castles were so many fortresses, as well as palaces, of these puny princes. Hence arose the peculiar encouragement which was given to the use of arms, under every different form of attack and defence, as the safety of these different communities, or the ambition of their leaders, might require. This condition of the times is supposed by the ingenious prelate to have given rise to that military institution, which we know by the name of "Chivalry." In the intervals of peace, the military discipline of the followers of these independent nobles was not to be relaxed, nor their ardour suffered to cool, by a total disuse of martial exercises. To this circumstance, he conceives, may be traced the proper origin of "Jousts" and "Tournaments;" those images of war, which were kept up in the castles of the barons, and, by an useful policy, converted into the amusement of the knights, when their arms were employed on no serious occasion. See **JUST** and **TOURNAMENT**.

CHIVALRY.

From the circumstances of the feudal government, which gave rise to chivalry, the author accounts for the various characteristics of this singular profession. Hence were derived the passion for arms, the spirit of enterprise, the rewards of valour, the splendour of equipage, and, in short, every thing that raises our ideas of the prowess, gallantry, and magnificence of these sons of Mars. Hence also proceeded their romantic ideas of justice, their passion for adventures, their eagerness to run to the succour of the distressed, and the pride they took in redressing wrongs and removing grievances, which are distinguishing characteristics of genuine chivalry. Moreover, the courtesy, affability, and gallantry, for which these adventurers were so famous, are but the natural effects and consequences of their situation. The castles of the barons were the courts of those little sovereigns, as well as their fortresses; and the resort of their vassals thither, in honour of their chiefs, and for their own proper security, would render that civility and politeness, which are seen in courts and insensibly prevail there, a predominant part in the character of these assemblies. Besides, the preeminence of the ladies, in those courts and circles of the great, would operate so far on the sturdiest knights, as to give birth to the attentions of gallantry: and as violations of chastity were the most atrocious crimes which they had to charge on their enemies, they would pride themselves in the merit of being its protectors; this virtue furnishing the fairest and strongest claim of the sex itself to such protection, it is no wonder that the notions of it were, in time, carried to so Platonic an elevation. To this purpose the great master of chivalry expresses his sentiments on the subject:—

“ It hath been thro’ all ages ever seen,
That, with the praise of arms and chivalry,
The prize of beauty still hath joined been;
And that for reason’s special privy:
For either doth on other much rely;
For *He* meeseems most fit the fair to serve,
That can her best defend from villany;
And *She* most fit his service doth deserve,
That fairest is, and from her faith will never swerve.”

Spenfer, b. iv. c. 5.

As to the character of religion, which was so deeply imprinted on the minds of all knights, and was essential to their institution, inasmuch that, it is said, “ the love of God and of the ladies,” went hand in hand in the duties and ritual of chivalry, two reasons may be assigned for this singularity; viz. the superstition of the times in which chivalry arose, which was so great, that no institution of a public nature could have found credit in the world, that was not consecrated by the churchmen, and closely interwoven with religion; and also the condition of the christian states, which had been harassed by long wars, and had but just recovered a breathing time from the brutal ravages of the Saracen armies. The remembrance of what they had lately suffered from these grand enemies of the faith, made it natural and even necessary to engage a new military order on the side of religion. See RECREANT. The preceding characteristics of chivalry, which Dr. Hurd deduces from the essential properties of a feudal government, are made to result from the spirit of crusades, by those who trace their origin to these military enterprises; whereas this author considers the latter as only an accidental effect of the former. He allows, however, what indeed cannot be reasonably contested, that chivalry as it is represented in books of romance, (so much posterior to the date of that military institution) took its colour and character from the impressions

made on the minds of men by the spirit of crusading into the holy land. Accordingly there are, as he apprehends, two distinct periods, which ought to be carefully observed in a deduction of the rise and progress of chivalry. The *first* is that in which the empire was overturned, and the feudal governments were every where introduced on its ruins, by the northern nations. In this era, that new policy settled itself in the west, and operated so powerfully as to lay the first foundations, and to furnish the remote causes of what we know by the name of chivalry. The *other* period is, when these causes had taken a fuller effect, and shewed themselves in that signal enterprise of the crusades; which not only concurred with the spirit of chivalry, already pullulating in the minds of men, but brought a prodigious increase, and gave a singular vigour and force, to all its operations. In this era, chivalry took deep root, and at the same time shot up to its full height and size. From this last period the Romances both in prose and verse, derive all their ideas of chivalry. See ROMANCE. But it was, as our learned prelate conceives, the former period that gave birth to this institution; as he infers not only from the reason of the thing, but from the surer information of authentic history. For there are traces of chivalry, in its most peculiar and characteristic forms, to be found in the ages preceding the crusades; and even justs and tournaments, the image of serious knight-errantry, was certainly of earlier date than that event. Our author, (referring to the “Memoirs of the Academy of Inscriptions and Belles Lettres,” T. xx), proceeds to shew that there is a remarkable correspondency between the manners of the old heroic times, as painted by their great romancer, Homer, and those which are represented to us in books of modern knight-errantry: and this is a fact which is accounted for by the assistance of another, viz. that the political state of Greece, in the earlier periods of its history, was similar in many respects to that of Europe, as broken by the feudal system into an infinite number of petty independent governments.

This similarity is illustrated in the following particulars.

The military enthusiasm of the barons is but of a piece with the fanaticism of the heroes, as they are exhibited by the Gothic romances and by the Greek poet. We also hear much of knights-errant encountering giants and quelling savages, in books of chivalry. These giants were oppressive feudal lords, occupying their strong holds or castles; and their dependents of a lower form, who imitated the violence of their superiors, and though destitute of castles, had their lurking places, were the savages of romance. The greater lord was denominated a giant, for his power; the less, a savage, for his brutality. Another terror of the Gothic ages was monsters, dragons, and serpents. In all these respects, Greek antiquity very much resembles it. For what are Homer’s Læstrigons and Cyclops, but bands of lawless savages, with, each of them, a giant of enormous size at their head? And what are the Grecian Bacchus and Hercules, but knights-errant, the exact counterparts of Sir Launcelot and Amadis de Gaule? Moreover, the oppressions which it was the glory of the knight to avenge, were frequently carried on, as we are told, by the charms and enchantments of women. Similar to stories of this kind are those of Calypso and Circe, the enchantresses of the Greek poet. Besides, robbery and piracy were honourable in both; so far were they from reflecting any discredit on the ancient or modern redressors of wrongs. To account for this odd circumstance, we ought to recollect, that in the feudal times, and in the early days of Greece, when government was weak, and unable to redress the frequent injuries of petty sovereigns, it would be glorious for private adventurers to undertake this work; and if they

could accomplish it in no other way, to pay them in kind by downright plunder and rapine. Their manners, in another respect, were the same. Bastardy was in credit with both. Whilst they were extremely watchful over the chastity of their own women, those whom they could seize upon in the enemy's quarter, were deemed lawful prize. Or, if at any time they transgressed in this way at home, the heroic ages were complaisant enough to cover the fault by an ingenious fiction. The offspring was reputed divine. We also find, that together with the greatest fierceness and savageness of character, the utmost generosity, hospitality, and courtesy were imputed to the heroic ages. Achilles was at once the most relentless, vindictive, implacable, and the friendliest of men. Similar to this is the representation that occurs in the Gothic romances, where it is almost true what Butler says humorously of these benign heroes, that

"They did in fight but cut work out
T'employ their courtesies about."

These contradictions in the characters of ancient and modern men of arms can be reconciled only by observing, that as in these lawless times dangers and distresses of all sorts abounded, there would be the same demand for compassion, gentleness, and generous attachment to the unfortunate, those especially of their own class, as of resentment, rage, and animosity against their enemies. Further, if we advert to the martial games which ancient Greece delighted to celebrate on great and solemn occasions, we shall perceive that they had the same origin, and served the same purpose, as the tournaments of the Gothic warriors. And, lastly, the passion for adventures, so natural in their situation, would be as naturally attended with the love of praise and glory. Hence the same encouragement, in the old Greek and Gothic times, to panegyricists and poets: the bards being as welcome to the tables of the feudal lords, as the *AOIAOI* of old to those of the Grecian heroes.

Bishop Warburton (in a note to *Love's Labour lost*) and Warton (*Diff. i.* prefixed to the *History of English Poetry*, vol. i.) incline to the hypothesis which traces the first idea of chivalry and romance to Spain, where it was introduced by the Saracens or Arabians, who having been for some time seated on the northern coasts of Africa, entered Spain about the beginning of the 8th century. Mallet, in his "Introduction to the History of Denmark," followed by Pinkerton (*Diff. on the Scythians or Goths*) and Percy (on the *Ancient Metrical Romances*), ascribes to the tales and rites of chivalry a Scandinavian origin. An anonymous writer, however, is of opinion, (*Month. Magaz.* Feb. 1800) that neither Moorish Spain, nor Gothic Scandinavia gave this very decisive impulse to the character of early modern civilization; but rather Armorica, and the connected provinces of Britain. In support of this opinion it is argued, that all the European nations take their romances of chivalry from the French; that the French romances originate in the north of France; that the older romances of chivalry have especially celebrated the heroes of Greater or Lesser Britany, and are therefore of Armorican origin; that rime is derived from the language of Armorica; and that chivalry, though of obscure origin, is also probably Amorican. Accordingly it is alleged, that chivalry resembles, in the spirit of its operation, a confederacy of country-gentlemen, to ward off from each other the dangers and evils of anarchy. A defensive, not an offensive, spirit characterizes the obligations of a knight; and his oath required him to protect the church against heathens, ladies against ravishers, orphans against encroaching guardians, and the conquered equal against insult. An exclusive care for the interests of

gentlemen distinguishes the practice of the initiated; and whilst the personal rights of women of the lower classes were invaded without scruple, those of ladies were respected with superstitious politeness. Such features, it is said, seem to be rather the relics of a receding than the tokens of a growing civilization. The whole ritual of chivalry, the military exercises, the tournaments, the fortified palaces, and its religious character imply an advancement in society to which the Scandinavians could not have attained. The sacred reverence for ladies cannot have proceeded from the Mahometan Moors. Armorica alone, as this anonymous writer maintains, was adapted by its political circumstances, its Christianity, and its long participation of Roman culture, to become the nurse of such peculiarities. Some ceremonies of knighthood bear a strong resemblance to those bardic institutions which were common to the Belgic provinces of Gaul and Britain; and which retain, till this time among the Welsh, a great influence. See ROMANCE.

Chivalry, whatever might be the era of its origin, declined in England during the inglorious reigns of king John and Henry III.; but revived under Edward I. This prince was one of the most accomplished knights of the age in which he flourished, and both delighted and excelled in feats of chivalry. As a proof of this, it will be sufficient to allege, that when he was on his return from the Holy Land after his father's death, and knew that his presence was ardently desired in England, he accepted an invitation to a tournament at Chalons in Burgundy; where he displayed his skill and valour to great advantage, and gained a complete victory. Edward III. was no less fond of chivalry, and encouraged it both by his example and munificence. Having formed the design of asserting his claim to the crown of France, he laboured to inspire his own subjects with a bold enterprising spirit, and to entice as many valiant foreigners as possible into his service. With this view, he celebrated several pompous tournaments, to which he invited all strangers who delighted in feats of arms, entertained them with great hospitality, and loaded such of them as excelled in those martial sports with honours and rewards, in order to attach them to his person and engage them to fight in his cause: with the same view, and at the same time, he founded the most honourable order of the garter, of which his own heroic son, the Black Prince, was the first knight, and all the first companions were persons famous for their victories at tournaments, and in real wars. The revival of chivalry in these two reigns of Edw. I. and Edw. III. contributed not a little to promote valour, munificence, and a splendid kind of gallantry among persons of condition, who aspired to the honours of knighthood, which were then objects of ambition to the greatest princes. All the heroic virtues, it has been said, which then existed in the several states of Christendom, were the fruits of chivalry. Although this may be regarded as an extravagant assertion, it cannot be denied that the spirit and the laws of chivalry were friendly to the cause of virtue. By these laws none but persons of unsullied character could obtain the honours of knighthood, which were conferred with much solemnity on the most public occasions, and in the presence of the most august assemblies. After the candidate had given sufficient proofs of his prowess, and other virtues, to merit that distinction, and had prepared himself for receiving it, by fasting, confessing, hearing masses, bathings, and other acts of devotion, he took an oath consisting of 26 articles, in which, amongst other things, he swore, that he would be a good, brave, loyal, just, generous, and gentle knight, a champion of the church and clergy, a protector of the ladies, and a redressor of the wrongs of widows and orphans. To this purpose

purpose we may observe, that when Alphonso V. king of Portugal, conferred the honour of knighthood on his son, he commanded him to kneel down by his side, and instructed him in the nature and duties of the order into which he was admitted; and, amongst other things, directed him to consider, that as the priesthood was instituted for divine service, so was chivalry for the maintenance of religion and justice. A knight, he adds, ought to be the husband of widows, the father of orphans, the protect. of the poor, and the prop of those who have no support; and they who do not act thus, are unworthy to bear that name. Those who acquitted themselves of these obligations in an honourable manner were favoured by the fair and courted by the great; but those who were guilty of base dishonourable actions, were degraded with every possible mark of infamy. (See KNIGHT.) All this could hardly fail to have some influence on the conduct of those who were invested with that dignity; though, from the rudeness of the times, and the general dissolution of manners which then prevailed, that influence was probably less than might have been expected. However, the spirit and practice of chivalry did actually produce a very beneficial effect. "I will venture to say," as lord Lyttelton observes (Hist. Hen. II. vol. iii. p. 161, 8vo.) "that from the 9th to the 16th century, the brightest virtues which dignified either the history of this nation or that of any other people in the whole Christian world, were chiefly derived from this source. Had it not been for the spirit of chivalry, the corruption of religion, the want of all good learning, the superstition, the ferocity, the barbarism of the times, would have extinguished all virtue and sense of humanity, as well as all generous sentiments of honour, in the hearts of the nobility and gentry of Europe; nor could they have been able to resist the military enthusiasm of the Saracens and the Turks, without the aid of another kind of fanaticism, which was excited and nourished in them by means of that spirit."

"This singular institution," says Dr. Robertson (ubi infra), "in which valour, gallantry, and religion, were so strangely blended, was wonderfully adapted to the taste and genius of martial nobles; and its effects were soon visible in their manners. War was carried on with less ferocity, when humanity came to be deemed the ornament of knighthood no less than courage. More gentle and polished manners were introduced, when courtesy was recommended as the most amiable of knightly virtues. Violence and oppression decreased, when it was reckoned meritorious to check and to punish them. A scrupulous adherence to truth, with the most religious attention to fulfil every engagement, became the distinguishing characteristic of a gentleman, because chivalry was regarded as the school of honour, and inculcated the most delicate sensibility with respect to that point. The admiration of these qualities, together with the high distinctions and prerogatives conferred on knighthood in every part of Europe, inspired persons of noble birth, on some occasions, with a species of military fanaticism, and led them to extravagant enterprises. But they imprinted deeply on their minds the principles of generosity and honour. These were strengthened by every thing that can affect the senses or touch the heart. The wild exploits of those romantic knights who sallied forth in quest of adventures, are well known, and have been treated with proper ridicule. The political and permanent efforts of the spirit of chivalry have been less observed. Perhaps, the humanity which accompanies all the operations of war, the refinements of gallantry, and the point of honour, the three chief circumstances which distinguish modern from ancient manners, may be ascribed in a great measure to this whimsical institution,

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seemingly of little benefit to mankind. The sentiments which chivalry inspired had a wonderful influence on manners and conduct during the 12th, 13th, 14th, and 15th, centuries. They were so deeply rooted, that they continued to operate after the vigour and reputation of the institution itself began to decline." In a word, chivalry, which is now an object of ridicule, was, at the period to which we have above referred, a matter of the greatest moment, and had no little influence on the manners of mankind and the fate of nations. Robertson's Ch. V. vol. i. Henry's Hist. vol. viii. Lyttelton's Hist. vol. iii. Hurd's Moral and Political Dialogues, vol. iii. Memoirs of Ancient Chivalry, &c. translated from the French of M. de St. Palaye, by the translator of the Life of Petrarch (Mrs. Dobson), 8vo. 1784.

CHIVALRY, or *Chevalry*, in *Law*, a tenure of land by knight-service; whereby the tenant was anciently bound to perform service in war, to the king, or to the mesne lord of whom he held by that tenure.

By a statute of 12 Car. II. cap. 24. all tenures by *chivalry*, in *capite*, &c. are abolished. See COURT and GUARDIAN.

CHIVALRY, *Court of*. See COURT.

CHIVAZZO, or CHIVAS, in *Geography*, a town of Piedmont, situated near the union of the river Orco with the Po, on a large plain, part of which is converted to tillage, and produces Turkey corn, but towards Zigliano a barren waste in many places, covered with a kind of reddish heath. It is defended with ancient and new walls, bastions, and large fosses filled with water; and well supplied with artillery and a numerous garrison, especially in time of war. Its situation is so advantageous, that those who are masters of it are said to possess the key of the country of Turin, the Canavois, the country of Vercelli, Montferrat, and Lombardy, all which they may enter at pleasure. It has several churches and convents; 11 miles N.E. of Turin, and 12 S. of Ivrea. N. lat. 45° 1'. E. long. 7° 43'.

CHIUDENDO, in *Italian Music*, to conclude; as *chiudendo col ritornello*, *col Paria*, signifies to end with a *ritornello*, or some passage which has been before sung in some parts of the piece.

CHIVEN, in *Ornithology*, a name given by some old writers to the fly-catcher, *Muscicapa griseola*.

CHIVERNY, in *Geography*, a town of France, in the department of the Loir and Cher, seated on the south side of the Conon; 3 leagues S.E. of Blois.

CHIVES, or CHIEVES, in *Botany*, the small knobs growing on the ends of the fine threads, or stamina of flowers: by Ray, and others, called also *apices*. See ANOTHER.

Dr. Grew calls the stamina, or threads themselves, on which the apices are fixed, the chives.

CHIVES, a very small species of the onion kind, is also called by this name. See ALLIUM.

CHIUM *marmor*. See MARBLE.

CHIUM *vinum*, *Chian wine*, or wine of the growth of the island of Chios, now Scio, is commended by Dioscorides, as affording a good nourishment, fit to drink, less disposed to intoxicate, endued with the virtue of restraining fluxions, and a proper ingredient in ophthalmic medicines. Hence Scribonius Largus directs the dry ingredients in *collyria* for the eyes, to be made up with Chian wine.

CHIUN, or CHEVAN, in *Hebrew Antiquity*. We meet with this word in the prophet Amos (ch. v. 26) cited in the Acts of the Apostles, (ch. vii. 43.). St. Luke reads the passage thus: "Ye took up the tabernacle of Moloch, and the star of your god Remphan, figures which ye made to worship them." The import of the Hebrew is as follows:

"Ye have borne the tabernacle of your kings, and the pedestal (the *chiun*) of your images, the star of your gods, which ye made to yourselves." The Septuagint in all probability read *repham* or *revan*, instead of *chiun* or *chevan*, and took the pedestal for a god.

Some say that the Septuagint, who made their translation in Egypt, changed the word *chiun* into that of *remphan*, because they had the same signification. M. Bafnage, in his book entitled Jewish Antiquities, after having discoursed a good deal upon *chion* or *remphan*, concludes that Moloch was the sun, *chion*, *chiun*, or *remphan*, the moon.

CHIUREA, in *Zoology*, a name given by Cardan, Oviedo, and some others, to the Opossum, DIDELPHIS *opossum*.

CHIUSA, LA, in *Geography*, a town of Italy, in the Veronese, belonging to the state of Venice; 9 miles N.W. of Verona.—Also, a town of Italy in the Friuli, seated on a small river, called the "Fella," which runs into the Taja-mento; taken by the French in 1797; 14 miles N. of Friuli.

CHIUSANO, a town of Naples, in the province of Principato Citra; 13 miles S.S.E. of Benevento.

CHIUSELLE, a river of Piedmont, which runs into the Orco; 1 mile W.S.W. of Foglissio.

CHIUSI, a town of Italy, in the country of Sienna, containing about 1000 inhabitants, the see of a bishop; 31 miles S.S.E. of Sienna.

CHIUSO, *Ital.* Close, concealed, locked up: as in *Musica*, *canone chiuso*, is a canon, not in score, but written entirely on one staff, sometimes without any indications of clefs, signals when the several parts come in, or information of any kind to point out the solution. See CANON.

CHIUSTENGI, in *Geography*, a town of European Turkey, in the province of Bulgaria; 70 miles E. of Silistria. N. lat. 43° 2'. E. long. 27° 30'.

CHIUTAYA, KIUTAJA, or CUTAJA, a town of Asiatic Turkey, and capital of a district in Natolia, situated at the foot of a mountain, in a fertile and healthy country, and defended by a castle on a rock. It contains several mosques, and three Armenian churches; 136 miles S.S.E. from Constantinople. N. lat. 39° 14'. E. long. 30° 44'.

CHIZE', a town of France, in the department of the Two Sevrès, and district of Niort, situated near the Boutonne; 3½ leagues S. of Niort.

CHIZILARABAD, a town of Asia, in the kingdom of Kurdistan; 70 miles S.S.E. of Kerkuk.

CHLÆNA, in *Antiquity*, a kind of thick, shaggy, upper garment; its use was very ancient; for we find Homer makes his heroes first put off their *chlæna*, and afterwards their tunics or coats.

CHLAMYDIA, in *Botany*, Gært. See PHORMIUM.

CHLAMYDULA, in *Antiquity*, a small upper garment worn by children. See CHLAMYS.

CHLAMYS, among the Romans called *paludamentum*, in *Antiquity*, a military habit, worn by the ancients over the tunica. Chlamys was the same, in time of war, that the toga was in time of peace; each belonged to the patricians. It did not cover the whole body, but chiefly the hind-part; though it also came over the shoulders, usually the left shoulder, so as to leave the right arm at liberty, and was fastened with a buckle on the breast. There were four or five kinds of chlamys; that of children, that of women, and that of men, which last was divided into that of the people, and that of the emperor. The consul and generals, before they set out for the field, went to the capitol dressed in this robe, in order to pray and make

vows to the gods, and threw it aside on their return, entering the city in the toga.

CHLENN, in *Geography*, a town of Bohemia, in the circle of Koniggratz; 18 miles S.E. of it.

CHLIASMA, in *Medicine*, a warm fomentation of the moist kind; as pyria is of the dry kind.

CHLOEIA, in *Antiquity*, a festival celebrated at Athens, in honour of Ceres, to whom, under the name *χλον*, i. e. *grafs*, they sacrificed a ram.

CHLOPAN, in *Geography*, a town of Poland, in the palatinate of Volhynia; 72 E.N.E. of Lucko.

CHLORA, in *Botany*, (said to be so called from *χλωρος*, *pale* or *greenish yellow*, alluding to the colour of the flowers.) Linn. Syst. Nat. 1258. Reich. 519. Schreb. 653. Willd. 752. Juss. 142. Vent. 2. 425. (Blackstonia; Hudf. Flor. Ang. ed. 1.)

Class and order, *obandria monogynia*, Nat. Ord. *Rotaceæ*, Linn. *Gentianeæ*, Juss. Vent.

Gen. Ch. *Cal.* Perianth eight-leaved; leaves linear, permanent. *Cor.* monopetalous, salver-shaped; tube shorter than the calyx, coating the germ; border eight-cleft; segments lanceolate, longer than the tube. *Stam.* Filaments eight, very short, seated in the throat; anthers linear, erect, shorter than the segments of the corolla. *Pist.* Germ ovate-oblong; style filiform; stigma four-cleft. *Peric.* capsule ovate-oblong, somewhat compressed, furrowed, one-celled, two-valved; valves incurved on the side. *Seeds* numerous, minute.

Eff. Ch. Calyx eight-leaved. Corolla monopetalous, eight-cleft. Capsule one-celled, two-valved, many-seeded. Stigma four-cleft.

Sp. 1. *C. perfoliata*. Linn. Syst. Nat. 1. Mart. 1. Lam. Encyc. 1. Willd. 1. (*Gentiana perfoliata*; Linn. Sp. Pl. *Centaureum luteum perfoliatum*, Bauh. Pin. 278.) Yellow centaury. "Leaves perfoliate." Root annual, small, twined. Whole herb glaucous, intensely bitter. Stem from three inches to three feet high, erect, cylindrical, dichotomous near the top. Leaves quite entire, smooth, egg-shaped, acute. Flowers from the forks of the stem, solitary, peduncled, of a golden hue; leaves of the calyx generally eight, border of the calyx generally eight-cleft; filaments generally eight; stigma red, two-cleft; segments bifid. A native of a calcareous soil in England, and the southern part of the continent of Europe. 2. *C. quadrifolia*, Linn. Syst. Nat. 2. (*Gentiana*: Linn. Sp. Plant.) "Leaves growing by fours." Stem about seven inches high, simple, somewhat quadrangular, jointed. Leaves in whorls, linear, a little broader towards the top, rather obtuse, the length of the internodes. Peduncles five, terminal; the fifth intermediate; each with two opposite bracts about the middle; corolla eight-cleft as in the preceding, but the segments smaller. A native of the south of Europe. Linnæus supposed it a hybrid plant produced from *Chlora perfoliata*, and *Linum quadrifolium*. 3. *C. dodecandria*, Linn. Syst. Nat. 3. Mart. 4. Lam. Encyc. 3. Willd. 3. (*Chironia*; Linn. Sp. Pl. *Gentiana*; Gron. Virg.) "Leaves opposite; corollas twelve-cleft." Flowers flesh-coloured; calyx twelve-cleft; segments linear, erect; corolla twelve-cleft, longer than the calyx; segments lanceolate. Stamens twelve; anthers oblong, spiral; germ roundish: style long, twined; stigma simple. A native of Virginia. 4. *C. imperfoliata*, Linn. jun. Sup. 218. Mart. 2. Lam. Encyc. 4. Willd. 5. "Corollas six-cleft." Root annual. Stem about four inches high, herbaceous, quite simple, erect, quadrangular. Leaves opposite, sessile, half-embracing the stem, egg-shaped, smooth, acute, shorter than the internodes. Flower yellow,

low, larger than the leaves, terminal, peduncled; calyx one-leaved, campanulate, the length of the corolla, bifid beyond the middle, spreading, permanent; segments lanceolate; corolla monopetalous, salver-shaped: tube short, spreading; border longer, with six oval segments; filaments six, awl-shaped, a little longer than the tube, and attached to it; anthers roundish; germ oblong; styles two, agglutinated together; stigmas obtuse. A native of Italy. The fruit of this plant is unknown, and nearly all its known parts of fructification are totally at variance with the generic character; it cannot therefore be a chlora, as that genus is at present understood, notwithstanding its agreement in habit with *C. perfoliata*, from which the generic character was originally formed. *C. dodecandria* is in the same predicament; and, on account of its spiral anthers, had perhaps better have been left with *Chironia*, where Linnæus once placed it.

CHLORANTHUS, (from *χλωρος*, pale yellow, and *ανθος*, a flower.) Mart. Willd. L. Herit. Sert. Ang. 35. tab. 2. Swartz. Phil. Trans. Vol. 77. tab. 14. Juss. 423. (Nigrina; Schreb. 212. Lam. Ill. 185. tab. 71. Poir. in Encyc.) Class and order, *tetrandria monogynia*. Nat. Ord. uncertain; supposed by Jussieu to have some affinity to *Viscum*.

Gen. Ch. *Cal.* none. *Cor.* monopetalous, scale-like, three-lobed, concave within, convex outwards, half-superior, attached to the outer side of the germ. *Stam.* filaments none; anthers four, oval-oblong, sessile, adnate to the petal within towards its edges. *Pist.* germ half-superior, egg-shaped; style none; stigma capitate, somewhat two-lobed. *Peric.* Berry oval, somewhat mucronate at the tip, transparent at the base, one-celled. *Seed* single, roundish.

Eff. Ch. calyx none. Petal scale-like, three-lobed, fixed to the side of the germ. Anthers adnate to the inner side of the petal. Berry one-seeded.

Sp. *C. inconspicuus*. A stoloniferous undershrub. *Stems* about a foot high, cylindrical, procumbent at the base, throwing out roots from the lower knots. *Leaves* about two inches long, and opposite, oblong-ovate, revolute, somewhat wrinkled, spreading, flat, permanent; petioles short, opposite, uniting at the base into a kind of ring, which supports two awl-shaped erect stipules. *Flowers* pale yellow, in a terminal panicle composed of opposite spikes, arranged in pairs on a common receptacle, each accompanied by a small scale-like bract. The ripe fruit is marked towards the top with the scars of the corolla, and its bract, which, as Jussieu observes, proves it to be truly inferior. A native of China and Japan, and cultivated by the Chinese in their gardens. It was introduced into the royal garden at Kew, in 1781, by Dr. James Lind.

CHLORAS, in *Zoology*, one of the synonyms of *Simia Mormon*. Bresslaer.

CHLOREUS, in *Ornithology*, a name given by Turner and others to the common yellow-hammer, *Emberiza Citrinella*; which see.

CHLOREUS, is also a name assigned by several of the early writers to the golden oriole, *Oriolus galbula*.

CHLORION, of Gesner, in *Ornithology*, the golden oriole, *Oriolus galbula* of Linnæus.

CHLORIS, *Chloris ludoviciana vulgo Papa diâla*. Briss. See *EMBERIZA ciris*.

CHLORIS indica, Briss. the yellow finch. See *FRINGILLA butyracea*.

CHLORIS bahamensis. Briss. See *FRINGILLA bicolor*.

CHLORITE, in *Mineralogy*, *Saint Erde*, or *pearls of the Cornish* mines, a species of the muriatic genus in the arrangement of Kirwan, (Vol. I.) which he distributes into

3 families. The first is in a loose form; colour, grass-green, or greenish-brown, or dark-green inclining to black; external lustre 0.1; it feels greasy, shews a white streak, and gives an earthy smell when breathed on. It is found in scales either investing other stones or heaped together. It melts into a dull black compact slag, and then becomes magnetic. By the analysis of Mr. Hæpner it contains 0.4375 magnesia, 0.375 flint, 0.0417 argill, 0.0166 calx, and 0.1292 iron. 2. Saufs. 133. The second family is indurated and crystallized: colour, dark-green, almost black; form oblong, quadrangular, and acuminate. Lustre, 1; transparency, 0. Fracture earthy, but somewhat scaly. Hardness, 6; not remarkably heavy; gives a mountain green streak; feels meagre; does not effervesce with acids. Ferb. Briss. 43. According to Hæpner, it contains 0.415 flint, 0.3947 magnesia, 0.0613 argill, 0.015 calx, 0.1015 iron, 0.015 air and water. 1. Chy. Ann. 1790. 56. The third family is slaty. It is said to abound with garnets and magnetic iron stone. According to Baron Born. (1 Raab. 247.) its colour is greenish grey; according to others, dark-green, inclining to black. Internal lustre, 1.2; transparency, 0; fracture more or less perfectly slaty, sometimes curved slaty, or passing into the scaly foliated; and then accompanied with more lustre and a darker colour. Fragments flatted. Gives a mountain green streak, feels smooth and somewhat greasy. Hardness, 5.4.

CHLOROPUS, in *Ornithology*, the common water-hen or moor-hen of Will. Penn. &c. The common gallinule of Latham Syn. and *fulica-chloropus* of Linnæus and Gmelin, which see.

CHLOROSIS, in *Medicine*, the *green-sickness*, from *χλωρός*, green, or pale, a disease peculiar to young women, about the period of the commencement of menstruation; the most obvious and characteristic symptom of which is an extremely pallid complexion, frequently with a tinge of yellow, sometimes verging towards green. It has hence been also called occasionally, from the days of Hippocrates, *idærus albus*, or *white jaundice*.

This disease usually commences with languor, lassitude, and indisposition to motion or exertion; and a failure of animation or depression of spirits. The stomach is deranged in its functions, and various symptoms of dyspepsia, such as heartburn, nausea, acid eructations, &c. appear; the appetite for natural food is diminished, and a depraved appetite for indigestible substances, such as chalk, or earth, ensues. The respiration becomes short and difficult, especially upon every slight exertion, such as ascending the stairs, or any declivity, and on these occasions the heart is frequently seized with palpitation. The patient complains of considerable pain in the loins and head, and frequently in the whole of the muscles of the limbs. The bowels are often irregular in their evacuations, most frequently inclined to constipation. The skin over the whole body becomes extremely pallid, sometimes nearly white, more frequently fallow, and in the advanced stages a slight greenish-tinge is occasionally observed; the lips lose altogether their redness; and the eyes become of an excessive pearly whiteness. As the disease proceeds, the legs and feet become œdematous, especially in the evening, and the serum flows into the cellular membrane of the eyelids, which are swelled and livid in the morning, and at length into that of the whole body, producing a general anasarca. In this condition of the body, some of the viscera, as the stomach, liver or spleen, become occasionally affected with some organic disease, the functions generally fail, and the patient dies, tabid or dropical. This termination, however, is rare; for the chlorosis, in general, is readily removed by medicine and regimen.

It is obvious, from this enumeration of the symptoms, that the disease is connected with a great debility or atony of the whole system, and especially of the circulation. Hence the languor and lassitude, and pains in the muscles, especially on being exerted; hence the imperfect secretions of the stomach and liver, and intestines, which give rise to indigestion, flatulence, constipation, &c; and hence the deficiency of that healthy complexion of the skin, which the free and vigorous circulation of the blood through the cutaneous vessels produces. The pain of the back, which is an almost constant symptom of chlorosis, arises partly from the state of atony in the muscles, as in other diseases where the strength is much impaired, but chiefly perhaps from the disordered state of the uterus.

The chlorotic condition of the body is so commonly connected with a partial or complete retention of the menstrual discharge, or *amenorrhœa*, that the latter is frequently considered as an almost synonymous term, and by the females themselves all the symptoms of chlorosis are attributed solely to the *amenorrhœa*. This, however, is undoubtedly an erroneous notion. The general debility of the system is the common cause of the non-appearance of the monthly discharge, and of those other symptoms which constitute chlorosis; both the one and the other are symptoms of the general morbid state of the habit. Thus all the symptoms of chlorosis, occur occasionally when the menses continue to appear at the regular periods. Many of the symptoms are sometimes observed, in which neither the colour of the skin, which characterizes chlorosis, is present, nor are the catamenia suspended. And a suspension of the catamenia, where the chlorotic condition does not take place, is a very common occurrence. Indeed, whatever occasions a considerable reduction of the strength, at any period of life, generally causes a suppression of the menses; such as a want of nutritive food, watching, chronic diseases, &c. But it is chiefly about the period, when the discharge of the menses first appears, or when it has already appeared partially, but not yet attained its regularity, that this debility, which induces chlorosis, is readily excited. Why the body should at that period be thus easily diseased, it is very difficult to explain satisfactorily.

The *causes* which induce chlorosis are more easily ascertained. Whatever contributes to reduce the strength of the system, or greatly to disturb the digestive organs, at the period of life just alluded to, tends to produce a chlorotic condition. Hence the occasional causes of chlorosis are as various as the sources of debility. Fatigue, loss of sleep, deficiency of nutritive food, previous diseases, exposure to cold, a sedentary mode of life, grief, and other depressing passions, are frequent causes of this disease. But of all the mental causes, love, which "feeds on the damask cheek," is said to be the most common source of chlorosis. The habits, therefore, of all conditions of society are favourable to the frequent production of the complaint. The crowded and close streets, the small unventilated tenements, in which young females of the poorer class, occupied in sedentary employments, scarcely ever enjoy the benefit of free air, together with their scanty and poor diet, render this class of girls very obnoxious to the attacks of chlorosis. And, to use the words of an intelligent physician, "we cannot be surprised that young ladies of the highest rank should suffer equally; eight months of the year they sit on thick carpets, in close rooms, heated by regiller stoves; have large fires kept in their bed rooms, never stir out except in carriages, and are often too much restricted in their diet. The weakness and extreme irritability, induced by this mode of living, not only bring on the chlorotic state, but after the

slightest exposure to damp or cold air, render them also liable to be affected with pains and inflammations of the bowels, rheumatism, head-ach, catarrh, phthisis, &c." See Willan Dis. of London, p. 195.

With respect to the *proximate cause* of chlorosis, perhaps little that is satisfactory can be said. As the disease is most commonly connected with a retention of the catamenia, and occurs solely, or almost solely, at that period of life, when the organs destined for the work of generation are evolved, or attain their mature condition, the general laxity and debility of the system, upon which all the symptoms, even the *amenorrhœa*, depend, have been attributed to some morbid condition of the *ovaria*. Thus a celebrated professor has remarked, that as a certain state of the ovaria in females prepares and disposes them to the exercise of venery, about the very period at which the menses first appear, it is to be presumed that the state of the ovaria and that of the uterine vessels are in some measure connected together; and as generally symptoms of a change in the state of the former appear before those of the latter, it may be inferred, that the state of the ovaria has a great share in exciting the action of the uterine vessels, and producing the menstrual flux. But analogous to what happens in the male sex it may be presumed, that in females a certain state of the genitals is necessary to give tone and tension to the whole system; and therefore that, if the stimulus arising from the genitals be wanting, the whole system may fall into a torpid and flaccid state, and from thence the chlorosis and retention of the menses may arise. Cullen, first lines, 1001. This hypothesis possesses the recommendation of ingenuity, but it does not remove every difficulty. It is not clear that the morbid condition of the ovaria, like that of the uterine vessels, or of the constitution at large, is not rather a consequence of the general debility, than a cause of it.

It is fortunate, that in this, as in many other diseases, concerning the nature of which physicians have differed in sentiment, we have a more solid basis than that of hypothesis, on which the cure is accomplished; namely, experience. In the disease in question, as general debility is the apparent source of all the symptoms; so experience has shewn, that those expedients and medicines which restore the strength of the constitution, remove all the symptoms of the disease. In a state of mere debility of the system, unconnected with any organic disease, although medicine can do much, yet much is also to be done by regimen and the general conduct of the patient. One of the most powerful means of strengthening the frame is regular *exercise* in the open air. This should, therefore, be steadily and daily resorted to, according to the condition of the constitution, increasing the quantity and degree of it in proportion to the increasing powers of the patient. It is most effectual in the pure air of the country, and hence it is advisable, to resort to it where it is in the power of the patient; as a regularity of diet and hours will also materially aid the general plan. It is, doubtless, from these circumstances principally, that numbers of chlorotic females speedily recover their strength, complexion, and the healthy functions of the uterus, at the watering-places, where exercise, temperance, regularity, and good air, contribute to the attainment of health. And among those who are unable to obtain that sort of benefit, still the effects of medicines are aided in a most important degree by regular exercise in the open air.

A variety of medicines have been employed by different practitioners for the cure of chlorosis and *amenorrhœa*; some, with a view of strengthening the flaccid and languid system, and others, with a view of stimulating the uterine vessels in particular. The latter, from their supposed effect

in exciting the flow of the menses, have been termed *emmenagogues*.

Among the general tonic, or strengthening medicines, *iron*, or, as it is improperly named, *steel*, in its different preparations, is the most valuable and effectual remedy. Some physicians have gone so far as to consider it as a specific in chlorosis; a notion which, though in itself absurd, implies the general success with which they have employed this medicine. It has been administered in almost all its preparations with advantage; most frequently in the form of a sulphate, or saline compound with the sulphuric acid, (*ferrum vitriolatum* of the Pharmacopœias), or of rust (*ferri rubigo*). A mixture, which was administered with considerable success by Dr. Griffiths, and is now celebrated under his name, has been universally employed; it consists of the *ferrum vitriolatum*, with the vegetable alkali, and myrrh. It is obvious, however, that the result of this mixture must be a decomposition of the sulphate of iron, a formation of a neutral salt (the sulphate of pot-ash) and a precipitation of the oxyd of iron in an impalpable powder. Instead, therefore, of taking the salt of iron, the patient swallows a nauseous mixture of Glauber's salt, with the oxyd of iron, and myrrh. This precipitate, freed from the Glauber's salt, is a carbonated oxyd of iron, and may be collected and given in a more simple form, or combined with other ingredients; it is, perhaps, the least offensive to the stomach, and one of the most efficacious preparations of iron. Being in a more impalpable powder, it may supersede the rust of iron, which has been long administered with success, as it may be retained on the stomach in a larger dose. In whatever form the iron is given, it contributes greatly, with exercise and good air, to improve the digestive powers, and to promote a more perfect assimilation of the food, and also, by accelerating the circulation, to restore the impeded secretions, and the languid action of the uterine, as well as the other parts of the system. The small quantity of iron contained in the chalybeate waters is very minute, in comparison with the quantity which may be received into the system in the forms of artificial combination; and the advantages of a watering-place are therefore probably not to be imputed to this source, as has been already hinted.

With the same intention of supporting the strength, other tonic medicines may occasionally be employed; such as the various bitters, bark, gentian, &c.; combined with cordials, where the action of the stomach is extremely feeble; or with absorbents, such as magnesia, where there is a prevalence of acidity in that organ. The aromatic gums, or gum-resins, seem to afford a grateful stimulus to the digestive organs, and are often conjoined with the preparations of iron, especially in the form of pills. The cautious application of cold, where there is still sufficient energy in the constitution, has been attended with great benefit, as in the form of a shower-bath: and a bath of the temperature of about 80°, such as that of Buxton, has proved efficacious. But on the whole, the practice may be considered as unsafe, until the patient is in a state of convalescence, and has regained a considerable portion of her strength.

In the writings of the older physicians many medicines are enumerated under the title of "*Emmenagogues*," and their specific action on the uterus is contended for; and among the vulgar, at present, several articles are believed to be possessed of that power, which they administer on every occasion of menstrual stoppage. But the evidence in favour of the existence of such powers is so unsatisfactory, that the notion of a specific emmenagogue is now generally discarded. The *melampodium*, or black hellebore, was recommended in the strongest terms by Dr. Mead; he affirmed that it rarely

failed to produce the menses, and that, when it did, hæmorrhages occurred from some other part. But subsequent experience has not confirmed this extraordinary encomium. The medicine is a strong general stimulant. Savin is another hot and irritating vegetable, which has been said to exert powerful effects on the uterus, which it perhaps may sometimes excite, in common with rest of the body, by its diffusible stimulus. Dr. Home (*Clinical Obs. and Exp.* p. 385.) considers it as possessed of emmenagogue qualities.

There are two other classes of medicines, which sometimes induce a flow of the menses, by their action upon the parts adjoining the uterus; these are purgatives which stimulate the rectum or lower end of the intestines; and those medicines, which, being carried off in the urine, stimulate the bladder; such as cantharides, the balsams, and other terebinthinate substances. The powers of the latter are but slight; but an acrid purgative is perhaps one of the most direct promoters of the catamenia in the catalogue of the *Materia Medica*. The pediluvium is occasionally employed to restore the menstrual discharge, and frequently with the desired effect, if it be resorted to about the regular period at which the discharge is expected, and when the pains of the back, &c. betoken a disposition in the constitution to perform its healthy function. The strong stimulus of the electric fluid has been sometimes directed to the region of the uterus, by passing slight shocks across the pelvis, with the effect of bringing on the catamenia. Like the remedies just mentioned, it is very uncertain in its operation, and may be resorted to with the greatest prospect of success at the approach of the regular period.

We have said nothing of the *rubia tinctorum*, or madder, and some other substances extolled as emmenagogues; nor of the inspiration of oxygen gas, recommended by Hufeland and Dr. Thornton, because the evidence in favour of these remedies is altogether unsatisfactory.

But after all that is said respecting emmenagogues, it must be remembered, that the amenorrhœa, or retention of the menses, is not the cause, but one of the symptoms of the chlorotic condition; and, therefore, that a partial stimulus to the uterus can but partially remove the disease, which will cease only with the removal of the general debility.

It may be added, that the natural stimulus to the uterus is the exercise of venery, and that where marriage is impending, it may be delicately recommended to be accelerated according to circumstances.

Dr. James Hamilton of Edinburgh, in a valuable treatise on purgative medicines lately published, observes, that chlorosis is often attended with a torpor of the intestines and constipation, and that the daily use of purgatives, in laxative doses, until the black and fetid stools assume a natural appearance, is followed with great success. It will not be denied, that a sluggish action of the bowels frequently accompanies chlorosis, and that the colour of the stools is dark in consequence of the morbid secretions of the intestines and the liver, and also that this state of the canal, though perhaps an effect in the first instance, becomes a cause of aggravation to the disease in general. Hence, there is an obvious necessity of preserving a regularity of the intestinal evacuations in this disease. And hence, perhaps, Dr. Friend found mercury a good emmenagogue, and Dr. Darwin referred the disease to torpor of the liver. Nevertheless, the general languor and debility oppose the idea of active purgation, and suggest the propriety of combining the generaltonic plan, with a careful relaxation of the bowels.

CHLOROXYLON, in *Botany*. Brown, Jam. See *LAURUS chloroxylon*.

CHLORUS, in *Ancient Geography*, a river of Asia, placed by Pliny in Cilicia.

CHLUMETZ, in *Geography*, a town of Bohemia, in the circle of Koniggratz; 5 miles S. of it.

CHMICŁOWKA, a town of Poland, in the palatinate of Braclau; 46 miles E.N.E. of Braclau.

CHNA, in *Ancient Geography*, a name which, according to Steph. Byz. was formerly given to Phœnicia; but according to Bochart, it is the diminutive of Canaan.

CHNIM, in *Geography*, a strong town of Bosnia, belonging to the Venetians; 15 miles S. of Banjaluka.

CHNUMBMIS, or CHNUMIS, in *Ancient Geography*, an ancient town of Egypt, placed by Ptolemy in the nome of Thebes.

CHNUS, in Hippocrates, is a fine soft wool, to which he compares an aqueous spleen, on account of its softness.

CHOAKING the *luff*, in *Rigging*, denotes placing the bight of the leading part, or fall of a tackle, close up between the nest part and jaw of the block.

CHOAM-YU SO, in *Geography*, a town of China, in the province of Quang-tong; 16 leagues E.S.E. of Kao-tcheou.

CHOAN, in *Grecian Antiquity*, so called from the *χων*, a libation, an epithet applied among the Athenians to sacrifices that were offered for appeasing the manes of the deceased. They consisted of honey, wine, and milk.

CHOANA, in *Ancient Anatomy*, a cavity in the brain like a funnel, called also *pelvis*.

CHOANA, in *Natural History*, one of the synonymous names of *MADREPORA infundibuliformis*. Gualt. (test. 24.) calls it *Choana fæxæ crispata rugosa, minimis poris*.

CHOANA, or CHOAVA, called *Choana* by Diodorus Siculus, in *Ancient Geography*, an ancient town of Asia, in Media, according to Ptolemy.—Also, an ancient town of Asia, placed by Ptolemy in Bactriana.—Also, a town placed by the same geographer in Parthia.

CHOANI, the name of an ancient people placed by Pliny in Arabia Felix.—Also, a people placed by Marcian of Heraclea in Europe, near the Borysthenes and the Alauni.

CHOAPA, in *Geography*, a small harbour on the coast of Chili in South America, in about S. lat. $31^{\circ} 42'$.

CHOARA, in *Ancient Geography*, the name of a country of Asia, placed by Pliny in the western part of Parthia.

CHOARAXES, a river of Asia, which served as a boundary between the Colchide territory and Armenia, according to Strabo.

CHOARENA, or CHOARINA, a district of Asia in the country of the Parthians according to Strabo; it was that region of Parthia which was nearest to India.

CHOASPA, a town of Arachosia, according to Ptolemy.

CHOASPES, a river of India, according to Strabo. It discharged itself into the Cophes on the confines of Arachosia.

CHOASPES, or CHOASPIIS, the modern *Abwaz*, a river of Asia, the source of which is placed by Pliny in Media, and he says it ran into the Pasitigris. According to Strabo, this river had its source in the country of the Uxians, traversed Susiana, and discharged itself into a lake which also received the Eulæus and the Pasitigris. This river is said to have flowed into the Persian gulf by a separate mouth, though it had a communication with the Tigris. Herodotus says, that the Choaspes washed the walls of Susa, and that the Persian kings drank no other water besides that of this river, which they carried about with them in silver vessels, whithersoever they went. Pliny places the city of Susa on the banks of the Eulæus, or the Ulac of the prophet Daniel, and according to this

writer, the Persians drank no other water: whence it is inferred, that the Choaspes and the Eulæus were the same river, at least at Susa. From this city they flowed in one stream, and were afterwards distinguished, sometimes by one name, sometimes by the other. Although the ancient Susa decorated the banks of this river, the modern towns of Kiab and Ahwaz are of small account.

CHOASPITES, in *Natural History*, a name given by the ancients to a species of the *chrysoprasius*, a gem of a colour between yellow and green. It was called *choaspites* from the name of a river in which it was frequently found.

CHOATRA, in *Ancient Geography*, a mountain of Asia, which branched out from the Gordyæan mountains on the confines of Assyria and Armenia, and which separated Media from Assyria.

CHOBAR, a river which discharged itself into the Euphrates. See CHABORAS.

CHOBAT, a town of Africa, in Mauritania Cæsariensis, called in the Itinerary of Antonine Coba, represented as a municipium, and placed between Mussubium and Igilgili.

CHOBATA, a town of Asia in Albania, placed by Ptolemy between the rivers Albanus and Casius.

CHOBOLTIVO, in *Geography*, a town of Poland in the palatinate of Volhynia; 36 miles W. of Lucko.

CHOBUS, KEMKHAL, in *Ancient Geography*, a river of Asia in the Colchide territory, between the Charius and Singama, according to Arrian. Pliny calls it Cobus, and adds, that it had its source in mount Caucasus, and traversed the country of the Suani. It ran from the north to the south-east, and fell into the Euxine sea to the north of the mouth of the Phasis.

CHOC, SHOCK. This word or term is employed, in *Military Language*, to express the act of two corps encountering or engaging each other. In speaking also of two hostile corps, who have only had a brush, or some skirmishing, it is said, that there has been *un choc*, a shock between them.

CHOC Bay, in *Geography*, a bay on the W. coast of the island of St. Lucia, a little to the N. of Carenage bay.

CHOCCHARMO, a town of Asia in Thibet; 27 miles N.E. of Tofon-Hotun.

CHOCE, in *Ancient Geography*, a town of Arabia Deserta.

CHOCHE, a village of Asia, situated near the Tigris, according to Arrian.

CHOCK, in *Sea Language*, a wedge used to confine a cask, or other heavy body, to prevent it from fetching away when the ship is in motion.

CHOCK is also a triangular piece of wood fastened occasionally in the strap at the arse of the block: on the base of which wedges are driven to force the block into its place.

CHOCK is also a short mast for boats, by which they are towed along.

CHOCKS, denote, in *Mast-Making*, pieces made to fashion out some part that is wanting, or to place between the head of a lower-mast and heel of a top-mast.

CHOCO, in *Geography*, a province of South America, in the vice-royalty of New Granada, bounded on the N. by the province of Darien and Carthagena, on the E. and S. by Popayan, and on the W. by the Pacific Ocean. The soil, climate, products, &c. are similar to those of Popayan.

CHOCOLATE, a kind of cake or confection, prepared of certain drugs; the basis or principal whereof, is the *cacao-nut*. See THEOBROMA.

The trees that produce these nuts grow plentifully on the banks of the river Magdalena in South America, and in other situations where the soil is adapted to them; but those

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in the jurisdiction of Carthagena are said to excel those of the Caraccas, Maracaybo, Guayaquil, and other parts, both as to the size and goodness of the fruit. The Carthagena cacao or chocolate is little known in Spain, being only sent by way of presents; for, as it is more esteemed than that of other countries, the greater part of it is consumed in this jurisdiction, or sent to other parts of America. It is also imported from the Caraccas, and sent up the country; that of the Magdalena not being sufficient to answer the great demand of these parts. The former is mixed with the latter, as it serves to correct the extreme oiliness of the chocolate when made only with the cacao of the Magdalena. The latter, by way of distinction from the former, is sold at Carthagena by millares, whereas the former is disposed of by the bushel, each weighing 110 pounds: but that of Maracaybo weighs only 96 pounds. The cacao tree abounds in the district of Guayaquil, and is generally not less than 18 or 20 feet high. It begins from the ground to separate into four or five stems, according to the vigour of the root from whence they all proceed. They are commonly between four and seven inches in diameter; but they first grow in an oblique direction, so that the branches are expanded and separated from one another. The length of the leaf is between four and six inches, and its breadth three or four. It is very smooth, soft, and terminating in a point, like that of the China orange tree, but differing from it in colour: the former being of a dull green, and having no gloss which is observable on the latter; nor is the tree so full of leaves as that of the orange. The pods, that contain the cacao, grow from the stem, as well as from the branches. The first appearance is a white blossom, whose pistil contains the embryo of the pod, which grows to the length of six or seven inches, and four or five in breadth, resembling a cucumber in shape; and striated in a longitudinal direction, but deeper than the cucumber. These pods are proportionable in their dimensions to the stem or branch, to which they adhere in the form of excrescences, some smaller and others larger. When two happen to grow in contact, one of them attracts all the nutritive juice, and thrives on the decay of the other. The colour of the pod, while growing, is green, like that of the leaf; but when arrived at its full perfection, it gradually changes to a yellow. The shell that covers it is thin, smooth, and clear. When the fruit is arrived at its full growth, it is gathered; and being cut in slices, its pulp appears white and juicy, with small seeds regularly arranged, and at that time of no greater consistence than the rest of the pulp, but whiter, and enclosed by a very fine delicate membrane, full of liquor, resembling milk, but transparent and somewhat viscid: in this state it may be eaten, like any other fruit; its taste being a sweetish acid, but thought in the country to promote fevers. The yellowness of the pod indicates that the cacao begins to feed on its substance, to acquire a greater consistence, and that the buds begin to fill; the colour gradually fading till they are fully completed, when the dark brown colour of the shell, into which the yellow has deviated, indicates that it is a proper time to gather it. The thickness of the shell is now about two lines, and each seed found inclosed in one of the compartments, formed by the transverse membranes of the pod. After gathering the fruit, it is opened, and the seeds taken out and laid in skins kept for that purpose, or more generally on vijahua leaves, and left in the air to dry. When fully dried, they are put into leather bags, sent to market, and sold by the carga or load, which is equal to 81 pounds; but the price is not fixed, as it is sometimes sold for six or eight rials per carga, though less than the charge of gathering; but the general

price is between three and four dollars, and at the time of the armadas, when the demand has been very large, rises in proportion. This tree produces its fruit twice a-year, and in the same plenty and goodness of quality. The quantity gathered through the whole jurisdiction of Guayaquil amounts at least to 50,000 cargas. The cacao trees so much delight in water, that the ground where they are planted must be reduced to a mire; and if not carefully supplied with water, they die. They must also be planted in the shade, or defended from the perpendicular rays of the sun. Accordingly, they are always placed near other larger trees, under the shelter of which they grow and flourish. No soil can be better adapted to the nature of these trees than that of Guayaquil, as it favours them in both respects; in the former, as consisting wholly of savannahs, or wide plains overflowed in winter, and in summer plentifully watered by canals; and with regard to the latter, it abounds with other trees, which afford them the requisite shelter. The culture of this tree requires no other attention besides that of clearing the ground from the weeds and shrubs that are abundant in so wet a soil. This, indeed, is so necessary, that, if neglected, these vegetables will, in a few years, destroy the cacao plantations, by robbing the soil of all its nourishment. See GUAYAQUIL.

The name *chocolate* is also given to a drink, prepared from the above-mentioned cake, of a dusky colour, soft, and oily; usually drank hot, and esteemed not only an excellent food, as being very nourishing, but also a good medicine; at least a diet, for keeping up the warmth of the stomach, and assisting digestion.

The Spaniards were the first who brought chocolate into use in Europe; and that, perhaps, as much out of interest, to have the better market for their cacao-nuts, vanilla, and other drugs which their West Indies furnish, and which enter the composition of chocolate, as out of regard to those extraordinary virtues which their authors so amply enumerate in it. The qualities above mentioned are all that the generality of physicians, and others, allow it.

CHOCOLATE, original manner of making. The method first used by the Spaniards was very simple, and the same with that in use among the Indians: they only used cacao-nut, maize, and raw sugar, as expressed from the canes, with a little achiotte, or rocou, to give it a colour: of these four drugs, ground between two stones, and mixed together in a certain proportion, they made a kind of bread, which served them equally for solid food, and for drink; eating it dry when hungry, and steeping it in hot water when thirsty. The Indians, to one pound of the roasted nuts, put half a pound of sugar, dissolved in rose-water, and half a pound of flour of maize.

This drink the Mexicans called *chocolate*, from *chacoc*, *found*; and *alte*, or *atte*, *water*; q. d. *water that makes a noise*: from the noise which the instrument, used to mill and prepare the liquor, made in the water.

But the Spaniards, and other nations, afterwards added a great number of other ingredients to the composition of chocolate; all of which, however, vanilla alone excepted, spoil rather than mend it.

CHOCOLATE, method of making, now in use among the Spaniards of Mexico. The fruit, being gathered from the cacao-tree, is dried in the sun, and the kernel taken out, and roasted at the fire, in an iron pan pierced full of holes; then pounded in a mortar; then ground on a marble stone, with a grinder of the same matter, till it be brought into the consistence of a paste: mixing with it more or less sugar, as it is to be more or less sweet. In proportion as the paste advances,

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vances, they add some long pepper, a little achiotte, and, lastly, vanilla; some add cinnamon, cloves, and anise; and those who love perfumes, musk and ambergris. To 6 lbs. of the nut, they add $3\frac{1}{2}$ of sugar, 7 pods of vanilla, or the pods of epidendrum vanilla, $1\frac{1}{2}$ lb. of flour of maize, $\frac{1}{2}$ lb. of cinnamon, 6 cloves, one dram of capsicum, and as much of the roncounut as is thought necessary to improve the colour, together with ambergris or musk, to impart an agreeable scent. In the more simple and common way, to 17 lbs. of nuts are added 10 lbs. of sugar, 28 pods of vanillas, one dram of ambergris, and 6 ounces of cinnamon.

There is also a kind of Mexican chocolate, in the composition whereof there enter almonds and filber's; but it is rather to spare the cacao, than to render the chocolate better; and, accordingly, this is looked on as sophisticated chocolate.

CHOCOLATE, *the, made in Spain*, differs somewhat from that made in Mexico: for, besides the drugs used in this last, they add two or three kinds of flowers, pods of campeche, and generally almonds and hazel-nuts. The usual proportion, at Madrid, is, to an hundred kernels of cacao, to add two grains of *chili*, or Mexican pepper; or, in lieu thereof, Indian pepper; a handful of anise; as many flowers, called by the natives *vinacaxtilides*, or little ears; six white roses in powder; a little machusia; a pod of campeche; two drachms of cinnamon; a dozen almonds, and as many hazel nuts; with achiotte enough to give it a reddish tincture; the sugar and vanilla are mixed at discretion; as also the musk and ambergris. They frequently work their paste with orange-water, which they think gives it a greater consistence and firmness.

The paste is usually made up into cakes, sometimes into long rolls; and sometimes the cakes are made up of pure chocolate, without any admixture; those who use it being to add what quantity they please of sugar, cinnamon, and vanilla, when in the water.

Among us, in England, the chocolate is chiefly made thus simple and unmixed, (though perhaps not unadulterated) of the kernel of the cacao; excepting that sometimes sugar, and sometimes vanilla, is added; any other ingredient being scarcely known among us.

The mode of preparing the mass into a liquor, with the proportions, are various: ordinarily, the chocolate is boiled in water, sometimes in milk; and sometimes, by good economists, in water-gruel: when boiled, it is milled, or agitated with a wooden machine for the purpose, and boiled again, till it be of the proper consistence for drinking; then sugar-ed, if the mass were pure; then milled afresh, and poured off.

Note, the best chocolate is that which dissolves entirely in the water; leaving no grounds or sediment at the bottom of the pot.

The Spaniards esteem it the last misfortune that can befall a man, to be reduced to want chocolate: they are never known to leave it, excepting for some other liquor that will intoxicate.

Hoffman, in his "Potus Chocolatæ," 1765, considers chocolate as an aliment; and, in a medicinal view, he recommends it in emaciating diseases, both as aliment and medicine; and next very strenuously in hypochondriacal cases; and in confirmation, adduces that of cardinal Richelieu, who, he says, was restored to health by living on chocolate. He is not less copious on its good effects against the hæmorrhoids.

The newest chocolate is esteemed the best; the drug never keeping well above two years, but usually degenerating much before that time.

It is to be kept in brown paper, put up in a box; and that in another, in a dry place.

CHOCOLATE, *laws relating to*. By 43 Geo. III. c. 68. all former duties of customs are repealed, and the following new duties imposed: viz. for cocoa-nuts of the produce of any British colony or plantation in America, and of the produce of any other country or place, on importation, 6d. per cwt. For the conditions, regulations, and restrictions, under which cocoa-nuts shall on importation be secured in warehouses, see 10 Geo. c. 10. 6 Geo. III. c. 52. Also 35 Geo. III. c. 118. When taken out of such warehouses for consumption in Great Britain, they are charged with a duty of 2d. per lb. By 43 Geo. III. c. 69. all former duties of excise are in like manner repealed, and in lieu thereof the following are imposed; viz. for every lb. weight of cocoa-nuts, of the growth or produce of any British colony or plantation in America, imported into Great Britain, 1s. 10d.; for ditto, if imported into Great Britain by the East India company, 2s.; for ditto, of all other cocoa-nuts imported into Great Britain, 3s. No chocolate ready made, or cocoa paste, shall be imported, on pain of forfeiting the same, and double value, and also the bags, casks, and other package. 10 Geo. c. 10. §. 2. Cocoa-nut shells or hulks may be seized, and destroyed; and the officer who seizes them rewarded with any sum not exceeding 20s. per cwt. 4 Geo. II. c. 14. §. 12. The excise officers may search ships for cocoa-nuts, chocolate, and cocoa-paste, and seize, &c. 11 Geo. c. 30. §. 1. Cocoa-nuts shall not be taken out of the warehouses, either for home consumption or exportation, but upon payment of the inland duties. 21 Geo. III. c. 55. §. 10, 11. Cocoa-nuts for which the duty has been paid, or the chocolate made of such nuts, may be exported, on security given that they shall not be re-landed; and under certain regulations, specified in 27 Geo. III. c. 13. §. 12. Every person, who shall keep a shop, &c. and have in his custody above 6 lbs. of chocolate or cocoa-nuts, shall be deemed a dealer in the said commodity. 11 Geo. c. 30. §. 4. By 20 Geo. III. c. 35. no person shall trade in chocolate without an annual licence, for which he shall pay (by 43 Geo. III. c. 69.) 5s. 6d. under penalty of 20l. Houses of manufacturing and sale are to be entered, on pain of forfeiting 200l. and goods, &c. 10 Geo. III. c. 10. §. 10. The said houses shall be marked over the doors with the words "dealer in cocoa-nuts, chocolate, &c." on pain of 200l. 19 Geo. III. c. 69. §. 18. Any dealer buying these commodities of any person, not having his shop, &c. so marked, shall forfeit 100l. Any person, not having entered his shop, &c. who shall paint over his door the aforesaid words, shall forfeit 50l., besides other penalties. If any person, not being a dealer, shall buy these articles, not having these words over his door, he shall forfeit 10l. Notice shall be given to the next officer of the division, of bringing in these commodities into any shop, &c., and a certificate duly signed, expressing that the duties have been paid, and that they were condemned and forfeited, and also the quantity and quality, &c. shall be delivered, on pain of forfeiting the same and treble value. And a permit shall be given to the buyer, &c. 10 Geo. c. 10. §. 11. 15. Officers shall enter at all times by day warehouses, shops, &c. and survey, the owner assisting and keeping just weights and scales, on pain of 100l. and forfeiture of the commodities, which may be seized by the officer. 10 Geo. c. 10. §. 12. 10 Geo. III. c. 44. §. 1. 28 Geo. III. c. 37. §. 15. Deceiving or obstructing the officer incurs a forfeiture of 100l. 26 Geo. III. c. 77. §. 8. Search shall be made for goods concealed, and if any person obstruct the officer, he shall forfeit 100l.; and if any seller or dealer shall conceal

any of the said goods, he shall forfeit the same and treble value; and if any person shall obstruct the officer in seizing such goods, or endeavour to rescue the same after seizure, he shall forfeit 50*l.* 10 Geo. c. 10. §. 13. 39. 40. If any article made to resemble cocoa shall be found in the possession of any dealer, under the name of American cocoa, or English or British cocoa, or any other name of cocoa, it shall be forfeited, and the dealer shall forfeit 100*l.* 43 Geo. III. c. 129. §. 5. The maker of chocolate, within the bills, shall weekly, and elsewhere every 6 weeks, enter in writing at the next office the weight of chocolate made by him, and clear off the duties, on pain of 50*l.*; nor shall he, after default in payment, sell or deliver any out till the duty is paid, on pain of treble value. 10 Geo. c. 10. §. 17, 18. He shall also produce at the place and time of entry the chocolate made, (on pain of 20*s.* for every pound not produced), which shall be tied up with thread in papers of 1 lb., $\frac{1}{2}$ lb., or $\frac{1}{4}$ lb. each, and neither more or less; which shall be marked or stamped by the officers. 32 Geo. II. c. 10. §. 16. Offences against these regulations incur a forfeiture of 2*l.* The counterfeiting of the stamp, or the knowingly selling of any chocolate, or the fixing of any paper with a stamp on such chocolate, as has not been entered, and on which the duties have not been paid, incurs the penalty of a forfeiture of 50*l.*, and of commitment to the next county gaol for 12 months. 10 Geo. c. 10. §. 22. 11 Geo. c. 30. §. 13. Notice shall be given by those who make chocolate for private families, and not for sale, three days before it is begun to be made, specifying the quantity, &c.; and within three days after it is finished, the person for whom it is made shall enter the whole quantity on oath, and have it duly stamped, and pay the duty, under penalty of forfeiting the same and treble value. Nor shall any person be permitted to make into chocolate for their own private use less than half a hundred weight of cocoa-nuts at a time. 10 Geo. c. 10. §. 23, 24, 25.

Mr. Henly, an ingenious electrician, discovered that chocolate, fresh from the mill, as it cools in the tin pans into which it is received, becomes strongly electrical; and that it retains this property for some time after it has been turned out of the pans, but soon loses it by handling. The power may be once or twice renewed by melting it again in an iron ladle, and pouring it into the tin pans as at first; but when it becomes dry and powdery, the power is not capable of being revived by simple melting: but if a small quantity of olive-oil be added, and well mixed with the chocolate in the ladle, its electricity will be completely restored by cooling it in the tin pan as before. From this experiment he conjectures, that there is a great affinity between phlogiston and the electric fluid, if indeed they be not the same thing. Phil. Transf. vol. lxvii. part 1. p. 94, &c.

CHOCOLATE *Creek*, in *Geography*, a head-water of Tioga river in the state of New York, whose mouth lies 10 miles S.W. of the Painted Post.

CHOCOLATE-nut tree, in *Botany*. See THEOBROMA.

CHOCOLOCO-CA, in *Geography*, called by the Spaniards *Castro Virreyña*, a town of Peru, famous for its silver mines, which are at the top of a mountain always covered with snow, and 2 leagues from the town. Its wine also is plentiful and good. See CASTRO *Virreyña*.

CHOCOPE, a town of South America, in the country of Peru, and jurisdiction of Truxillo, 13 or 14 leagues distant from St. Pedro, and 11 leagues from Truxillo, in S. lat. $7^{\circ} 46' 40''$. The town consists of between 80 and 90 houses, covered with earth; occupied by between 60 and 70 families, chiefly Spaniards, with some of the other casts, but not above 20 or 25 Indian families. It has a large and de-

cent church, built of bricks. In 1726 a rain which continued 40 nights, from 4 or 5 in the evening till about the same time in the morning, entirely ruined the houses, and even the brick church, so that only some fragments of its walls remained. Two years afterwards a similar phenomenon occurred, which lasted 11 or 12 days, but much less violent and destructive. For an account of the adjacent country, see CHICAMA.

CHOCORUA, a mountain of America, in Grafton county and state of New Hampshire, on the N. line of Strafford county, N. of Tamworth.

CHOCUITO. See CHUCUITO.

CHOCZIM. or COKZIM, a town of European Turkey in Moldavia, situated on the south side of the Dniester, near the frontiers of Poland, remarkable for two victories gained here by the Poles over the Turks, one in 1621, and the other in 1683. The suburbs were destroyed by fire in 1769; on the 3d of September 1789, the city, after a long siege which reduced it almost to ruins, surrendered to the Russians. Choczim is 12 miles S.S.W. from Kamienieck, and 68 miles W.N.W. from Mogilov. N. lat. $48^{\circ} 52'$. E. long. $26^{\circ} 59'$.

CHODDA, in *Ancient Geography*, a town or village of Asia in Carmania, according to Ptolemy.

CHODIVOJA, in *Geography*, a town of Walachia; 32 miles S.S.W. of Bucharett.

CHODOROSTAU, a town of Poland, in the palatinate of Lemberg; 20 miles S.E. of Lemberg.

CHOENICIS, in the *Ancient Surgery*, the trepan, so called by Galen and Aegineta, and mentioned by Celsus, where he calls it *modiolus*.

CHOENIX, an Attic dry measure, containing three *cotyla*, or one *sextarius* and a half, which is two pounds and a quarter. Its mark was a χ with a ν over it.

The choenix likewise contained the forty-eighth part of a medimnus, and was otherwise called HEMEROTROPIS.

Grotius and others have observed, on the authorities of Herodotus (lib. iii. and vii.), Hippocrates, Diogenes Laertius, and Athenæus, that a choenix of corn was a man's daily allowance, as a penny (denarius) was his daily wages; and hence we may infer, (in reference to Rev. vi. 5, 6), that if his daily labour could earn no more than his daily bread, without other provision for himself or his family, corn must necessarily bear a very high price. In another mode of computation, if we reckon the choenix to be about a quart English (which is supposed not to be a full pint and a half), and the Roman penny or denarius to be about 8*d.* English, the nearest and common estimate of both, without descending to greater exactness, corn at that price will be above 20*s.* per English bushel; which, when the common wages of a man's labour was but 8*d.* a day, shewed a very great scarcity of corn, next to a famine.

But whatever may be the capacity of the choenix, which is difficult to be determined, as it varied in different times and countries, yet such care and such regulations about the necessaries of life imply some want and scarcity of them. Scarcity obliges men to be exact in the price and measure of things. In short, the intent of the prophecy, to which we now refer, is, that corn should be provided for the people, but that it should be distributed in exact measure and proportion. Accordingly bishop Newton observes, (Diff. on the Prophecies, vol. iii.—see also Mede on chap. vi. v. 5.) that this third period, to which the cited passage pertains, commenced with Septimius Severus, and continued under Alexander Severus and the Septimian family during 42 years. These two emperors, it is remarked, who enacted just and

equal laws, and were very severe and implacable against offences, were no less celebrated for the procuring of corn and oil and other provisions, and for supplying the Romans with them after they had experienced the want of them. The colour of the *black horse*, it is said, befits the severity of their nature and their name; and the *balances* are the well-known emblem of justice, as well as an intimation of scarcity.

Lowman (Paraphrase on the Revelations) refers this period of prophecy to that interval, which succeeded the reigns of Trajan and Hadrian. Antoninus Pius succeeded Hadrian A.D. 138. Antoninus the philosopher, partly with Verus and partly alone, and after them Commodus, governed the Roman empire, till within a few months of the reign of Severus, who began his empire, A.D. 193, a space of about 50 years. The fourth general persecution was within this period, nearly 60 years after the third general persecution by Trajan, A.D. 107. Moreover, it appears from the concurring testimonies of Tertullian (ad Scep. c. 3.), Aurelius Victor, Julius Capitol., Antoninus Pius, and Anton. Philof., and Xiphilin ex Dione, that a scarcity of provisions, approaching to famine, which occurred in every reign of the Antonines, continued to the empire of Severus, who exerted himself in redressing this evil: and thus the reign of Severus appears to be a proper termination to the judgment of this prediction.

CHOERADES, in *Ancient Geography*, an island of the Ionian sea, on the coast of Italy, near the Iapygian promontory, according to Thucydides.—Also, islands of the Euxine sea, near the Hellespont, supposed by Ortelius to have been the Cyanean isles.—Also, a name given to the Balearic islands.—Also, islands of the Persian gulf.—Also, islands on the coast of Eubœa, near mount Caphareus, where Ajax is said to have suffered shipwreck, after having violated Cassandra.—Also, a town of Asia, in the country of the Mosynæci, inhabited by Greeks. Steph. Byz.

CHOERAGIA, a place of Thrace, in the vicinity of Constantinople.

CHOEREAS, a place of the island Eubœa, according to Herodotus.

CHOEREATÆ, a lake of Peloponnesus in Sicyonia, according to Herodotus.

CHOERINÆ, in *Antiquity*, a kind of sea-shells, with which the ancient Greeks used to give their suffrage, or vote.

CHOERIUS SALTUS, in *Ancient Geography*, a forest of Peloponnesus, placed by Pausanias near the town of Gessenia, in Messenia.

CHOEROGRYLLUS. See *Hedge-Hog*.

CHOES, or the *Leneans*, in *Antiquity*, an Athenian festival in honour of Bacchus, celebrated on the 12th of the month Anthesterion. It lasted only one day; and as the inhabitants of Attica were only permitted to be present at the celebration of this festival, authors reserved their new pieces for the greater *Dionysia*, which were solemnized a month after, and which attracted from all parts an infinite number of spectators. It was usual at the festivals of Bacchus, to present tragedies and comedies to the public, and the authors thus contended for victory. See *DIONYSIA*.

CHOES, in *Ancient Geography*. See *COPHENES* and *Cow river*.

CHŒUR, *French*, a chorus, or a musical composition of never less than three or four vocal parts, in which the harmony is complete, and performed simultaneously by all the voices, enforced by the orchestra. See *TENOR*, and *BASE*.

CHOHAN, in *Geography*, a circar of Hindoostan, in the country of Allahabad.

CHOHREN, or KOHREN, a town of Germany, is the circle of Upper Saxony, and territory of Leipzig, 20 miles S.S.E. of Leipzig.

CHOIR, that part of a church, cathedral, &c. where the clergy and choristers, or singers, are placed.

The word, according to Isidore, is derived à *coronis circumstantium*; because, anciently, the choristers were disposed round the altar to sing; which is still the manner of building altars among the Greeks. Others derive the term choir from χορος, a dancer, or a company of dancers, alleging that dancing was one of the religious ceremonies of the church, although numerous anathemas against it occur in the works of the fathers, among the primitive Christians, as well as the Hebrews and Pagans. The following passage from St. Augustine's eighth sermon is cited to prove that the early Christians made dancing a part of their Sunday's amusement, and that they accompanied their sacred songs with instruments. "It is better to dig or to plough on the Lord's day than to dance. Instead of singing psalms to the psalter or lyre, as virgins and matrons were wont to do, they now waste their time in dancing, and even employ masters in that art." The above derivation is remarkable, and not one of those that can be suspected of proceeding from fancy, and accidental similitude of sound. One of the acceptations of the term χορος given by Suidas, is, το συστημα των εν ταις εκκλησιαις αδοντων, a company of singers in a church, that is, a choir. It seems to have been sometimes used, like our word choir, in the local sense: χορος, says Suidas, και οι χορευται, και ο τοπος, &c. that is, dancers, and the place in which they danced. It is so used by Homer, (Od. viii. 260.) Λειψαν δὲ χορον; they made smooth or level the place appointed for dancing. Father Menestrier (Des Ballets, anc. et mod. Paris, 1682), after speaking of the religious dances of the Hebrews and Pagans, observes, that the name of choir is still retained in our churches for that part of a cathedral where the canons and priests sing and perform the ceremonies of religion. The choir was formerly separated from the altar, and elevated in the form of a theatre, inclosed on all sides with a balustrade. It had a pulpit on each side, in which the epistle and gospel were sung, as may be still seen at Rome in the churches of St. Clement and St. Pancratius, the only two that remain in this antique form. Spain, continues this author, has preserved in the church, and in solemn processions, the use of dancing to this day. France seems to have had the same custom till the 12th century, when it was abolished by the synodical constitutions of Odo, bishop of Paris. The same author, however, in his preface, informs us, that he himself had seen, in some churches, the canons, on Easter-sunday, take the choristers by the hand and dance in the choir, while hymns of jubilation were performing. Burney's Hist. Music, Vol. ii. See *DANCING*.

The choir with us is distinguished from the chancel, or sanctuary, where the communion is celebrated: as also from the nave, or body of the church, where the people are placed.

The patron is said to be obliged to repair the choir of a church; and the parishioners the nave.

The choir was not separated from the nave, till the time of Constantine: from that time the choir was raised in with a balustrade, with curtains drawn over, not to be opened till after the consecration. In the twelfth century they began to inclose the choir with walls; but the ancient balustrades have been since restored; out of a view to the beauty of the architecture. The chantor is master of the choir.

In nunneries, the choir is a large hall, adjoining to the body

body of the church, separated by a grate, where the religious sing the office.

CHOIR *music*, music sung in a chorus, as in churches. It is sometimes used for *musica piena*, *canto fermo*, or what we call *plain chant*, or *song*. See CHANT and CHORAL Service.

CHOIROS, in *Ichthyology*, a name given by Aristotle, and others of the old Greek writers to the *Cernua* or *Acerina* of the Latins. This fish has been called by a variety of names, but it is a species of perch, the *Perca cernua* of modern naturalists, and the pope or ruffe, of the English fishermen. It is by no means so abundant as the common perch, neither is it of the same family, for it has only one dorsal fin, while the common perch has two; it is also a smaller fish, seldom exceeding the length of six or seven inches. The body is more elongated, and the back less prominent and arched. The colour is olivaceous green on the back, yellowish on the sides, and spotted with black; belly whitish. *Donov. Brit. Fishes.* See *PERCA cernua*.

CHOISEUL, in *Geography*, a town of France, in the department of the Upper Marne; 4 leagues N.E. of Langres.

CHOISEUL Bay, a bay that lies on the N.W. coast of the islands of the Arfacides, W. of Port Praslin. The ancient inhabitants, like those of Port Praslin, powder their hair with lime, which burns it and gives it a red appearance.

CHOISEUL Bay, a bay that lies on the S. side of Maghellan Straits, between Swallow Harbour and the channel of St. Barbara.

CHOISY, FRANCIS-TIMOLEON DE, in *Biography*, was born at Paris in the year 1644. He is reckoned among the celebrated writers and extraordinary characters that have flourished in France. In his infancy he was taught to pay the greatest deference to persons of rank, and to endeavour to attach himself to those who might hereafter promote his interests. He was intended for the church, but the habits of his youthful years were irregular, and he afforded opportunity for scandal to the decent part of society, by appearing perpetually in public in female habiliments. He was handsome and delicate, and having been accustomed by his mother, from his childhood, to appear in this disguise, the habit of it had grown into a kind of passion. He passed some years under the name of the countess des Barras, indulging in gallantries which were inspired or facilitated by his assumed character. Such, indeed, were the manners of the higher ranks in France, that he was admitted at court in this masquerade, and few were found in that circle who did not encourage a character which they ought to have spurned at with indignation. Of these few was the duke de Montausier, who meeting him one day in the queen's drawing-room, said in a tone of angry contempt, "Sir, or madam, I know not how to address you, you ought to die of shame for appearing dressed like a woman, when God has done you the favour to make you a man: Go, hide yourself." While he lived in this state he had been inducted to the office of abbé, and it was not till he was thirty years of age, that he thought it expedient to change his course of life, and to obliterate the remembrance of the scenes that he had exhibited, from his own mind, as well as from the minds of others. He went to Italy in 1676, and took an active part in promoting the election of Innocent XI. and was so far beneficial to the interests of the pontiff, that he was employed to draw up a letter from the French cardinals to Louis XIV. for the purpose of engaging him in his favour, who had been devoted to his enemies. De Choisy succeeded, but gained nothing by it but the honour of being the first to kiss the toe of the new pope. On his return to

France he was attacked with a severe illness, which excited in him compunction for the past, and the most terrible apprehensions for the future. He at length recovered, and during his convalescence he held religious conversations with the abbé Dangeau, the result of these were published in four dialogues: On the Immortality of the Soul; On the Existence of God; On Religious Worship; and On Providence.

From this period, 1684, de Choisy engaged in a new career: in the following year he went on an embassy from the sovereign of France to the king of Siam, whom the Jesuits had represented as willing to become a convert to Christianity. But on arriving at Siam, he found that the royal conversion was no more than a comedy planned by the Jesuits, in order to procure an embassy that might be serviceable to their commercial plans, and that the ambassador and himself were intended to act parts in their favour. He was resolved that the voyage should not, with regard to himself, be without its uses: he took priest's orders, and he was apparently very much impressed with the sacredness of his new character. He would not venture to say mass till he had been a month on board the ship which brought the mission back to France. He then became a zealous preacher to the crew, who were much edified by his pious exhortations.

He brought home with him a complimentary message from the king of Siam to his patron the cardinal de Bouillon, who unfortunately was not in favour at court. Louis was therefore displeased that this mark of distinction should have been obtained for his disgraced minister. Choisy, finding himself slighted, retired to a religious seminary, and employed himself in writing a life of David, and a translation of the Psalms. These he was allowed to present to his sovereign, whose smiles now abundantly repaid him for past neglect. He was immediately elected a member of the French academy; and his eulogy on the death of cardinal de Richelieu in 1687 was greatly admired. He was indeed a very useful member of that society, and drew up a sort of journal of all that passed at its meetings, which on account of the anecdotes that were interwoven with it, was not published by the academy, though it was printed in the *Opuscules* of the abbé d'Olivet in the year 1754. De Choisy was chosen in 1697 dean of the cathedral of Bayeux, which was the highest post he ever obtained in the church. His early adventures, of which himself was ashamed, precluded him from any distinguished ecclesiastical preferment. Besides the life of David, he published lives of Solomon, St. Louis, and of several of the French monarchs; but his most considerable work was an Ecclesiastical History, in eleven volumes, which was undertaken at the desire of Bossuet; and it comprised the most interesting facts of general history, written on a pleasing and popular plan. His last work, which did not appear till after his death, was *Memoirs of Louis XIV.* in 2 vols. 12mo. This has been reckoned the most agreeable of his writings. His style and manner were particularly adapted to the composition of memoirs; yet in all the biographical pieces which he drew up, he has been charged with having paid too little regard to truth. He published a translation of the celebrated "Imitation of Jesus Christ;" to the first edition of which he prefixed a print of Madame de Maintenon on her knees before a crucifix, with the following inscription: "Hearken, O daughter, and consider and incline thine ear: forget also thine own people, and thy father's house; so shall the king greatly desire thy beauty." The text was in the subsequent editions omitted. To this writer has been ascribed a licentious work, in which his own gallantries are supposed to have been portrayed:

it is entitled *Memoirs of the Countess des Barras*. This was not printed till the year 1736; but the abbé de Choisy died in 1724, after completing his eightieth year. His character could not command the respect of the really wise, nor the estimation of the truly virtuous. After he had reformed the manners of his youth, which cannot be too severely reprobated, he exhibited those symptoms of frivolity which were highly unbecoming his rank and station in life. He was nevertheless beloved, on account of his disposition, which was kind, and of his manners, which were gentle, easy, and very insinuating. *Gen. Biog. Du Fresnoy.*

CHOISY, in *Geography*, a town of France, in the department of the Seine and Marne; 4 leagues N. of Provins.

CHOISY-Bellegarde, a town of France, in the department of the Loiret; 4 leagues W. of Montargis.

CHOISY le Roy, or CHOISY-sur-Seine, a town of France, in the department of the Seine, and district of Paris; 6 miles S. of Paris.

CHOIX, *Port a*, lies on the N.W. side of Newfoundland, N. by W. from the bay of Highgournachat, and S.E. from point Riche.

CHOIX, *Old Port a*, a semicircular bay on the N.W. side of Newfoundland, round point Riche from the southward; the N.W. point of which is called Point Ferrol. Within this point are several islands; but the interior bay is spacious.

CHO-KE', a town of Asia, in Thibet; 145 miles E.S.E. of Lassa.

CHOKE-Weed, in *Botany*. See OROBANCHE.

CHOLAGOGUE, in *Medicine*, from *χολη*, bile, and *ἄγω*, I impel, a term applied by the older writers to those purgative drugs, which they imagined to possess the property of acting specifically on the liver, and expelling bile. These were aloes, scammony, black hellebore, &c. Any acrid or drastic cathartic will, by its strong stimulus, necessarily excite the biliary ducts, as well as those of the pancreas and the mucous follicles, which line the intestines, to pour out their fluids. See CATHARTIC. If the term be applicable to any medicine, it is to calomel, which appears to have the power of exciting the action of the whole apparatus of the liver, and of increasing its production of bile, as well as of emulging the biliary ducts.

CHOLALLAN, in *Geography*, one of the most considerable states near the mountain of Popocatepec, in Mexico. This, and the state Haexotzinco, having, with the assistance of the Tlascalans, shaken off the Mexican yoke, re-established their former aristocratical government.

CHOLARGUS, or COLARGOS, in *Ancient Geography*, a borough of Greece, in Attica, belonging to the Acamantide tribe, according to Steph. Byz. and Suidas.

CHOLAWIA, in *Geography*, a town of Lithuania, in the palatinate of Minsk; 42 miles S.E. of Minsk.

CHOLBESINA, in *Ancient Geography*, a town of Asia, in Sogdiana, situated near the Oxus.

CHOLEDOCHUS, in *Anatomy*, a term derived from *χολη*, bile, and *δεχομαι*, I receive. The hepatic duct, having been joined by the cystic, takes the name of *ductus communis choledochus*, and proceeds to open into the duodenum. For a further account of this duct, see LIVER.

CHOLELITHUS, in *Medicine*, from *χολη*, bile, and *λιθος*, a stone, a term applied to the concretions, which occur in the gall-bladder and biliary ducts. See GALL-stone.

CHOLER. See BILE.

CHOLERA, *χολέρα*, sometimes written with the addition of the word *morbus*, *disease*, is so called from *χολή*, bile; the leading character of the disease being a copious evacuation of bilious matter both by vomiting and by stool.

The phenomena of cholera, as well as the successful mode of treating it, have been well known, and described, in very similar terms, by physicians from the earliest dawn to the present times. In the writings of Hippocrates, Aretæus, Celsus, Sydenham, and Cullen, we trace the same opinions respecting the disorder, and the same precepts as to its cure. The attack of this complaint is generally sudden. The bowels are seized with griping pains, and the stools, which are at first thin and watery, as in a common diarrhoea, are passed frequently: the stomach is seized with sickness, discharges its contents, and rejects what is swallowed. In the course of a few hours the matter vomited, as well as that which is discharged by stool, appears to be pure bile, and passes off both ways in considerable quantities. The griping pains of the intestines now become more severe, in consequence of the extraordinary irritation of the passing bile, which excites them to partial and irregular spasmodic contractions. These spasms are often communicated to the abdominal muscles, and generally to the muscles of the lower extremities; so that the cramps in the legs become very distressing. The stomach is also affected with considerable pain, and a sense of great heat, in consequence of the same irritation: there is usually great thirst, and sometimes a severe head-ach, from the sympathy of the head with the stomach. The pulse becomes small and frequent, and the heat of the skin is increased. A great degree of debility, languor, and faintness, amounting even to syncope, speedily comes on, in consequence of the sudden and copious evacuation of the fluids; sometimes attended with a colliquative sweat, coldness of the extremities, "and such like symptoms," Sydenham says, "as frighten the by-standers, and kill the patient in 24 hours." Syd. sect. iv. chap. 2. In this climate, however, though the powers of life are often so rapidly reduced by an attack of cholera, as to excite considerable alarm for the safety of the patient, yet it seldom terminates fatally. Though both the pulse and respiration are hurried and irregular during the course of the disease, yet, it is remarked by Dr. Cullen, that there is no proper *pyrexia*, but merely a feverishness from irritation, as these symptoms are generally removed entirely by those remedies which quiet the spasmodic affections attendant on the disease.

It is scarcely necessary to point out the diagnosis of cholera, and the diseases which bear some resemblance to it, since the discharge of almost pure bile by vomiting and stool, simultaneously or alternately, is not observed in any other disease. Vomiting and purging do, indeed, frequently occur at the same time, as after a surfeit, or taking a large quantity of indigestible food, or from other causes; but the matter discharged is not bilious. The practice, however, must be similar in both; the object being to get rid of an irritating matter from the intestinal canal in both cases, which, in the true cholera, is bile, in the other instances a mass of undigested aliment.

The true cholera occurs, in temperate climates, only during the hot season. Sydenham remarks, that it appears as certainly in the month of August, as swallows in the early spring, or cuckows at the approach of summer; and that it very seldom continues longer than the month in which it began. This observation, however, does not accord with the experience of the present times. Cholera is now seen perhaps more frequently in September than in August; and cases occasionally occur, though it be not epidemical, considerably earlier than August; even in June or May. Sydenham seemed to consider the copious use of the summer-fruits as the general cause of cholera; although the observation which he has made upon the subject is inconsistent with that

that notion. "For though the same causes," he remarks, "wholly remain, so that many should be seized with this disease, as well in September as in August, by reason of eating too much fruit, yet we see the same effect does not follow." Probably this notion, which is still adopted by many practitioners, originated merely from the concurrence of the season of the disease, with that of the ripening of fruit. But when it is considered that the hot season is also coincident; that in all hot countries the bilious secretion is usually increased, and thus gives rise to this and similar diseases; that in this climate cholera attacks those who procure much fruit, and those who are unable to procure it, indiscriminately; and that the disorder ceased, even while the fruit remained abundant, according to Sydenham; there can remain little doubt that it is the heat of the atmosphere which produces cholera. Hence it is, that cholera is sometimes most prevalent in August, sometimes in September, according to the earlier or later occurrence of a high temperature; and that after a few hot days, even in May or June, a few cases of the disease are sometimes observed to ensue. It has been remarked, however, that, both in hot climates, and in the hot seasons of mild climates, occasional falls of rain have been particularly followed by an epidemic cholera. In some cases, indeed, it is probable that the heat of the season may give only a predisposition, and that certain ingesta, sudden change of temperature, or other causes in this state, readily excite the disease. Hence various circumstances are enumerated by authors, as having produced cholera; such as cold drink, drastic purgatives, acids, fear, &c. But it is certain that the disease constantly appears during a hot season, of steady temperature, and often without any obvious change or error in the diet or manner of life.

In the cure of cholera, which consists in the production of a large quantity of bile by the liver, and its necessary passage through the alimentary canal, the experience of all ages wholly concurs. A summary of this experience is given by Dr. Cullen in such conspicuous terms, that we shall prefer transcribing it.

"In the beginning of the disease the evacuation of the redundant bile is to be favoured by the plentiful exhibition of mild diluents, both given by the mouth and injected by the anus; and all evacuant medicines, employed in either way, are not only superfluous, but commonly hurtful.

"When the redundant bile appears to be sufficiently washed out, and even before that, if the spasmodic affections of the alimentary canal become very violent, and are communicated in a considerable degree to other parts of the body, or when a dangerous debility seems to be induced, the irritation is to be immediately obviated by opiates, in sufficiently large doses, but in small bulk, and given either by the mouth or by glyster.

"Though the patient be in this manner relieved, it frequently happens, that when the operation of the opium is over, the disease shews a tendency to return; and, for at least some days after the first attack, the irritability of the intestines, and their disposition to fall into painful spasmodic contractions, seem to continue. In this situation, the repetition of the opiates, for perhaps several days, may come to be necessary; and as the debility commonly induced by the disease favours the disposition to spasmodic affections, it is often useful and necessary, together with the opiates, to employ the tonic powers of the Peruvian bark." First Lines, § 1462.

Thus, by commencing the cure with the free use of diluents, we partly contribute to the expulsion of the bilious matter, and partly correct its acrimony. To employ eva-

cuants, as Sydenham quaintly observes, is to increase the disturbance, and, as it were, to endeavour to quench fire by oil; and, on the other hand, to commence with opiates, is shutting up the enemy in the bowels.

Although this simple and rational practice has stood the test of experience from the earliest date, yet other modes have been occasionally resorted to as auxiliary, or superfluous. The Columbo-root has been employed, it is said, with considerable efficacy in the cure of cholera. Dr. Percival, speaking of this root, says, "in the *cholera morbus* it alleviates the violent tormina, checks the purging and vomiting, corrects the putrid tendency of the bile, quiets the inordinate motions of the bowels, and speedily recruits the exhausted strength of the patient." In confirmation of this, he adds, that an eminent surgeon, who, in 1756, had the care of an hospital-ship in the East Indies, gave the Columbo-root in that climate (in the dose of half a drachm or more), to a great number of patients, often twenty in a day, attacked with this disease. "He seldom employed any means to promote the discharge of the bile, or to cleanse the stomach and bowels, previous to its exhibition; and he generally found that it soon stopped the vomiting, which was the most fatal symptom, and that the purging and remaining complaints quickly yielded to the same remedy. The mortality on board his ship, after he used this medicine, was remarkably less than in the other ships of the same fleet." Percival's Essays Med. and Exp. vol. ii. p. 7. We have seen the Columbo-root remain on the stomach, when almost every thing else was rejected in this disorder; but we think also that we have observed the mischiefs suspected by Sydenham from stopping the evacuation; the purging has assumed the form of dysentery.

Dr. Douglas (see Edin. Med. Essays, vol. v. part ii. p. 646.) recommends a simple, but, he affirms, an efficacious remedy, after the bile has been considerably thrown off; namely, a decoction of oat-bread, toasted as brown as coffee, but not burnt. A copious draught of this is extremely powerful, he says, in settling the nausea and vomiting. If the patient is greatly exhausted, he renders it more cordial by an admixture of wine. This, Dr. Douglas remarks, is nearly the practice of Celsus, who recommends, first, repeated draughts of warm water to clear the stomach, and a little after that, he advises the patient to take wine and water mixed with polenta. Now this was, according to Pliny, barley, fried or toasted brown, and ground to powder; it was an astringent, and good for a diarrhoea. Dr. Douglas supposes that wheaten bread, or meal, treated in the same manner, would answer every purpose.

The warm bath, or warm fomentations, have been used with advantage, when the spasmodic affections of the bowels were severe. And in other instances cold drink has been given with beneficial effects. Dr. Cleghorn observes, (Obs. on Diseases of Minorca, p. 224.) "the Spanish physicians have often assured me, that they found nothing more beneficial in violent deplorable choleras than drinking of cold water: which practice is recommended by many of the ancients." Thus Aretæus remarks, "Sin autem omnia antiqua sterora dejecta fuerint, et biliosi humores transferint, biliosusque vomitus et distentio adsit, fastidium, anxietas, virium labefactio, tunc frigida aquæ cyathi duo aut tres propinandi sunt ad ventris altractionem, ut retrogradus humorum cursus cohibeatur, atque stomachus ardens refrigetur."

CHOLET, in *Geography*, a town of France, in the department of the Maine and Loire, and chief place of a canton in the district of Beaupréau, 9 leagues S.S.W. of Angers.

gers. The place contains 4709 and the canton 15,090 inhabitants: the territory includes $347\frac{1}{2}$ kilometres and 12 communes. N. lat. $47^{\circ} 3'$. W. long. $0^{\circ} 59'$.

CHOLIMMA, in *Ancient Geography*, a town of Asia, placed by Ptolemy in Greater Armenia.

CHOLLE', a town of Asia, in the Palmyrene. Ptolemy. —Also, a town of Africa, according to Appian.

CHOLLE, *Cape de la*, in *Geography*, the most prominent part of the coast, on the N.W. part of the island of Corsica, between the gulf of Fiorenzo to the S.E. and the harbour of Calvi to the S.W.

CHOLLIDÆ, in *Ancient Geography*, a people of Greece, in Attica, belonging to the Leontide tribe. Steph. Byz.

CHOLM, or KHOLM, in *Geography*, a town of Russia, in the government of Pskof, seated on the river Lovat, and also one of the 9 districts included in this government; 180 miles S. of Petersburg. N. lat. 57° . E. long. $31^{\circ} 14'$.

CHOLMADARA, in *Ancient Geography*, a town of Asia, in the Comagene, seated on the right bank of the Euphrates, N.E. of Samofata and near it.

CHOLMOGORI, or KOLMOGORI, in *Geography*, a town and district of Russia in the government of Archangel, seated on the west side of the Dwina; 28 miles S. of Archangel.

CHOLOBAPHIS, in *Natural History*, a name given by some of the ancient Greeks to a peculiar kind of emerald which was inferior to many others, and was of a colour tending to yellow.

It is plain that the Romans called all the green crystals found in copper-mines by the name of emeralds; for they express in their descriptions all the defects we find in these crystals, such as their having hairs, or substances like hairs, within, as also salts, and the like.

CHOLOBETANA, in *Ancient Geography*, a country of Asia, in Armenia.

CHOLOE, an ancient town of Pontus Galaticus, in Capadocia.

CHOLOMA, or CHOLOSIS, signifies, according to Galen, any distortion of a member or depravation of it with respect to motion. It is taken also, in a particular sense, for halting or lameness of a leg, arising from luxation.

CHOLONG, in *Geography*, a town of Asia, in Thibet; 57 miles N.N.W. of Chao-mahing-Hotun.

CHOLTITZ, a town of Bohemia, in the circle of Chrudim; 6 miles N.W. of Chrudim.

CHOLUA, in *Ancient Geography*, a town of Asia, in Greater Armenia.

CHOLULA, in *Geography*, a town of Mexico, in the province of Tlascala, which formerly formed an independent state. It was held by the people of Mexico as a sacred spot, and the sanctuary of the gods, with a temple, in which they offered more victims than in that of Mexico: 5 leagues from Tlascala. The treachery of the Cholulans was very severely punished by Cortes, when he took possession of this place in 1519. The Spaniards and Tlascalans, under the direction of their commander, fell upon the multitude, and filled the streets with bloodshed and death. The temples which afforded a retreat to the priests, and some of the leading men, were set on fire, and they perished in the flames. This scene of horror continued two days; during which, the wretched inhabitants suffered all that the destructive rage of the Spaniards, or the implacable revenge of their Indian allies, could inflict. At length the carnage ceased, after the slaughter of 6000 Cholulans, without the loss of

a single Spaniard. Cortes then released the magistrates, whom he had previously seized, and reproaching them bitterly for their intended treachery, declared, that as justice was now appeased, he forgave the offence, but required them to recal the citizens who had fled, and re-establish order in the town. Barthol. de las Casas says, there was no occasion for this massacre, and that it was an act of wanton cruelty, perpetrated merely to strike terror into the people of New Spain. But the zeal of Las Casas often leads him to exaggerate. On the other hand Bern. Diaz asserts that the first missionaries sent into New Spain by the emperor, made a judicial inquiry into this transaction; and having examined the priests and elders of Cholula, found that there was a real conspiracy to cut off the Spaniards, and that the account given by Cortes was exactly true. However this be, the severity of the punishment was certainly excessive and atrocious. Robertson's Amer. vol. ii.

CHOMA, in *Ancient Geography*, a town of Asia Minor in Lycia, according to Ptolemy; which had been episcopal. —Also, the name of a place of Peloponnesus, in Arcadia, according to Pausanias.

CHOMARA, a town of Asia, in Bactriana. Ptol.

CHOMASI, a people of Bactriana, mentioned by Mela and Pliny.

CHOMEL, JAMES FRANCIS, in *Biography*, born at Paris, towards the end of the 17th century, studied medicine at Montpellier, where he took his degree of doctor, in 1708. Returning to his native city, he soon so far distinguished himself as to be appointed physician and counsellor to the king. The following year he published, "Universæ Medicinæ Theoricæ pars prima, seu Physiologia, ad usum scholaræ accommodata," 12mo.; and in 1734, "Traité des Eaux Minérales, Bains et Douches de Vichi, 12mo." This work passed through several editions. To that of the year 1738 the author added a preliminary discourse on mineral waters in general, with accounts of the principal of the medicinal waters found in France. His elder brother,

CHOMEL, PETER, JOHN BAPTISTE, studied medicine at Paris, and was admitted to the degree of doctor there in 1697. Applying himself more particularly to the study of botany, while making his collection, he sent his observations to the Royal Academy of Sciences, who elected him one of their members. He was also chosen, in November 1738, dean of the faculty of medicine, and the following year, was re-elected but died in June 1740. Besides his "Mémoires" sent to the Academy of Sciences and his "Defence of Tournefort," published in the Journal des Savans, he published "Abrégé de l'Histoire des Plantes usuelles," Paris, 1712, 12mo. This was, in the year 1715, increased to two, and in 1730, to three volumes in 12mo., and is esteemed an useful manual.

CHOMEL, JOHN BAPTISTE, LEWIS, his son, educated also at Paris, took his degree of doctor in Medicine, in 1732. He was several years physician in ordinary to the king, and in November 1754 was chosen dean of the faculty. He died in 1765. He published in 1745, "An Account of the Disease then epidemic among cattle," and boasts of great success in the cure, which was effected, he says, by using setons, imbued with white hellebore; "Dissertation historique, sur la Mal de Gorge Gangreneux, qui a regné parme les Enfants, en 1748:" the malignant sore throat, first treated of in this country by Dr. Fothergill, about ten years later than this period. Chomel recommends bleeding, vomiting, and blisters, and had then recourse to cordials. "Essai historique sur la Médecine en France," 12mo. 1762. He also wrote, "Vie de M. Morin," and "Eloge historique de M. Louis Duret," which

which were published in 1765. Eloy. Dict. Hist. Haller Bib. Bot.

CHOMELIS, in *Geography*, a town of France, in the department of the Upper Loire; $4\frac{1}{2}$ leagues N. of Le Puy.

CHOMER. See CORUS.

CHOMERAC, in *Geography*, a town of France, in the department of the Ardeche, and chief place of a canton, in the district of Privas; 3 miles S.E. of Privas. The place contains 1566 and the canton 6423 inhabitants: the territory includes 110 kilometres and 9 communes.

CHOMONCHOUAN, a lake of Canada; 73 leagues N.W. of Quebec. N. lat. $49^{\circ} 20'$. W. long. $75^{\circ} 40'$.

CHOMSK, a town of Lithuania, in the palatinate of Brzesc; 56 miles E. of Brzesc.

CHONAD, a town of Hungary, seated on the Marosch, the see of a bishop, suffragan of Colocza; 25 miles N. of Temesvar.

CHONÆ, in *Ancient Geography*, a town of Asia Minor, in Phrygia. It had been episcopal and metropolitan.

CHONAS, in *Geography*, a town of France, in the department of the Here, and district of Vienne; 13 miles S. of Vienne.

CHOND, a town of Arabia; 190 miles S.W. of Amenzirfdin.

CHONDRILLA, in *Botany*, (Χονδρίλλα, Dioscor.) Linn. Gen. 910. Schreb. 1235. Willd. 1405. Juss. 169. Vent. 2. 464. Gært. 913. Condrille; Lam. Encyc. Clafs and order, *Syngenesia polygamia aequalis*. Nat. ord. *Compositæ semisiliculose*, Linn. *Cichoraceæ*, Juss.

Gen. Ch. Calyx common calyced, cylindrical; scales of the cylinder numerous, parallel, linear, equal; those of the base few, very short. Corolla compound uniform; florets all strap-shaped, linear, truncated, four or five-toothed; hermaphrodite ones very numerous, in several ranks. Stam. Filaments five, capillary, very short; anthers forming a hollow cylinder. Pist. Germ somewhat egg-shaped; style filiform, the length of the stamens; stigmas two, reflexed. Peric. none, except the permanent common calyx. Seeds ovate, compressed, muricated; down capillary. Rec. naked.

Eff. Ch. Calyx calyced. Florets in many ranks. Seeds muricated; down simple.

Sp. 1. *C. juncea*, Rusby gum-succory. Linn. Sp. Pl. Gært. tab. 158. fig. 6. Jacq. Aust. 5. tab. 427. Bauh. pin. 130. (*C. viminea*; Bauh. hist. 2. 1021. fig. 1. Rai. hist. 223.) "Root-leaves runcinate; stem-leaves linear, entire." Root perennial. Stem two or three feet high, branched, erect, hard, villous near the bottom, smooth and striated above. Flowers yellow, slender, like those of lettuce, solitary or in bunches, sessile or on short peduncles; stipes of the down long, attenuated above. A native of the southern parts of Europe, flowering in July and ripening its seeds in September. 2. *C. crepioides*, Murray Syst. Veg. 713. Mart. Lam. Willd. (*C. juncea*; Linn. Syst. Nat. 52.) "Leaves arrow-shaped, embracing the stem; stem simple; flowers nearly sessile, lateral." Root annual. Stem a foot and half high, striated, purple at the base, besprinkled with a few white bristles. Leaves resembling those of turritis, undivided, oblong, rough about the edge, and especially about the keel, with white hairs, glossy on the upper surface; lower ones with small teeth. Flowers yellow, purplish underneath, alternate, on a peduncle scarcely longer than the calyx, with one or two bracts; calyx striated, beset with black tubercles and a white bristle; calycle very short, with awl-shaped permanent leaflets. It may perhaps be associated with the genus crepis. Native country unknown. Such is the description of this plant copied verbatim by all recent botanists from the *Systema Naturæ* of Linnæus,

where it unaccountably appears under the name of juncea to the total exclusion of the well-known original juncea of the *Species Plantarum*. No one since Linnæus appears to have seen even a dried specimen; and as it is not known whence it came, or whither it is gone, it must surely be considered as a vagabond of very dubious character. 3. *C. nudicaulis*, Linn. Mant. 2. Mart. Lam. Willd. (*Lactuca nudicaulis*; Murr. in Comment. gott. 1772. tab. 4.) "Stem nearly naked; flowers panicked." Stems few, a foot high, panicled, straight, cylindrical, glossy, furnished with a small leaf or two. Root-leaves runcinate, obtuse at the end, ciliated with small teeth. Flowers pale yellow; calyx eight-leaved, glossy, imbricated below with a few caducous leaflets; ray consisting of about twenty-four florets; disk composed of styles resembling the florets in colour; down sessile. Seeds black. A native of the East Indies, and not of North America or of Egypt, as Linnæus supposed.

Obs. La Marek has included in his chondrilla the whole Linnæan genus prenanthes, and has divided it into two sections. 1. With florets in several ranks, comprehending the three preceding species with the crepis pulchra of Linnæus, which, he says, cannot be a crepis, as its calycle consists of close scales. 2. With florets in a single rank, the prenanthes of Linnæus. The only point at issue is, therefore, whether a difference in the number of ranks in the florets of the ray be sufficient to constitute a generic character; for it is evidently of no consequence whether the down be stipitated or sessile. We shall adhere to the Linnæan distribution. See PRENANTHES.

CHONDRILLA, *scicula tragonopoides*; Bocc. Sic. See SCORZONERA *resedifolia*, Linn. SONCHUS *chondrilloides*, Willd.

CHONDRILLA *tingitana*; Herm. Lugbd. See SCORZONE-RA *tingitana*, Linn. SONCHUS, Lam.

CHONDRILLA *pulstris longifolia*; Rai Supp. See SONCHUS *maritima*.

CHONDRILLA *lutea*; Bauh. hist. See SONCHUS *tenuissimus*.

CHONDRILLA *viscosa humilis*; Bauh. pin. See LACTUCA *saligna*.

CHONDRILLA *cerulea latifolia*, and *cerulea altera*; Bauh. pin. See SONCHUS *perennis*.

CHONDRILLA *angustissimo folio*; Juss. Act. 1709. See PRENANTHES *tenuifolia*.

CHONDRILLA *viminea viscosa monspeliaca*; Bauh. pin. and *viscosa caule foliis obducto*. See PRENANTHES *viminea*.

CHONDRILLA *bulbosa*; Bauh. pin. — *altera*, Dioscorides, Colphyt. — *pufilla marina*, Lob. ic. See LEONTODON *bulbosum*. Hieracium *bulbosum*, Willd.

CHONDRILLA *hieracii folio annua*; Tourn. See CREPIS *pulchra*, Linn. Prenanthes *hieracifolia*, Willd.

CHONDRILLA *minima repens*; Shaw's Travels. See PRENANTHES *farmentosa*.

CHONDRILLA *orientalis cichorii sylvestris folio*; Tourn. See PRENANTHES *chrysanthifolia*.

CHONDRILLA *purpurascens fetida*; Bauh. pin. See CREPIS *fetida*.

CHONDRILLA *verrucaria*; Bauh. pin. See LAPSANA *zacintha*, Linn. Zacintha *verrucosa*, Gært.

CHONDRILLA *cerulea cyani capitulo*; Bauh. pin. See CATANANCHE *cerulea*.

CHONDRILLA *cyanoides lutea*; Bocc. muf. Bar. ic. See CATANANCHE *lutea*.

CHONDRILLA *zeylanica*; Burm. zeyl. See CACALIA *sonchifolia*.

CHONDRILLA *bulbosa syriaca*; Bauh. pin. See ERIGERON *tuberosum*.

CHONDRILLA *foliis angustis ad oras punctatis*; Plum. Sp. See PECTIS *punctata*.

CHONDRILLA

CHONDRILLA foliis laciniatis; Bauh. pin. See CENTAUREA *crupina*.

CHONDRILLÆ species elegans; Clus. hist. See CICHORIUM *spinosum*.

CHONDRILLA cretica nomine missa; Bauh. hist. See TRAGOPOGON *picrioides*, Linn. Arnopogon *picrioides*, Willd.

CHONDRILLA species tertia; Dod. pomp. See CATANACHE *carulea*.

CHONDROGLOSSUS, in *Anatomy*, a name applied, by Albinus, and some other anatomists, to a few fibres of the hyoglossus muscles which arise from the cornu minus of the os hyoides. See TONGUE.

CHONDROPTERYGII, in *Ichthyology*, the sixth, or last order of fishes, in the Linnæan system. All fishes that have the gills cartilaginous are comprehended under this order; as *acipenser* (sturgeon), *chimæra squalus* (shark), *pristis* (saw-fish), *raja* (ray), and *petromyzon* (lamprey). See article ICHTHYOLOGY.

The word is derived, by Artedi and others, from *χονδρος*, a cartilage, and *πτερυγιον*, a wing or fin, and may therefore be understood as comprehending all fishes that have a cartilaginous instead of bony skeleton. The French term *chondropterygiens* applies precisely to this description of fishes in the latter sense.

CHONDROS, in *Ancient Medical Writers*, the same as *alica*. It signifies also some grumous concretion, as of mallich, or frankincense. It is, besides, the Greek word for a cartilage.

CHONDROSYNDESMUS, signifies a cartilaginous ligament. The word is derived from *χονδρος*, a cartilage, and *συνδεσμος*, a ligament.

CHONE, or CHONIS, in *Ancient Geography*, a town of the Oenotrians in Italy, the capital of a country of the same name, near the territory of Crotona.

CHONG, the name of a spirituous liquor, similar to whisky; extracted in Bootan from grain. It is slightly acid and spirituous, and extemporaneously prepared by the infusion of a mass of grain in a state of fermentation. Capt. Turner, in his Embassy to Tibet (p. 24, &c.) has detailed the process employed in the preparation of it. Wheat, rice, barley, and other kinds of grain are indiscriminately made use of for this purpose. To a given quantity of grain is added rather more water than will completely cover it, and the mixture is placed over a slow fire till it begins to boil; it is then taken up, and the water drained from the grain, which is spread abroad upon mats, or coarse cloths, to cool. When it is cold, a ball of the composition, here called "Bakka," (which is the blossom of the *Cacalia faracenea* Linnæi, collected and rolled together in small balls), is crumbled, and strewed over the grain, and both are well mixed together. The usual proportion is a ball of the size of a nutmeg to two pounds of grain. The grain thus prepared is put into baskets lined with leaves, and pressed down with the hand slightly, to draw off the superfluous moisture. It is then covered with leaves and cloths, to defend it from the external air, and put in a place of moderate warmth, where it is suffered to stand three days. It is afterwards deposited in dry earthen jars; a little cold water is sprinkled upon the top in the proportion of about a tea-cup full to a gallon of grain; the vessel is then covered close, and the case fortified with some strong compost, or stiff clay. It remains thus at least 10 days, before it is fit for use; and, if it be suffered to continue longer, it always improves by age.

To make the chong, when required, they put a quantity of the fermented mass into some capacious vessel, pouring boiling water upon it, sufficient completely to cover it, and stirring the whole well together. A short time is sufficient

for it to digest; a small wicker basket is then thrust down in the centre, and the infusion, called Chong, immediately drains through, and occupies the vacant space. This liquor is, at entertainments, expeditiously distributed to the guests; the segment of a gourd, fastened upon a staff, serving the purpose of a ladle. Each person holds a shallow wooden cup upon the points of his fingers, for its reception, and is seldom satisfied with one supply. This liquor, which is slightly acid, and without any powerful spirit, furnishes a grateful beverage; and it is usually drank warm. From chong an ardent spirit is obtained by distillation; this spirit is denominated "Arra;" it is fiery, and powerfully intoxicating.

CHONG-TCHEOU, in *Geography*, a town of Asia, in the kingdom of Corea; 25 miles S.W. of Ou-tcheou.

CHONNAMAGARA, or CHONNABARARA, in *Ancient Geography*, a town of India, on this side of the Ganges. Ptolemy.

CHONOS, *gulfos*, in *Geography*, or the archipelago of Guay-tecas, lies towards the southern extremity of the continent of Chili, in the southern Pacific Ocean. The most remarkable island in it is that of Chiloe, which see. The islands, called Chonos, are inhabited by Indians, who use the salted flesh of the species of seal, called the sea-wolf, as common food. To the south of Chiloe and the archipelago of Chonos is the peninsula of the three mountains, followed by three considerable islands, that of Campana, lat. 48° to 49° 20', explored by Malesperia; that of Madre de Dios; and that of St. Francis, by some called Roca Partida. The rigour of the climate renders these islands of little importance.

CHOOK-TCHOO, in *Geography*, one of the Ladrone islands, under the lee of which the ships of the embassy to China came to anchor, in 12 fathoms water, on a muddy bottom. N. lat. 21° 55'. E. long. 113° 44'. See LADRONES.

CHOOZ, a town of France, in the department of the Ardennes, and district of Rocroy.

CHOP-CHURCH, or CHURCH-CHOPPER, in *Law*, a name, or rather nick-name, given to parsons, who make a practice of exchanging benefices.

Chop-church occurs in an ancient statute of King Henry VI., as a lawful trade, or occupation; and some of the judges say, it was a good addition. Brook holds, that it was no occupation, but only a thing permissible by law.

CHOPER, or KHOPER, in *Geography*, a river of Asiatic Russia, which runs into the Don, near Choperkaia.

CHOPERSK, or KHOPERSK, formerly *Navokk-persk*, a town of Asiatic Russia, in the government of Saratoff, seated on the Choper; and one of the 11 districts of the government: 140 miles W. of Saratoff, and 648 S.E. of Petersburg.

CHOPERSKAIA, a town of Russian Tartary, in the country of the Colliacs, on the Don: 191 miles N.E. of Asoph, and 60 south west of Archadinskaia.

CHOPIN, RENÉ, in *Biography*, an eminent French lawyer, born in Anjou, in 1537. He was for a considerable time a pleader before the parliament of Paris, and at length retired, when he was consulted in every difficult case in the law. He published many works, which have been collected in six volumes folio. His Latin style is concise, but often obscure. The best of his productions was on the "Custom of Anjou," on account of which the city of Angers granted him the honours and title of sheriff of their city. In the year 1594 he was sentenced to banishment for his adherence to the league, but the sentence was not executed on him. The day on which Henry IV. entered Paris, Chopin's wife went mad through party rage. He commonly studied lying

on the ground with his hooks about him. He was afflicted with the stone, and died under an operation in 1606.

CHOPIN, or **CHOPINE**, a French and Scotch liquid measure, containing half their pint.

CHOPS, *The*, in *Geography*. See *SWAN Island*.

CHOPTANK, a large navigable river of America, on the eastern shore of Maryland, which discharges itself into Chesapeake bay.

CHOQUE-BAY, lies on the W. side of the island of St. Lucia, between Gros Islet bay on the N. and Carenage bay to the S.

CHORA, in *Ancient Geography*, a place of Thrace on the Euxine sea, at a small distance N.E. of Mauron-Tichos and near Ganos.—Also, a place of Gaul, on a river of the same name, (la Cure) between Avalon and Auxerre. The abbé le Beuf supposed it to be *Crevant*: but M. d'Anville places it on the confines of the diocese of Auxerre, on the side of Autun, in the situation of a farm which now bears this name. Sanfon has confounded it with Corbeil. It is mentioned in the *Notitia Imperii* in the following terms: "præfectus Sarmatorum gentium a Chorâ Parisios usque."

CHORAGIUM, in *Antiquity*, was used to denote the funeral of a young unmarried woman.

Some think it should be written *coragium*, from *χορηγία*, *puella*, and *αγο*, *duco*. But Pitiscus chooses rather to derive it from *chorus*; because a chorus or company of virgins always attended such funerals.

CHORAGIUM signified also the tiring or dressing-room belonging to the stage; and sometimes was taken for the dress itself.

CHORAGUS, in *Antiquity*, he who had the superintendence of the chorus, whose business it was to take care they observed the rules of the music, and performed their parts with decorum.

It was the province of the master of the chorus, in the absence of the poet, to exercise the actors for a long time before the representation of the piece. He beat the measure with his feet, his hands, or by other means which might give the movement to the performers in the chorus, who were attentive to his gestures. It was also his duty, not only to guide the voices of those who were under his direction; but he gave them lessons in the two kinds of dances which were adapted to the theatre. See **DANCE**.

Choragi were likewise certain Athenian citizens chosen annually, who were obliged to be at the expence of players, singers, dancers, and musicians, as often as there was occasion, at the celebration of their public festivals on occasion of the greater Dionysia, or festivals of Bacchus, which were celebrated with extraordinary magnificence, when tragedies and comedies were exhibited in the theatre; and hymns in honour of Bacchus, accompanied with flutes, were chaunted by the chorus in the Odeum. Each of the ten Athenian tribes appointed a choragus to lead his chorus, who was to be at least 40 years of age, and whose province it was to choose the performance and to prepare them for the exhibition by previous instruction. With this view the choragus for some months previous to the festivals took the performers, that they might be duly instructed, into his house, and provided for their support; so that it was an office of great expence. At the festival he appeared, as well as his followers, with a gilt crown, and a magnificent robe. These functions, consecrated by religion, were still farther ennobled by the example of Aristides, Epaminondas, and the greatest men, who deemed it an honour to discharge them; but they were so expensive, that many citizens declined the dangerous honour of sacrificing part of their fortunes to the precarious hope of rising by this means, to the first offi-

ces of magistracy. Sometimes a tribe was unable to find a choragus; and in this case the state took upon itself the expence, ordered two citizens conjointly to support the burthen, or permitted the choragus of one tribe to conduct the chorus of another. When the festival drew near, an emulous contention arose among the choragi, which sometimes proceeded to great violence, each striving to excel his competitors; and even intrigues and corruption were sometimes employed in order to obtain the victory. Judges were appointed to decree the prize, which sometimes was a tripod carefully consecrated by the victorious tribe, either in a temple, or in an edifice erected on the occasion. The people waited the decision of the contest with the same anxiety, and the same tumult, as if their most important interests were the objects of discussion. The glory resulting from the victory was shared between the triumphant chorus, the tribe to which it belonged, the choragus who was at its head, and the masters who, under his direction, had given the preparatory lessons. During the festivals the laws declared the persons of the choragi and the actors inviolable. To the expence that preceded the contest, were added the disbursements that followed the victory; there still remained for the choragus the charge of dedicating the tripod he had won, and probably of erecting a little edifice, or temple, in which it was to be placed. The tripod, thus won and preserved, and dedicated, became a family honour, and was appealed to as an authentic testimony of the merit and virtue of the person who obtained it. The choragic temples and tripods were numerous at Athens.

CHORAIC music, a sort of music proper for dancing, by the variety of its different motions.

CHORAL, signifies any person that, by virtue of any of the orders of the clergy, was in ancient times admitted to sit and serve God in the choir.

Dugdale in his History of St. Paul's Church, says, that there were with the chorus formerly six vicars choral belonging to that church.

CHORAL service. The difference between *cathedral* or *choral service* and *parochial*, consists in the choir of cathedrals chanting the psalms, accompanied by the organ, in 4 parts, antiphonally, instead of the minister and the clerk and congregation, as in parish churches, reading them verse for verse without music. The responses are chanted in cathedrals, and the *Te Deum*, *Jubilate*, *Magnificat*, and *Nunc dimittis*, are either chanted like the psalms, or sung to measured and elaborate music, under the title of *Choral Service*. See **CATHEDRAL SERVICE**, **CHORAL SERVICE** and **CHAPEL Establishment**.

CHORAMNEI, in *Ancient Geography*, a savage people of Asia, in Persia, who, according to a passage of Ctesias, cited by Steph. Byz., ran so swiftly that they were able to overtake a stag.

CHORAN-KIAMEN, in *Geography*, a port of Chinese Tartary; 20 miles W. S.W. of Ningouta.

CHORASAN. See **KORASAN**.

CHORASMEI, in *Ancient Geography*, a people mentioned by Athenæus and placed in Asia. They occupied the territory to the north and east of Parthia, and extended themselves, according to Ptolemy, to Sogdiana. Accordingly they were found in the vicinity of the river Aces, and of the plain through which this river flowed. They chiefly inhabited the mountains, and, according to Strabo, they were not very remote from the Bactrians and Sogdians.

CHORASMENI, a people of Asia, mentioned by Arrian, who places them in the neighbourhood of the country of the Amazons and of the Colchide territory.

CHORASMIA, a country of Asia, in Sogdiana, according

cording to Ptolemy, whose situation he assigns near to that of the *Massagetæ*.—Also, a town of Asia, E. of the Parthians. Steph. Byz.

CHORAULES, *Lat.* A minstrel.

CHORAULISTRIA, *Lat.* A female minstrel.

CHORAZIN, in *Ancient Geography*, a town of Palestine, in Galilee, which our blessed Lord deplores for incredulity, (Matth. xii. 22.) Dr. Lightfoot expresses his surprize how such a woe should be denounced against it, when we do not read, in the whole New Testament, that our Lord had ever been there; however we read that he had frequently been at Bethsaïda and Capernaum. Now, Chorazin being placed by Dr. Lightfoot between these two towns, and being, according to St. Jerome, but two miles distant from Capernaum, and in many maps at a small distance from Bethsaïda, and it being expressly said “that mighty works were done in her,” Christ must, without doubt, have been often there.

CHORD, or CORD, primarily denotes a slender rope or cordage. The word is formed of *chorda*, and that from *χορδή*, a gut; whereof strings may be made.

CHORD, CHORDA, in *Anatomy*. See CHORDA.

CHORD, CHORDA, in *Geometry*, a right line connecting the two extremes of an arc. Or, it is a right line, terminated at each extreme in the circumference of a circle, without passing through the centre; and dividing the circle into two unequal parts, called *segments*. Such is the line AB, *Plate III. Geometry, fig. 43.*

CHORD of the complement of an arc is the chord that subtends the rest of the arc; or so much as makes up the arc a semicircle.

The chord is perpendicular to a line drawn from the centre of the circle to the middle of the arc, as CE; and has the same disposition to it, as the *chord*, or string of a bow, has to the arrow: which occasioned the ancient geometers to call this line the chord of the arc, and the other the *sagitta*, or *arrow*, the former of which names is still continued, though the latter is disused. What the ancients called *sagitta*, is now termed the *versed sine*.

Half the chord of the double arc BD, is what we now call the *right sine*; and the excess of the radius beyond the chord DE, the *versed sine*.

The chord of an angle, and the chord of its complement to a whole circle, are the same thing; the chord of fifty degrees is also the chord of 310.

It is demonstrated, in geometry, that the radius CE, bisecting the chord BA in D, does also bisect the arc in E, and is perpendicular to the chord AB, and *vice versa*; and again, if the right line NE bisect the chord AB, and be perpendicular to it; that it passes through the centre, and does bisect both the arch AEB, and the circle ANB.

Hence we derive several useful corollaries: as, 1. To divide a given arc AB into two equal parts; draw a perpendicular to the middle point D of the chord AB; this bisects the given arc AB.

2. To describe a circle, that shall pass through any three points, A, B, C, *fig. 44.* From A and C describe arcs intersecting in D and E; and also others, G and H, from C and B: draw the right lines DE and GH; the point of intersection I, is the centre of the circle to be described through A, B, and C.

Demonstration. For the points A, B, and C, are in the periphery of some circle; and therefore the lines AC and CB are chords, but ED is perpendicular to AC, and GH to BC; ED bisects AC, and GH bisects BC; whereof each passes through the centre. Now as DE and GH only intersect in I; I will be the centre of a circle, passing through the given points, A, C, and B. Hence,

assuming three points in the periphery, or arc, of any circle, the centre may be found, and the given arc completed; hence, also, if three points of one periphery do agree or coincide with three points of another; the whole peripheries agree, and therefore the circles are equal.

And hence, lastly, every triangle may be inscribed in a circle.

The chord of an arc AB (*fig. 43.*) and the radius CE, being given; to find the chord of the half-arc AE. From the square of the radius CE, subtract the square of half the given chord AD, the remainder is the square of DC; from which, extract the square root; and then DC subtracted from the radius EC, leaves DE. Add the squares of AD, and EO; the sum is the square of AE: whence, the root being extracted, we have the chord of the half-arc AE.

CHORDS, *line of*, is one of the lines of the sector and plain scale. See its description and use under SECTOR and PLAIN SCALE. See also SINE.

CHORDS, or CORDS, in *Musick*, denote the strings, or lines, by whose vibrations the sensation of sound is excited; and by whose divisions the several degrees of tune are determined. They are called *chords*, or *chords*, from the Greek *χορδή*, a name which the physicians give to the intestines; in regard the strings of musical instruments are ordinarily made of guts: though others are made of brass or iron wire; as those of spinets, harpsichords, &c. See STRING.

Chords of gold wire in harpsichords, yield a sound almost twice as strong as those of brass; chords, or strings, of steel, yield a feebler sound than those of brass; as being both less heavy, and less ductile.

Mr. Perrault observes, that of late they have invented a way of changing the chords, to render the sound stronger, without altering the tone.

The sixth chord of bass-viol, and the tenth of large theorbo, consist of fifty threads, or guts; there are some of them a hundred feet long twisted and polished with equisetum, or horse-tail.

CHORDS, for the division of, so as to constitute any given interval, the rules are as follow: 1. To assign such part of a chord AB, as shall constitute any concord, v. g. a fifth, or any other interval, with the whole.

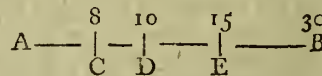
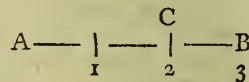
Divide AB into as many parts, as the greatest number of the interval has units; v. g. the fifth being 2 : 3, the line is divided into 3. Of these take as many of the lesser number, v. g. 2 = AC; then is AC the part sought; that is, two lines, whose lengths are to each other as AB to AC, make a fifth.

Hence, if it be required to find several different sections of the line AB, v. g. such as shall be 8ve, fifth, and 3d g: reduce the given ratios 1 : 2, 2 : 3, and 4 : 5, to one fundamental; the series becomes 30, 24, 20 : 15. The fundamental is 30, and the sections sought are 24, the third g; 20, the fifth; and 15, the octave.

2. To find several sections of a line AB, that from the least, gradually to the whole, shall contain a given series of intervals in any given order; viz. so that the least to the next greater contains a third g; that to the next greater, a fifth; and that to the whole, an octave.

Reduce the three ratios 4 : 5, 2 : 3, 1 : 2, to one series; hence we have 8 : 10 :

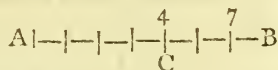
15 : 30 : divide the line into the number of parts of the greatest extreme of the series; viz. 30, we have the sections sought at the points of division, answering



swering to the several numbers of the series, viz. at the points C, D, and E; so that AC to AD is a third, AD to AE a fifth, and AE to AB octave.

3. To divide a line AB into two parts, to contain betwixt them any interval, v. g. a fourth.

Add together the numbers containing the ratio of the interval, v. g. 3 : 4; and the line divided into as many parts as the sum contains, v. g. 7; taken to any of the given numbers, v. g. 4, or C, gives the thing sought.



4. For the harmonical division of CHORDS. To find two sections of a line, which with the whole shall be in harmonical proportion, with regard to their quantity.

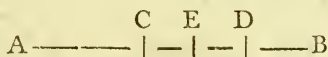
Take any three numbers in harmonical proportion, as 3, 4, 6; and divide the whole line into as many parts as the greatest of these three numbers, v. g. 6; and at the points of division answering to the other two numbers, v. g. 3 and 4, you have the sections sought.

5. To find two sections of a line, which together with the whole shall be harmonical, with respect to quality or tune.

Take any three numbers, concords with each other, v. g. 2, 3, and 8, and divide the line by the greatest; the points of division answering to the other two, give the sections sought.

6. To divide a CHORD, AB, in the most simple manner, so as to exhibit all the original concords.

Divide the line into two equal parts at C, and subdivide the part CB into two equal parts at D; and again, the part CD into two equal parts at E.



Here AC to AB is an octave; AC to AD a fifth; AD to AB a fourth; AC to AE a third; AE to AD a third; AE to EB a sixth; and AE to AB a sixth. *Malcolm's Treat. of Music, ch. 6. sect. 1, 2, 3.*

To find the number of vibrations made by a musical chord or string, in a given time, its weight, length, and tension being given.

Before we proceed to the solution of this problem, we shall premise and demonstrate the principle on which it is founded; and, with this view, we shall adopt the method of demonstration presented to the Royal Society by Dr. B. Taylor, and published in the Philosophical Transactions, N^o 337; or Jones's Abr. vol. iv. p. 391.

Lemma 1. Let ADFB, AΔΦB, (*Plate III. Geometry, fig. 45.*) be two curves, the relation of which is, such, that the ordinates CΔD, EΦF, being drawn, it may be CΔ : CD :: EΦ : EF. Then the ordinates being diminished *ad infinitum*, so that the curves may coincide with the axis AB; the ultimate ratio of the curvature in Δ will be to the curvature in D, as CΔ to CD.

Demonst. Draw the ordinate cδd very near to CD, and at D and Δ draw the tangents Dt and Δθ, meeting the ordinate cd in t and θ. Then because of cδ : cd :: CΔ : CD (by hypothesis), the tangents being produced will meet one another, and the axis, in the same point P. Whence, because of similar triangles CDP and cδtP, CΔP and cθP, it will be cθ : ct :: CΔ : CD :: cδ : cd (by hypoth.) :: δθ : (cθ - cd) : dt (ct - cd). But the curvatures in Δ and D are as the angles of contact θΔδ and tDd; and because δΔ and dD coinciding with cC, those angles are as their subtenses δθ, dt; that is, by the proportion above, as CΔ, CD. Therefore, &c. Q. E. D.

Lemma 2. In some instant of its vibration, let a string, stretched between the points A and B, *fig. 46.* put on the

form of any curve AπB; then the increment of the velocity of any point o, or the acceleration arising from the force of the tension of the string, is as the curvature of the string in the same point.

Demonst. Conceive the string to consist of equal rigid particles, which are infinitely little, as p o, o π, &c. and at the point o erect a perpendicular o R, equal to the radius of the curvature at o, which let the tangents p t, π t, meet in t, the parallels to them π s, p s, in s, the chord p π in c. Then by the principles of mechanics, the absolute force by which the two particles p o and o π are urged towards R, will be to the force of tension of the string, as st to tp; and half this force by which one particle p o is urged, will be to the tension of the string, as ct to tp; that is (because of similar triangles ctp, tpr) as tp or op to Rt, or o R. Wherefore, because of the force of tension being given, the absolute accelerating

force will be as $\frac{o p}{o R}$. But the acceleration generated is in a compound ratio of the ratios of the absolute force directly, and of the matter to be moved inversely; and the matter to be moved is the particle itself o p. Wherefore the acceleration is as $\frac{1}{o R}$; that is, as the curvature in o. For the curvature is reciprocally as the radius of curvature in that point. Q. E. D.

Prob. 1. To determine the motion of a stretched string.

In this and the following problem, we suppose the string to move from the axis of motion through an indefinitely little space; that the increment of tension from the increase of the length, also the obliquity of the radii of curvature, may safely be neglected.

Therefore let the string be stretched between the points A and B, *fig. 47.* and with a bow let the point z be drawn to the distance Cz. from the axis AB. Then taking away the bow, because of the flexure in the point C alone, that will first begin to move (by *Lem. 2.*). But no sooner will the string be bent in the nearest points φ and d, but these points also will begin to move; and then E and e; and so on. Also because of the great flexure in C, that point will first move very swiftly; and hence the curvature being increased in the next points D, E, &c. they will immediately be accelerated more swiftly, and at the same time the curvature in C being diminished, that point in its turn will be accelerated more slowly. And, in general, those points which are slower than they should be, being accelerated more, and the quicker less, it will be brought about at last, that the forces being duly tempered one with another, all the motions will conspire together, and all the points will at the same time approach to the axis, going and returning alternately, *ad infinitum*.

Now, that this may be done, the string must always put on the form of the curve ACDEB, the curvature of which, in any point E, is as the distance of the same E η from the axis; the velocities of the points C, D, E, &c. being also in the ratio of the distances from the axis Cz, D δ, E η, &c. For in this case the spaces Cz, D δ, E η, &c. described in the same infinitely little time, will be as the velocities; that is, as the spaces described Cz, D δ, &c.

Wherefore the remaining spaces z z, δ δ, η η, &c. will be to each other in the same ratio. Also (by *Lem. 2.*) the accelerations will be to one another in the same ratio. By which means the ratio of the velocities always continuing the same with the ratio of the spaces to be described, all the points will arrive at the axis at the same time, and always depart from it at the same time. And therefore the curve ACDEB will be rightly determined. Q. E. D.

Moreover the two curves $ACDEB$ and $Ax\delta B$, being compared together, by *Lemma 1.* the curvatures in D and δ will be as the distances from the axis $D\delta$ and $\delta\delta$; and therefore, by *Lemma 2.* the acceleration of any given point in the string will be as its distance from the axis. Whence (by Sect. 10. Prop. 51. of Newton's Principia), all the vibrations, both great and small, will be performed in the same periodical time, and the motion of any point will be similar to the oscillation of a body vibrating in a cycloid. Q. E. I.

Cor. Curvatures are reciprocally as the radii of circles of the same degree of curvature. Therefore let a be a given line, and the radius of curvature in E will be equal to $\frac{aa}{E\eta}$.

Prob. 2. The length and weight of a string being given, together with the weight that stretches the string, to find the time of a single vibration.

Let the string be stretched between the points A and B , fig. 48. by the force of the weight P , and let the weight of the string itself be N , and its length L . Also let the string be put in the position $A F p C B$, and at the middle point C , let CS , a perpendicular, be raised, equal to the radius of the curvature in C , and meeting the axis AB in D ; and taking a point p near to C , draw the perpendicular pc and the tangent pt .

Therefore it appears, as in *Lemma 2.* that the absolute force by which the particle pC is accelerated, is to the force of the weight P , as ct to pt ; that is, as pC to CS . But the weight P is to the weight of the particle pC , in a ratio compounded of the ratios of P to N , and of N to the weight of the particle pC , or of L to pC ; that is, as $P \times L$ to $N \times pC$. Therefore, compounding these ratios, the accelerating force is to the force of gravity, as $P \times L$ to $N \times CS$. Let therefore a pendulum be constructed, whose length is CD ; then (by sect. x. prop. 52. of Newton's Principia) the periodical time of the string will be to the periodical time of that pendulum as $\sqrt{N \times CS}$ to $\sqrt{P \times L}$. But by the same proposition, the force of gravity being given, the longitudes of the pendula are in a duplicate ratio of the periodical times. Whence $\frac{N \times CS \times CD}{P \times L}$, or writing $\frac{aa}{CD}$ for CS (by *Cor. Prob. 1.*) $\frac{N \times aa}{P \times L}$ will be the length of a pendulum, the vibrations of which are isochronous to the vibrations of the string.

To find the line a , let the absciss of the curve be $AE = z$, and the ordinate $EF = x$, and the curve itself $AF = v$, and $CD = b$. Then (by *Cor. Prob. 1.*) the radius of curvature in F will be $\frac{aa}{x}$. But \dot{v} being given,

the radius of curvature is $\frac{\dot{v}\dot{x}}{\ddot{z}}$. Whence $\frac{aa}{x} = \frac{\dot{v}\dot{x}}{\ddot{z}}$, and therefore $aa\ddot{z} = \dot{v}\dot{x}\dot{x}$; and taking the fluents $aa\dot{z} = \frac{\dot{v}x^2}{2} - \frac{\dot{v}b^2}{2} + \dot{v}a^2$. Here the given quantity $-\frac{\dot{v}b^2}{2} + \dot{v}a^2$ is added, that it may be $\dot{z} = \dot{v}$ in the middle point C . And hence the calculus being completed, it will be $\dot{z} = \frac{a^2\dot{x} - \frac{1}{2}b^2\dot{x} + \frac{1}{2}x^2\dot{x}}{\sqrt{a^2b^2 - a^2x^2 - \frac{1}{4}x^4 - \frac{1}{4}b^4 + \frac{1}{2}b^2x^2}}$. Now let b and x vanish in respect to a , that the curve may coincide with the axis, and it will be $\dot{z} = \frac{a\dot{x}}{\sqrt{bb - xx}}$. Now, with the

centre C , and radius $DC = b$, fig. 49; a quadrant of a

circle DPE being described, and making $CQ = x$, and erecting the perpendicular QP ; then the arc DP being $= y$, it will be $\dot{y} = \frac{b\dot{x}}{\sqrt{bb - xx}} = \frac{b}{a}\dot{z}$.

Whence $y = \frac{b}{a}z$, and $z = \frac{a}{b}y$. And making $x = b = CD$, in which case it is also $y =$ quadrantal arc DPE , and $z = AD = \frac{1}{2}L$; it will be $\frac{1}{2}L = a \times \frac{DE}{CD}$, and $a = L \times \frac{CD}{2DE}$. Let it be therefore $CD : 2DE ::$ diameter of a circle : circumference :: $d : c$; and it will be $aa = LL \times \frac{dd}{cc}$. Therefore this value being substituted for

aa $\frac{N}{P} \times L \times \frac{dd}{cc}$ will be the length of a pendulum, which will be isochronous to the string. Therefore let D be the length, whose periodical time is 1, and $\frac{d}{c} \sqrt{\frac{N}{P} \times \frac{L}{D}}$ will be the periodical time of the string. Q. E. I.

For the periodical times of pendulums are as the square roots of their lengths.

Cor. 1. The number of vibrations of the string in the time of one vibration of the pendulum D , is $\frac{c}{d}$

$$\sqrt{\frac{P}{N} \times \frac{D}{L}}$$

Cor. 2. Because $\frac{d}{c} \times \sqrt{\frac{1}{D}}$ is given, the periodical time of the string is as $\sqrt{\frac{N}{P} \times L}$. And the weight P being given, the time is as $\sqrt{N \times L}$. And the strings being made of the same thread, in which case it is N as L , the time will be as L .

If we take L for the number of inches and decimals contained in the length of the chord, and the proportion of the tension to the weight of the chord as n to 1, then will the number of vibrations of the chord in one second be (by *Cor. 1.*) $\frac{355}{113} \sqrt{\frac{39.12n}{L}}$. Where $\frac{355}{113}$ denotes the proportion of the circumference to the diameter of the circle; and 39.12 the length of a pendulum vibrating seconds, in inches and decimals of an inch, English measure. This last expression coincides with Mr. Euler's rule (*Tentam. Nov. Theor. Mus.* p. 6, 7.), only we here express in English what he gives in Rhinland measure. To illustrate this rule by an example: suppose the length of the chord to be 18.7 inches, its weight $6\frac{1}{2}$ grains, and the tension or weight extending this chord to be 8lb. troy, or 46080 grains. Then $L = 18.7$, and $n = \frac{46080}{6.2} = 7432$. The number of vibrations

therefore by the rule will be $\frac{355}{113} \sqrt{\frac{39.12 \times 7432}{18.7}} = 391.4$. See Taylor's Method. Incr. Prop. 29. Maclaurin's Fluxions, § 929. Smith's Harmonics, Prop. 23 and 24. Malcolm's Music, ch. ii. § 2.

By logarithms the rule may be thus expressed $\frac{L + W}{2} + C = V$. Where L is the logarithm of the ratio of a pendulum, vibrating seconds, to the length of the given string; W the logarithm of the ratio of the tension to the weight of the string; C the logarithm of the ratio of the circumference

ference of a circle to its diameter, or 0.4971500; and lastly, V = logarithm of the required number of vibrations in one second.

From what has been above laid down, we may easily deduce the following particulars relative to stretched chords or strings: (See Cavallo's Philosophy, vol. ii.)

1. If a stretched cylindrical chord be struck, and then be left to vibrate by itself, it will perform its vibrations, whether large or narrow, in equal times, and, of course, the sound, though decaying gradually, yet continues in the same pitch; excepting, however, when the string is struck violently; for in that case its sound is a little higher at first, viz. its vibrations are a little more frequent at first.

2. If various strings be equally stretched, and be of the same substance; or, in short, if they be equal in every respect, excepting in their lengths; then the duration of a single vibration of each string will be as the length of the string; or (which is the same thing) the number of vibrations performed by each string in a given time will be inversely as the length; for instance, if a string be four feet long, and another string, *ceteris paribus*, be one foot long; then the latter will vibrate four times whilst the former vibrates once. Or if the length of the former be to that of the latter as 10 to 3; then the vibrations performed by the latter will be to those that are performed by the former, as 3 to 10; and so on. Also, the same thing must be understood of the parts of the same string; for instance, if a certain string perform 8 vibrations in a second; then, if that string be stopped in the middle, and one half of it only be caused to sound, then that half will perform 16 vibrations in a second.—One-third part of the same string will perform 24 vibrations in a second; and so on.

The length of the string is reckoned from one bridge to the other, or from one resting place to the other. The tension of the string is measured by the weight which is suspended to one end of it. If instead of stretching a string by suspending a weight to it, the string be twisted round a peg, after the manner commonly used in musical instruments, then the tension still must be expressed by a weight; meaning a weight which may be capable of stretching the string as much as it is stretched by turning the peg.

3. If various chords differ in tension only; then the number of vibrations which each of them performs in a given time, is as the square root of the stretching weight. Thus, if a chord be stretched by a weight of 16 pounds, and another chord be stretched by a weight of 9 pounds; then the former will perform 4 vibrations in the same time that the latter performs 3 vibrations.

4. If cylindrical chords differ in thickness only; then the number of vibrations which they perform will be inversely as the diameters, viz. if the diameter of a chord be equal to twice the diameter of another chord; then the former will perform one vibration in the same time that the latter performs two vibrations.

5. By a proper adjustment of the lengths, thicknesses, and stretching weights, dissimilar chords may be caused to perform any required number of vibrations; which is evidently derived from the preceding paragraphs.

6. The actual number of vibrations, which are performed by a given stretched cord, may be determined, without any great error; by using the following rule; provided the length and weight of the vibrating part of the chord, and likewise the stretching weight be known.—*Rule*. Multiply the stretching weight by 39.12 inches (which is nearly the length of the pendulum that vibrates seconds). Also multiply the weight of the chord by its length in inches; divide the first

product by the second; extract the square root of the quotient; multiply this square root by 3.1416, and this last product is the number of vibrations that are performed in one second of time by the given chord.—The resistance of the air, as also some other fluctuating causes of obstruction, not being noticed in this rule; it is most probable that the real vibrations are not quite so numerous as they are given by the rule.

The pitch in music is denoted by the number of vibrations that are performed in a given time, or by the length of the string which emits each of those sounds; for it has been already shewn that, when stretched strings are alike in all other respects, excepting in their lengths, then the duration of a single vibration of each string is proportionate to the length of the string; or (which amounts to the same thing) that the number of vibrations performed by each string in a given time, is inversely as the length of the string.

If you take several strings, or chords, precisely of the same substance, the same form, and the same thickness, and stretch them equally by suspending equal weights at their extremities or otherwise; and their respective lengths be made of the due proportions; then these strings, when struck, will express the proper musical sounds or tones, and the whole set is called "the Scale of Music." See SCALE, STRING, and VIBRATION.

Mr. Euler informs us, that he found the chord, making 392 vibrations in a second, to be at unison with the key called *a* in instruments, that is, an octave and sixth major above the lowest *C* in our harpsichords or violoncellos. Consequently the note *C*, being to *a* as 3 to 10, will make 118 vibrations in one second. And the highest *C*, or *c'''*, as Mr. Euler calls it, being four octaves above the lowest *c*, will vibrate 1888 times in one second of time. Mr. Euler supposes the limits of the human ear to be, with respect to gravity, two octaves lower than *C*; and with respect to acuteness, two octaves higher than *c'''*. See INTERVAL and VIBRATION.

CHORD, is sometimes also used for accord. Thus we say, the common chords to such a bass note, meaning its third, fifth, and octave. See ACCORD.

CHORD is also used, in *Music*, for the note or string to be touched or sounded, in which sense it is applicable to all the intervals of music.

CHORD is also a technical term in music, implying a combination of not less than three sounds, as the third and fifth to any base, or the

8
5 which compose what, in practice, is called a common
3 chord;

which may be written and played three several ways, as

8 3 5 The first of these is called the common
5 8 3 chord; the second, the chord of the 6th; the
3 5 8 third, the chord of the 4th; yet still each of
C C C these is but the common chord to *C*, the fundamental or principal base, reversed. See COMMON chord, FUNDAMENTAL BASE, ACCOMPANIMENT, and THOROUGH-bass.

CHORDA TYMPANI, in *Anatomy*, a very slender nervous twig, forming a communication between the facial nerve, (portio dura of the 7th pair) and the lingual branch of the inferior maxillary. In its course it crosses the cavity of the tympanum. See NERVES and EAR.

CHORDA, *Lat.* the string of a lute, harp, violin, &c.

CHORDÆ MOBILES, *Lat.* in *Ancient Music*, strings in the tetrachords which were changeable in the chromatic and enharmonic genera.

CHORDÆ stabiles, strings at the top and bottom of tetra-chords of the ancient lyre, of which the tuning was never altered by change of genus.

CHORDAPSUS, in *Medicine*, a term used by some of the ancient physicians, to denote a violent pain in the abdomen. There is a difference among them as to the precise signification of the term; some applying it only to spasmodic affections of the bowels, and others to inflammatory pains, or to both. Celsus (lib. iv. cap. 13.) observes, that Diocles Carystius denominated the acute disease of the small intestines *chordapsus*; and that of the large intestines, which is sometimes chronic, *ileus*; but he adds, that by most physicians the former is called *ileus*, and the latter *colic*. Cælius Aurelianus remarks, that some physicians denominate the acute disease (or ileus) chordapsus, because the intestines are stretched, as it were, like chords. But he adds, that others apply the term to pains of the bowels in general, among whom are Hippocrates, Praxagoras, and Euriphon the Gnidian. De Acut. Morb. iii. 17.

By some the word is derived from *χορδὴν* and *ἀπτομαι*, *tango*, because the bowels feel hard and stretched like a cord to the hand, applied to the abdomen; by others, probably with more correctness, from *χορδὴν* and *ἄπτω*, *necto*, *I bind*, from the tension and constriction of the bowels during these pains. For Cælius Aurelianus observes, the ancient Greeks used the term *χορδὴν* for *intestine*. See COLIC and ENTERITIS.

CHORDEE, in *Surgery*, (from *χορδὴν*, the string of a musical instrument,) denotes a painful, involuntary, and sometimes distorted, erection of the penis, happening at all times, but more commonly when the patient is warm in bed; under which circumstance the penis becomes hard and painful to the touch, and is most frequently curved downwards in a considerable degree. It sometimes remains, after the heat of urine, and other symptoms of gonorrhœa, are gone off; but is usually more severe during the continuance of the inflammation, and becomes more or less violent, according to the greater or less urgency of that symptom.

Mr. Benjamin Bell states, that chordee is the effect of inflammation, arising from irritation, communicated from the nerves of the urethra to those of the contiguous muscles, whereby those unequal degrees of contraction are produced over the whole substance of the penis, which universally take place in this disease.

Mr. Hunter says, the chordee appears to be inflammatory in some cases, and spasmodic in others. Speaking of the inflammatory, he says, "When the inflammation is not confined merely to the surface of the urethra and its glands, but goes deeper and affects the reticular membrane; it produces an extravasation of coagulable lymph, as in the adhesive inflammation, which, uniting the cells together, destroys the power of distention of the corpus spongiosum urethræ, and makes it unequal in this respect to the corpora cavernosa penis, and therefore a curvature on that side takes place in the time of erection, which is called a chordee. The curvature is generally in the lower part of the penis, arising from the cells of the corpus cavernosum penis of that side, having their sides united by adhesions, sometimes, as it were spontaneously, at other times, in consequence of the inflammation attending bad chancre. Besides this effect of inflammation, when the chordee is violent the inner membrane is probably so much upon the stretch, as to be in some degree torn, which frequently causes a profuse bleeding from the urethra, that often relieves, and even sometimes cures. As chordee arises from a greater degree of inflammation than common, it is an effect which may, and often does, remain after all infection is gone, being merely a consequence of the adhesive inflammation."

The spasmodic chordee, Mr. Hunter says, arises from spasm; at least it cannot proceed from the same cause as the other, if his idea of that complaint be well founded. The spasmodic comes and goes, but at no stated times; at one time there will be an erection entirely free from it, at another it will be severely felt, and this will often happen at short intervals.

In the beginning of this complaint, Mr. Hunter sometimes advised bleeding from the arm, but, he says, it is of more immediate service to take away blood from the part itself by leeches; for we often find, by a vessel accidentally giving way in the urethra, and a considerable hæmorrhage ensuing, that the patient is greatly relieved.—"Fomenting the penis by holding it over the steam of warm water, will give ease, as will also poultices; and if camphor be added to the fomentation and poultice, it will, in many cases, assist in taking off the inflammation.

"Opium given internally is of singular service, and if joined with camphor, the effect will be still greater; but opium, in such cases, acts rather by lessening the pain than by removing the inflammation, though by preventing erections, it may be said to obviate the immediate cause of the complaint."

For a chordee, continuing after all other symptoms are gone, Mr. Hunter thinks evacuation seldom necessary, the inflammation being gone, and a consequence of it only remaining, which, he says, will go off gradually by the absorption of the extravasated coagulable lymph. Rubbing the parts, however, with mercurial ointments will promote the absorption of the extravasated coagulable lymph, for we find that mercury has considerable powers in exciting absorption; and the friction will also be of use. In one case Mr. Hunter thought he saw considerable benefit from giving cicuta, after he had tried the common methods of cure to no purpose. Bark and electricity may also be of use in such cases; but evacuations, whether from the part, or from the constitution, generally do harm rather than good.

A chordee is often longer in going off than either the discharge or the pain; but its declension is generally gradual and uniform, as is the case with most of the consequences of inflammation.

CHORDIRAZA, in *Ancient Geography*, a town of Asia in Mesopotamia, situated in the environs of Carrhæ, according to Strabo.

CHORDYLA, or **CORDULA**, a town of Asia in the Colchide, in the country of the Lazi, on the left bank and near the mouth of the Acinaſis. According to Ptolemy it was situated about 6 or 7 leagues to the south of Gyaneum.

CHOREA, Gr. *χορεία*, a dance, *ſaltare cum cantu*. See BALLAD, BALLATA.

CHOREA, in *Medicine*, more commonly written *Chorea Sancti Viti*, or *Saint Vitus's Dance*, from *χορεία*, a dance, is a spasmodic or convulsive disease, in which the muscles of the extremities and other parts are thrown into various involuntary motions, and perform in an irregular manner those motions which are dictated by the will.

It is remarkable, that of a disease so singular and formidable in its appearance, so obstinate in its continuance, and which reduces the patient to such a distressful state, no satisfactory history is to be collected from the writings of physicians, except of those of our own country, and those of the later continental writers, who appeal to Sydenham as their authority. From the nature of its symptoms it would seem probable that the disease is not of modern origin, but must have been occasionally observed from the earliest times. The ancients, however, have either not described it, or described it indistinctly, and confounded it with some other nervous

CHOREA.

nervous disorders, with which it exhibits only a few symptoms in common.

The disease, anciently denominated *σκολοτυβη*, *scelotyrbe*, (*quasi cruris perturbatio*,) appears to resemble chorea in several circumstances, inasmuch that some modern authors have considered the terms as synonymous. Sauvages treats of chorea under the appellation of *schelotyrbe chorea viti*. Nosol. Method. Class IV. See Langius, *Epist. Med.*—But the definitions of scelotyrbe, left us by the ancients, scarcely apply to chorea, as it has been understood since the time of Sydenham. Galen describes it as a sort of paralysis of the legs, which renders the patient unable to walk in a straight direction; he turns from one side to the other, crossing the left foot over the right, or the right foot over the left, or both alternately; and sometimes elevates the feet as if ascending a great acclivity. This description will also apply to a partial or incipient palsy of the lower extremities: and indeed the term itself excludes the notion of any affection of the muscles of the arm, or superior parts of the body. Piiny mentions the scelotyrbe, as a disease which occurred together with the scurvy (*ſtomacace*) among the Roman soldiers encamped near the Rhine, in consequence of drinking for a considerable time the waters of a certain spring. He designates it in a few words; “compages in genibus solverentur;” which seem to imply a simple paralysis of the legs. *Nat. Hist. lib. xxv. cap. 3.*

The disease, of which we now treat, is widely different in its nature: and the appellations of *Chorea Sancti Viti*, *Saltus Viti*, &c. imply that it has been first distinguished from other affections in modern times. The writers, however, who have adopted these appellations, have by no means agreed in the congeries of symptoms to which they apply them. The connection of the name of this faint (*Vitus*) with a convulsive disease seems to have originated among the continental writers, during the days of fanaticism and superstition in the seventeenth century. Gregorius Horstius and Juncker relate, that a superstitious belief prevailed in Germany, among the people addicted to worship the images of the saints, that by presenting gifts, and dancing before the image of St. Vitus, on his festival in the month of May, they should live in health and safety during the ensuing year; and that for this purpose they repaired to a chapel dedicated to this saint, where they danced night and day, until they were seized with a delirium, and fell down in a sort of trance. They then returned home, having undergone a supposed renovation. But on the return of May, in the following year, they began to perceive a restlessness and agitation of their limbs, as if a fresh regeneration were become necessary, and were compelled to assemble again in the chapel, on the festival of the saint. This Juncker attributes to the force of imagination and habit! There were two chapels sacred to St. Vitus, the one near Ulm, the other near Ravensberg; both famous for the annual assemblies of dancing fanatics. Gregorius Horstius affirms that he had conversed with several persons, who resorted to this superstitious dance, as a preservative from disease, and who were strenuous advocates of its efficacy; one of them had paid the annual visit for the space of 24, and another for 30 years. *Greg. Horst. Opera Med. tom. ii. lib. ii. obs. 45. Juncker Conspect. Patholog.*

Such is the origin of the appellation given to this disease. It was applied, it would seem, in the first instance, chiefly to cases of insanity, in which there was an extraordinary disposition to violent exercise, whether of running, dancing, or otherwise; and as well to the temporary delirium of the fanatic, as to the more permanent derangement of the maniac. Such were two cases related by Platerus, if they are not alto-

gether fabulous; in one of which, a woman danced vehemently, night and day, until the skin was worn off her feet. *Observ. Med. lib. i. p. 88.* Tulpus records the history of a man seized with a similar insanity, who ran about night and day, until he suffered the most profuse perspirations, and was unable to cease from his exertions, except when overpowered by sleep. *Obs. Phys. lib. i. obs. 16.* See also Jo. Rud. Camerar. *Sylloge Mem. cent xi. obs. 84—88.*

Our countryman, Sydenham, was the first writer, we believe, who described the series of symptoms, which is now comprehended under the term, *chorea*, or *Saint Vitus's Dance*; and he has been copied or followed, in this description, by most of the subsequent writers on the subject. Sydenham, however, speaks of it as a disease, which was *vulgarly* called *chorea sancti Viti* in his time. Dr. James Hamilton, in a late excellent treatise, on the utility of purgative medicines, has, from a more extensive experience in the disorder, given a more correct and ample view of chorea. It is characterized by the following symptoms.

The approach of the disease is commonly slow, and is indicated by a loss of the usual vivacity and playfulness, by a variable and often ravenous appetite, a swelling and hardness in the lower belly in most cases, in some a lank and soft belly, and, in general, a constricted state of the bowels, which is aggravated as the disease advances. Slight irregular involuntary motions are soon observed, especially of the muscles of the face, which are thought to be the effect of irritation, and are the harbingers of the more violent convulsive motions, which now attract the attention of the friends of the patient.

These convulsive motions vary considerably. The muscles of the extremities, and of the face, those moving the lower jaw, the head and the trunk of the body, are, at different times, and in different instances, affected by it. In this state the patient does not walk steadily; his gait resembles a jumping or starting; he sometimes cannot walk, and seems palsied, nor can he perform the common and necessary motions with the affected arms. In a word, when the patient wishes to be at rest, the muscles are perpetually moving, and distorting the limbs, face, and trunk; and when any motion is attempted by the will, it is performed irregularly, and with difficulty, after several useless efforts. “Thus if the patient take a cup of drink in his hand, he performs,” as Sydenham has remarked, “a thousand ludicrous gesticulations, before he is able to bring it to his mouth; for he cannot direct it in a straight line, his hand being drawn hither and thither by the convulsions, but is compelled to move it about for some time, till at length, reaching his lips, he flings the liquor suddenly into his mouth, and drinks it greedily, as if the poor creature designed only to excite the laughter of the spectators.”

These convulsive motions are more or less violent, and are constant, except during sleep, when, in most instances, they cease altogether: but sometimes they continue, and, when the disease is greatly aggravated, even severe, inasmuch that the sleep becomes unsound and disturbed by the incessant motions. Although different muscles are sometimes successively convulsed, yet, in general, the muscles affected in the early part of the disease, remain so during the course of it. The disease advancing, articulation becomes impeded, and is frequently completely suspended. Deglutition is also occasionally performed with difficulty. The eye loses its lustre and intelligence; the countenance is pale and expressive of vacancy and languor. These circumstances give the patient an appearance of fatuity; and indeed there is little doubt, that, when the disease has subsisted for some time, fatuity, to a certain extent, interrupts

interrupts the exercise of the mental faculties. Fever, such as arises in marasmus, is not a necessary attendant on chorea; nevertheless, in the advanced periods of the disease, flaccidity and wasting of the muscular flesh take place, the consequence of constant irritation, of abating appetite, and impaired digestion, the common attendants of protracted chorea; and which, doubtless, may, in some instances, have been the forerunners of death; although no fatal instances of chorea have been recorded.

Chorea attacks the male and female sex indiscriminately; and those chiefly who are of a weak constitution, or whose natural good health and vigour have been impaired by confinement, or by the use of scanty or improper nourishment. It appears most commonly from the eighth to the fourteenth year of age; but sometimes, especially in females, it has been observed at the age of sixteen or eighteen years. Sydenham Schedul. Monitor. de nov. febris ingressu.—Hamilton Obs. on Purgative Med.—Bisset Med. Essays and Obs.

Although chorea, in the precise form above described, seldom, if ever, attacks adults, yet a series of irregular, distressing, and unlighty motions in the muscles of the extremities, abdomen, neck, and face, occasionally occur in adults, which bear a great resemblance to the motions of the chorea of children. This disorder is sometimes connected with a derangement of the biliary system and the organs of digestion; sometimes with anxiety or distress of mind; sometimes it is combined with symptoms of hysteria; and we have seen it succeed to a state of mental irregularity and depression, bordering on melancholy. Dr. Darwin has attempted to distinguish these motions from those of chorea; but he has obviously mistaken the nature of the latter. He has termed the disease of adults, *convulsio dolorifica*, (painful convulsion,) because the exertion of the muscles, he affirms, is made to relieve some uneasy sensation, especially the pains left after rheumatism in young and delicate people: but in chorea, “the undue motions only occur when the patient endeavours to exert the natural ones; are not attended with pain; and cease when he lies down without trying to move.” See *Zoonomia*, Class IV. 2. 3. and Class III. 1. 1. This statement, however, is incorrect; since, as we have before mentioned, the motions of chorea are almost incessant, and that even during sleep, in inveterate cases. An intelligent young man, who now labours under this convulsion, expressed his conviction, that Dr. Darwin’s conjecture is correct, and affirmed, that he could, by a strong exertion of the will, prevent the motions from taking place at any time, but that that exertion was extremely painful, and was followed by languor and distressful sensations. Whether this be also the case in the chorea of children, we know not, since their immature understanding precludes the possibility of making the experiment.

Many causes have been assigned to chorea. It is often attributed to the presence of worms in the alimentary canal, and to the repulsion, or drying up of cutaneous eruptions: Dr. Darwin seems to have conceived that its most common cause was the repulsion of the itch. Rheumatism, acute fevers, diseases of the stomach, the use of mercury, terror, and other strong mental impressions, are also enumerated among the occasional causes of chorea; but these relate chiefly to those convulsive affections which occur in adults. Dr. Monro, the son, used to affirm, in his lectures, that he had several times observed the disease to occur in children about the period of the second dentition, when the former set of teeth remained, or when the new set were shining through the gums; and that he had speedily cured the disease, by drawing the first teeth, or lancing the gums. Dr. Ha-

milton believes that chorea is connected with a sluggish action and constipation of the bowels, and the consequent large accumulation of feces in the canal. He observes, with regard to one of his patients; “This boy was emaciated and exceedingly puny, and his abdomen was lank; yet, from the 15th day of December, when the commencement of his recovery was observable, to the 25th day of the same month, the quantity of feces discharged was most wonderful, such as I had never seen before. It appeared to me, during the above period, to have nearly equalled in weight, that of the whole body of the extenuated patient.” Page 98.

The cure of chorea has been variously attempted, according to the particular notion entertained by the practitioner, of the nature and cause of the disease. All the remedies, however, which have been adopted, may be considered as belonging to two classes, tonics and evacuants; such as tend, on the one hand, to support the strength of the constitution, and to diminish the susceptibility of irritation; or such, on the other, as evacuate the bowels, or lessen the quantity of the circulating fluids. The two plans of cure have been combined with success.

The systems of modern medicine, and more particularly the dogmatic doctrines of Brown, have led their followers to consider every spasmodic disease as a disease of debility, to the cure of which tonics and stimulant medicines are alone adequate, and to which the slightest evacuation is greatly detrimental. Numerous examples of chorea, among the rest, are recited in the periodical journals, in which a cure was obtained under the employment of medicines of this nature. Thus we find cures attributed to the use of asafoetida, valerian, musk, camphor, the flowers of cardamine, and belladonna; to electricity and the cold bath; to Peruvian bark and other vegetable bitters; and, of late years, more particularly to the virtues of the metallic tonics, especially the oxyd of lime, and sulphate of zinc, the ammoniated copper, and nitrate of silver. See Bisset loc. cit. Edinburgh Med. Com. vol. x. and xii. Memoirs of the Lond. Med. Soc. vol. iii. Fothergill, Phil. Trans. 1779, &c. Under the administration of remedies of this class, the disease unquestionably occasionally disappears; sometimes in consequence of the casual cessation or removal of the irritation which excited it; and sometimes, no doubt, from the direct effects of the medicines, in rendering the body less susceptible of the ill effects of the existing irritation, in slight cases. It is certain, however, that the symptoms of chorea have often continued with unremitting severity, under the employment of the most powerful of these tonic and anti-spasmodic medicines, during many months, nay even for years; terminating only, on some occasions, about the age of puberty, and even leaving the unconquerable remains of its grotesque and irregular motions imposed on the young sufferer for life.

To the opposite mode of employing evacuants, especially purgatives, different physicians have been led by some peculiar notion of the disease which they entertained; which, however different, conducted them to the same conclusion. Sydenham ascribed the convulsions of chorea to a humour falling upon the nerves, (*humor aliquis in nervos irruens*.) and stimulating them to extraordinary action: hence he inferred, that the indications of cure were to diminish or remove this supposed humour, by blood-letting and purging; and to strengthen the nerves, by administering tonics and anti-spasmodics in the intervening days. He cured five cases, the only ones that he had seen, by this method. It is probable, however, that the purgatives were the only useful evacuants that Sydenham employed, and the protracted cures may be attributed partly to the interruption of the use of them,

them, and partly to the debilitating effects of blood letting, which appears to be decidedly prejudicial, and is no longer recommended. But the general disuse of purgatives is chiefly to be attributed to the theories of modern systematics, especially to the opinion of Dr. Cullen, and the more dogmatic doctrines of Dr. John Brown, which inculcate that all spasmodic diseases are diseases of debility; and, consequently, that all evacuations are hurtful, and strengthening or stimulating medicines are required.

But Dr. Hamilton, in a late excellent treatise "On the Utility of Purgative Medicines," has brought forward the result of a long experience in the infirmary at Edinburgh, which establishes the propriety of the purgative plan in the cure of chorea. He has seen twenty cases of the disease, and has generally found it connected with a state of irregularity in the action of the bowels, frequently with a tumid abdomen, and has effected many and comparatively speedy cures by the regular administration of purgative medicines. It appears that, so far from increasing the state of debility, the evacuation of the intestines contributes to restore the strength, by restoring the functions of the viscera. He particularly recommends the inspection of the feces of the patient, as a guide to the practitioner in the administration of his medicines, and in forming a prognosis of the disease.

The usual practice of Dr. Hamilton is, to administer three grains of calomel, with six or eight of jalap daily, till the feces begin to assume a natural appearance, and the spasmodic symptoms to abate, which are generally observed at the same time. By this plan, he affirms, that "chorea is speedily cured, generally in ten days or a fortnight, from the commencement of the course of purgative medicines." The torpor of the intestines in this disease is, however, sometimes extremely great, and, in such instances, more active purgatives must be resorted to, and repeated until the end is accomplished. In the early stage of the disease, while the intestines yet retain their sensibility, and before the accumulation of feces is great, gentle purgatives, repeated as occasion may require, will readily effect a cure, or rather prevent the full formation of the disease. But "in the confirmed stage more sedulous attention is necessary. Powerful purgatives must be given in successive doses, in such a manner that the latter doses may support the effect of the former, till the movement and expulsion of the accumulated matter are effected, when symptoms of returning health appear. Whoever undertakes the cure of chorea by purgatives must be decided, and firm to his purpose. The confidence which he assumes is necessary to carry home, to the friends of the patient, conviction of ultimate success. Their prejudices will otherwise throw insurmountable obstacles in the way. Half measures, in instances of this kind, will prove unsuccessful; and were it not for perseverance in unloading the alimentary canal the disease would be prolonged, and, recurring, would place the patient in danger, and thus bring into discredit a practice which promises certain safety.

"Here, as in all other cases of extreme debility induced by disease, the recovery is at first slow and gradual. A regular appetite for food, a more intelligent eye, and lightened countenance, cheerfulness, and playfulness of temper, increasing aptitude for firmer motions, the restoration of articulation, and of the power of deglutition, a renovation of flesh and strength succeed each other, and being more and confirmed, are, ere long, followed by complete recovery.

"For some time after these salutary changes take place, the state of the bowels must continue an object of attention. An occasional stimulus from purgatives will be requisite to support their regular action, and to restore their healthy

tone, the only security against the recurring accumulation of feces, and of a consequent relapse. About this time also, remedies, possessed of tonic and stimulant powers, may be used with propriety and effect; they restore energy to the torpid bowels, aid the purgative medicines in obviating coliciveness, and thus confirm a recovery already advanced. Vegetable bitters, or the preparations of steel, may perhaps be most useful for accomplishing these ends. I have not felt the necessity of having recourse to medicines of this kind: under a proper regimen of light and nourishing food, and of exercise in the open air, my patients, in general, quickly recover their strength. But many practitioners set a value upon tonic medicines; and the usual routine of practice demands them." Page 99, et seq.

This tone of confident experience from a cautious and sagacious practitioner, supported by the successful practice of Sydenham, De Haen, Stoll, &c. will, doubtless, have its due influence on the general practice. For a detail of cases treated in this way, the reader may consult the appendix to Dr. Hamilton's treatise, the Edinburgh Medical and Surgical Journal, N° 1. vol. i. 1805, and Maximilian Stoll. *Ratio. Medendi*, pars 3^{ma}.

From five cases described in the Edin. Journal, the writer observes that the following facts appear to be established:

1st. From the exhibition of even two or three cathartics, the involuntary motions and other symptoms were much abated.

2d. Although the cathartics were continued daily for a considerable length of time, the patient, instead of becoming more debilitated, became stronger, and walked with a firmer pace.

3d. During the progress of the cure, if at any time the cathartics did not produce an evacuation, the involuntary motions recurred, and all the symptoms were aggravated.

4th. The feces, before the exhibition of the cathartics, were small in quantity, and, in every instance, black and fetid.

And, lastly, when the disease was cured, the appearance of the feces became natural.

Thus the connection of the disease with the state of the alimentary canal and its contents appears very conspicuously, and the disappearance of the symptoms was proportionate to the obvious effects of the remedies; affording a degree of evidence in favour of the practice, such as is seldom obtained in medicine.

CHOREOGRAPHY, as defined by Noverre, is the art of expressing a dance in writing, by means of different characters or notes in a similar manner to music; with this difference, that a good musician will read 200 bars in an instant, and an excellent choregraphist will not be able to decipher 200 bars of a dance in two hours.

Thoinet Arbeau, canon of Langres, was the first who acquired reputation by a treatise in 1588, which he entitled "Orchestrgraphia." He wrote below the notes of the air such movements and steps of the dance as he thought suitable. Beauchamps afterwards gave a new form to choreography, and perfected the sketch of the ingenious Thoinet Arbeau: he found the means of writing the steps by signs to which he assigned a different signification and value; so that he was declared the inventor of this art by a decree of the French parliament. Feuillet applied himself entirely to this art, and has left several works on the subject.

It was much used in France by the ballet-masters till about the year 1754, when it was censured by Cahusac "Traité Hist. de la Dance anc. et mod." and by the admirable Noverre in his "Lettres sur la Dance, 1760," who regarded it as too mechanical, and incapable of expressing the grace of

the countenance of the performers. "I learned choregraphy, (says Noverre,) and have forgotten it; if I thought it useful to my plans, I would learn it again. The best dancers and most renowned ballet-masters disdain it, because it seems to be of no real use. If all the figures and steps of the great dancers were to be recorded, it would reduce the art to servile imitation; like modern Latin, where no expression or word must be used for which classical authority during the Augustan age cannot be produced." Mr. Steel published an essay in 1775, towards establishing the melody and measure of speech to be expressed and perpetuated by peculiar symbols.

By means of a great number of new characters, the author undertook to record in his notation not only how Garrick played his principal parts in general, but any particular night, how, from different degrees of animation and feeling, he varied from himself. But we believe this ingenious book was not only never well understood by the public, but never entirely read by any individual purchaser.

The choregraphic art, we believe, is now wholly laid aside in France, and we have heard nothing of it in England for a long time. In 1710, however, Mr. Effex, a celebrated English dancing-master in London, applied the choregraphic art to country dances, and published a little book engraved on copper, in which beneath a line of music he delineates, on the same page, the steps and movements in characters. Mr. Weaver, a ballet-master, who wrote at Sir Richard Steele's request, the three spectators on dancing, Nos. 67, 334, and 370, translated, at the request of Mr. Isaac, another eminent dancing-master, from the original of M. Feuillet, this then new art of dancing by notation, to which all the dancing-masters of eminence subscribed; and we remember it in general use even in the country, among the professors of the Art. Mr. Weaver, besides his professional knowledge, was a man of infinite wit and considerable learning, who, after retiring from the capital, ended his days at Shrewsbury, where he had established a boarding-school of great reputation, and continued teaching to dance till he was 90 years of age. At his balls the children, besides the minuet, rigadon, and louvre, performed figure dances, such as the wooden-shoe dance, Mars and Venus, with Vulcan's discovery and imprisonment of the lovers in a cage, in Pantomimes &c. in which our own juvenile vanity was highly exalted by being honoured with a part. See DANCE.

CHOREPISCOPUS, in *Ecclesiastical History*, rural or country bishop, an officer in the ancient church, about whose function the learned are extremely divided. The word comes from *χωρος*, a region or little country, and *ἐπισκοπος*, a bishop, or overseer.

The chorepiscopi were suffragan or local bishops, holding a middle rank between bishops and presbyters, and delegated to exercise episcopal jurisdiction within certain districts, when the boundaries of particular churches, over which separate bishops presided, were considerably enlarged.

It is not certain when this office was first introduced: some trace it to the close of the first century; others tell us, that chorepiscopi were not known in the East till the beginning of the fourth century; and in the West, about the year 439. In a council held at Antioch, in 341, they were forbidden to ordain priests or deacons, and had only the power of appointing persons to inferior offices in the church. They ceased, both in the East and West, in the tenth century; when rural deans and arch-priests were instituted in their places. After this the system of diocesan episcopacy was fully established.

CHOREPISCOPI is also the name of a dignity still subsist-

ing in some cathedrals, particularly in Germany; signifying the same with chori episcopus, or bishop of the choir. The word, in this sense, does not come from *χωρος*, place, but *χορος*, choir, &c. In the church of Cologne, &c. the first chanter is called *chorepiscopus*.

CHOREUS, a foot in the ancient poetry, more commonly called *trocheus*, or *trochee*.

CHORFAKAN, or CERFUCAN, in *Geography*, a town of Arabia, in the country of Oman, pillaged by the Portuguese in 1508; 64 miles S.E. of Julfar.

CHORGES, a town of France, in the department of the Higher Alps, and chief place of a canton in the district of Embrun; 10 miles W. of it. The place, which was burnt by the duke of Savoy in 1692, contains 1547 and the canton 4242 inhabitants; the territory includes 147½ kilometres and 8 communes.

CHORIAMBUS, in the *Latin Poetry*, a foot compounded of a *choreus*, or *trocheus*, and an *iambus*.

It consists of four syllables; of which the first and last are long, and the two middle ones short: as *fil-i-ol-um*.

CHORIER, NICHOLAS, in *Biography*, a lawyer and man of letters, was born at Vienne in Dauphine in 1609. He spent the greater part of his life in the profession of an advocate at the parliament of Grenoble, employing his leisure in the composition of historical and literary works. He died at Grenoble in 1692. The principal of his writings are "La Philosophie de l'honnête Homme," 4to. "Histoire general de Dauphine," 2 vol. fol. of which the abbé Lenglet says "that Chorier is an author of little accuracy, and that the knowledge of a fact sufficed him to build a history upon it. In these and many other volumes Chorier appears in the character of a grave scholar and industrious inquirer: but his name must descend with infamy on account of a licentious work, entitled "Aloisius Toletanus Satyræ Sotadica de Arcanis Amoris & Veneris," which he published under the name of a lady celebrated for her learning.

CHORIN, in *Geography*, a town of Germany, in the circle of Upper Saxony, Ucker mark of Brandenburg; 6 miles S. of Neu Angermünde.

CHORINEUS, in *Entomology*: the *Papilio* or butterfly of this name in Cramer's exotic insects is the *Papilio Faunus* of Fabricius. Spec. Inf., and *Pap. Ollivius* of that author's *Mantissa*, and *Entomologia Systematica*. See *PAPILIO Ollivius*.

CHORION, in *Anatomy*, one of the membranes of the human ovum. It surrounds the amnios, and contains therefore that membrane, with its fluid, (the liquor amnii,) the fetus, and the navel string. See GENERATION, *female organs of*.

CHORIST, or CHORISTER, a chanter or singer in the choir.

CHORIZANTES, in *Ecclesiastical History*, the name of a sect in Germany, ann. 1374, said to be demoniacs that assembled in streets and churches.

We may suppose their enemies called them demoniacs. Du Cange does not mention any of their tenets.

CHORLEY, in *Geography*, a market and manufacturing town of Lancashire, England, is situated near the spring-head of a rivulet called Chor, which issues from several springs on the east side of the town, and flowing through one part thereof along the picturesque and pleasant valley beneath, after giving motion to several mills, engines, and cotton machines, communicates with the river Yarrow; on whose banks, and for many miles round, are great numbers of bleaching grounds and printing works, with some cotton factories intermixed. Chorley has an ancient chapel, lately made

made parochial, supposed to be of Saxon structure, dedicated to St. Lawrence, the walls of which are ornamented with coats of arms and Saxon characters: the windows with hieroglyphic paintings. Here are other places of worship, a grammar-school, a poor-house, six alms-houses, and Sunday-schools. At the south end of the town is a dungeon or prison for the confinement of malefactors or disorderly persons. The bishop of Chester holds his court here twice a-year by proxy. The cotton manufactory, in all its branches, is carried on with great success, as also the trade of bleaching and printing cottons, silkens, calicoes, and muslins. The town and its vicinity abound in mines of coal, lead, and alum; in beds of gravel, sand, and marl; in rocks of stone, and quarries of flag and slate, ashlar and mill-stone. Chorley is N.W. of London 208 miles, and contains, according to the late return, 865 houses, and 4516 inhabitants; the population as well as the trade having greatly increased for several years past. Here are two weekly markets, one on Tuesday, plentifully supplied with every necessary article of life, the other on Saturday, for meat and vegetables only. Another market for fish continues for two or three days in the week, when all sorts in season, fresh and salt, are brought from Lancaster and Preston. Four fairs are annually held here, three for horned cattle, and one for toys, small wares, and Yorkshire cloth. Aikin's Manchester, 4to.

CHORNOY *Kuban river*, a branch of the Kuban, sailing northward into the sea of Azoph to the E. of Cassa or Cassa-ltraits; probably the same with Agauly, at the mouth of which, on the W. side of the river, stands the town of Ashuyef.

CHORO favorito, in the *Italian Music*, a *chorus*, in which are employed the best voices and instruments to sing the recitatives, play the ritornellos, &c. It is otherwise called the little *chorus*, or *choro recitante*.

CHORO spezzato, a composition of two, three, or more chorusses. It is often met with instead of *tutti* or *da capella*, which mean the grand chorus. *A doi. a tre, a quatro chori*, is for two, three, or four chorusses. When after the name of a part we find *primo, 1^o choro*, we must understand that it is to be played in the first chorus; if *2. II^{do}, or secondo choro*, the part must be sung or played in the second chorus. And consequently it shews, that the composition is for eight voices or different parts.

CHOROANA, in *Ancient Geography*, a small country of Asia, which Ptolemy places in Parthia. Strabo calls it *Choronæa*.

CHOROBATES, from *χρησταιν*, to overrun a country, a kind of water-level, used among the ancients; composed of a double square, in form of a T, described by Vitruvius.

CHOROCHOAD, in *Ancient Geography*, a town of Asia, in Arachosia.

CHOROCITHARISTRIA, in *Music*, he who accompanies dances on the cithara or harp.

CHORODNA, or **CHORODRA**, a town of Asia in Persia Propria.

CHOROGRAPHY, the art of making a MAP, or description of some country, province, or district.

The word comes from *χωρος*, region, and *γραφω*, I describe.

Chorography is distinguished from *GEOGRAPHY*, as the description of a particular country is from that of the whole earth. And from *TOPOGRAPHY*, as the description of the same country is from that of a single place, town, or district in it.

CHOROIDEA TUNICA, in *Anatomy*, or choroid coat of the eye, is the vascular and delicate membrane, which invests the globe of the eye within the sclerotica. See EYE.

CHOROIDES PLEXUS, a vascular production of the pia mater, contained in the lateral ventricles of the brain. See BRAIN.

CHOROIDES, in *Optics*, is applied to the inner and posterior tunic of the eye, immediately under the sclerotica.

It is soft, thin, and black; and its inner, or concave surface, is very smooth and polished. It has its name from its being interperfed with vessels. Its anterior part is called the *uvæa*; or rather the *iris*, as the internal surface is called the *Ruyfsebian* coat.

Next under the choroides is the *retina*. Ruyfch, indeed, says, he has found another tunic between the choroides and retina; and denominates it from himself, *tunica Ruyfsebiana*. He adds, that it grows so firmly to the choroides, that it is over-looked in the common dissections.

But Verheyen, though he found the choroides of a bird divisible into two membranes, could never separate those of the human eyes; and therefore he thinks there needed not any new name. The choroides is, for the most part, black in men; though it appears often, as M. Pecquet has observed, in very different shades; in lions, camels, bears, sheep, cattle, dogs, cats, and most fishes, it is of a shining colour, like the brilliancy of silver, or the lustre of oriental pearl; and makes what naturalists call the *tapis*, or colour of the eye.

Muschenbroeck also says (Introd. vol. ii. p. 748.) that in many animals, as the lion, camel, bear, ox, stag, sheep, dog, cat, and many birds, the choroides is not black, but blue, green, yellow, or some other colour.

M. Marriotte maintains, that vision is performed rather in the choroides than in the retina; in which he agrees with Bar. Torinus, and is seconded by M. Mery; but most other authors are of a different sentiment.

He was led to this hypothesis by observing that part of the retina, at the insertion of the optic nerve, is insensible to the impression of light, and that in this part the choroides is wanting.

He was confirmed in opinion, that the retina could not be the seat of vision, because of its transparency; though M. Pecquet observes in reply, that it is very imperfectly transparent, only resembling oiled paper. He urges likewise the greater sensibility of the choroides than that of the retina, as is evident by the alternate contraction and dilatation of the iris, which is a continuation of the choroides, in light and shade.

It has been replied, that some creatures, such as the porcupine and sea-calf, have the optic nerves inserted into the axes of their eyes, exactly opposite to the pupil; and hence it has been inferred, that, in these animals, the retina is perfectly sensible to the impression of light, at the insertion of the nerve. This fact, according to Dr. Porterfield, overturns Marriotte's hypothesis of the choroides being the principal and immediate organ of sight.

Mr. Le Cat strenuously defends Marriotte's opinion, that the choroid coat, which is the production of the pia mater, and not the retina, is the immediate organ of vision. The retina, according to him, is to the choroid what the epidermis is to the skin; receiving the impression of light, and preparing it for its proper organ. Mr. Michell has likewise urged some farther considerations in favour of the choroides as the proper seat of vision, deduced from its greater sensibility, and from the variety of its colours in different animals, according to their situation and necessity. He adds that the choroides is in no case transparent, and has no reflecting surface beyond it, and that it is better formed as an organ of distinct vision than the retina.

To the hypothesis of the seat of vision being in the choroides.

roides, it is peculiarly favourable, says Dr. Priestley, that it affords a sufficient reason for the diversity of its colour in different animals, according as they are circumstanced with respect to vision. In all terrestrial animals, which have occasion to make use of their eyes by night, the choroides is either of a light white, or of some very vivid colour, which reflects the light very strongly. On this account, vision may be performed with less light, but it cannot be with great distinctness; the reflection of the rays doubling their effect; since it must extend over some space; all reflection being made at a distance from the reflecting body. Besides, the choroides in brutes is not in general perfectly white, but a little inclined to blue, and is therefore, probably, better adapted to see by the fainter coloured light, which chiefly prevails in the night; and on the same account, says this author, is more liable to be strongly impressed by the colours to which they are chiefly exposed. On the other hand, the choroides of birds in general, especially eagles, hawks, and other birds of prey, is black; by which means they are able to see with the greatest distinctness, but only in bright day-light. The owl, however, seeking her food by night, has, as he suggests, the choroides white, like that of a cat. In the eyes of man, which are adapted to various uses, the choroides is neither so black as that of birds, nor so white as that of those animals who make the greatest use of their eyes in the night.

M. de la Hire has advanced another hypothesis; alleging, that the choroides receives the impressions of images in order to transmit them to the retina. Against which hypothesis, Mr. Michell objects, that the impulsions which are thus secondarily communicated to the nerves must be fainter, and that it is more natural to suppose, that the impression first made upon the choroides should be conveyed to the brain by its own proper nerves. Priestley's History of Vision, chap. ii. p. 189, &c. See RETINA and VISION.

It had been long observed that the choroides in men is black; but no observation had been made on the change in sufferers by age, before Mr. Petit, who perceived that it appears quite brown under the retina in children, and grows considerably brighter as they advance in age.

CHOROK, in *Zoology*: Buffon calls the Linnæan *Musfella Sibirica* by this name.

CHOROL, in *Geography*, a river of Russia, which runs into the Psoi, near Goltva, in the government of Kiow.

CHOROMITHRENA, in *Ancient Geography*, a country of Asia, placed by Ptolemy in Media.

CHOROPATA, in *Geography*, a river on the coast of Peru, which falls into the bay of Caraccas.

CHOROS, an island 4 leagues W. from the Pajaros or Birds islands, or between these islands and port Guasco, which see.

CHOROSCISSOW, a town of Poland, in the palatinate of Kiow; 64 miles W.N.W. of Kiow.

CHOROSKI, a town of Poland, in the palatinate of Volhynia; 18 miles N.W. of Zytomiers.

CHOROSSOZA, a town of Poland, in the palatinate of Bielsk; 28 miles N. of Bielsk.

CHORRO MANCAN, a town of Chinese Tartary, N. lat. 43° 18'. E. long. 120° 50'.

CHORRÆI, or HORRÆI, HORITES, in *Ancient Geography*, a people of Asia who occupied the country of Seir before the Idumæans. They dwelt in Arabia Petrea and Deserta, to the S. and to the E. of the land of Canaan. They are mentioned in Scripture, in the book of Kings, in that of Judges, &c.

CHORSA, a town of Asia in Greater Armenia, accord-

ing to Ptolemy. It seems to have been situated above the Euphrates.

CHORSALIA, a place in the interior of Lesser Armenia.

CHORSEUS, or CHERSEUS, a river of Phœnicia, in the vicinity of the town of Dora, according to Ptolemy. Ortelius places it in Palestine; and it is marked in the map of Palestine by M. D'Anville.

CHORSIA, or CORSIÆ, a small town of Greece, in Bœotia.

CHORSUS, a river of the Colchide, according to the periplus of Scylax.

CHORTACANA, an ancient town of Asia, situated in the northern part of Aria, on the confines of Parthia, according to Diodorus Siculus. Strabo and Quintus Curtius call it Artacanæ.

CHORUM, an ancient place of Thrace.

CHORUS, i. *Dramatic Poetry*, one or more persons, present on the stage during the representation, and supposed to be by standers without any particular share or interest in the action.

Tragedy, in its origin, M. Dacier observes, was no more than a single chorus, who trod the stage alone, and without any other actors; singing dithyrambics, or hymns, in honour of Bacchus, so that the chorus was the basis or foundation of the ancient tragedy. Thespis, who lived about 536 years before the Christian era, to relieve the chorus, added an actor, who rehearsed the adventures of some of their heroes. Æschylus, about 50 years afterwards, finding a single person too dry an entertainment, added a second, who, during a dialogue between these two persons or actors, in which he contrived to interweave some interesting story, brought his actors on a stage, adorned with proper scenery and decorations; and at the same time greatly reduced the singing of the chorus, to make more room for the recitation.

Every thing introduced between the four songs of the chorus, they called by the term *episode*; and those four songs made the four intervals, or acts of the piece.

But when once tragedy began to be formed, those recitatives, or episodes, which at first were only intended as accessory parts, to give the chorus a breathing time, became now the principal parts of the performance: and whereas, before, they were taken from various subjects, they were now all drawn from one and the same, or the subject of the story in which the actors were principally concerned.

The chorus, as the subject demanded, was composed of men and women, old men or youths, citizens or slaves, priests, soldiers, &c. to the number of 15 in tragedy, and 24 in comedy; and the persons of it were always supposed to be of inferior condition to the principal characters of the piece. As it usually represented the people, or at least a part of them, foreigners, even though settled at Athens, were forbidden to act in the choruses, for the same reason as they were prohibited from being present in the general assembly of the people. The actors, who composed the chorus, came on the stage preceded by a flute-player, who regulated their steps, sometimes one after the other, but more frequently, in tragedy, 3 in front and 5 in depth, or 5 in front and 3 in depth. In comedy, they were usually arranged 4 in front and 6 deep, or 6 in front and 4 deep.

The chorus, by degrees, became inserted and incorporated into the action, to which it served as an addition or ornament. Sometimes the chorus was to speak, and then their chief, whom they called *Coryphæus*, spoke in behalf of all the rest: the singing was performed by the whole company; so that when the Coryphæus struck into a song, the chorus immediately joined him.

Besides

Besides the four songs, which made the division of the piece, and which were managed by the chorus, the chorus sometimes also joined the actors in the course of the representation, with their plaints and lamentations; on occasion of any unhappy accidents that befel them.

Thus, in the course of the piece, the chorus sometimes performed the part of an actor, and sometimes it formed the interlude. In the first case it took a part in the action, and sung or declaimed with the persons of the drama, the coryphæus speaking for it. On certain occasions it was divided into two parts, headed by two leaders, who related certain circumstances of the action, or mutually communicated their hopes and fears. Scenes of this kind, which were almost always sung, were sometimes concluded by the reunion of the two parts of the chorus. In the second case the chorus confined itself to lamenting the calamities incident to humanity, or imploring the assistance of the gods for the dramatic personage whose cause it espoused. In the interludes the chorus sung; and the actors declaimed when the chorus was silent; but when it entered into dialogue with the actors, its coryphæus recited with them, or they sang alternately with the chorus. During these scenes the chorus rarely quitted its place. In the interludes, and especially in the first, it executed different evolutions to the sound of the flute. The verses which it sung were like those of the ode, disposed in strophes, antistrophes, epodes, &c. At the first strophe, the choral performers passed from right to left; at the first antistrophe, from left to right, in an equal time, and repeating the same air to other words. They afterwards stopped, and turning towards the spectators, sung a new melody. Frequently they repeated the same evolutions with sensible differences in the words and music, but always with the same correspondence between the march and the countermarches.

The proper function of the chorus, when tragedy was formed, and that for which it seemed chiefly retained, was to fill the intervals of the acts: while the actors were behind the scenes, the chorus engaged the spectators; their songs chiefly turned on what was just exhibited; and were not to contain any thing but what was suited to the subject, and had a natural connection with it: so that the chorus concurred with the actors for advancing the action.

It is a fault observed in Euripides's tragedies, that his choruses are detached from the action, and not taken from the same subject. There were some other poets, who, to save the pains of composing choruses, and adapting them to the piece, contented themselves with inventing songs, which had no relation at all to the action. These foreign choruses were the less pardonable, as the chorus was esteemed to act a part in the piece: and to represent the spectators, who were looked on as interested therein; insomuch that the chorus was not always to be mute, even in the course of the acts. In the modern tragedies the chorus is laid aside, and the music supplies its place. At first the chorus was not a mere ornament added to the drama, or a contrivance designed to render it more perfect: but, in reality, the dramatic dialogue was an addition to the chorus, which was the original entertainment. In process of time, the chorus, from being the principal, became only the accessory in tragedy; till at last, in modern tragedy, it has altogether disappeared; which forms the chief distinction between the ancient and the modern stage.

That which occasioned the suppression of the chorus was its being incompatible with certain complots, and secret deliberations of the actors. For it is in no-wise probable, that such machinations should be carried on in the eyes of persons interested in the action. As the chorus, therefore,

never went off the stage, there seemed a necessity for laying it aside, to give the greater probability to those kinds of intrigues which require secrecy.

M. Dacier observes, there was a chorus, or grex, also in the ancient comedy; but this too is suppressed in the new: chiefly because it was made use of to reprove vices, by attacking particular persons.

The chorus in comedy was at first no more than a single person, who spoke in the ancient compositions for the stage; the poets, by degrees, added to him another; then two, afterwards three, and at last more: so that the most ancient comedies had nothing but the chorus, and were only so many lectures of virtue.

The suppression of the chorus has given rise to a question, much agitated between the partizans of the ancients and the moderns, whether the drama has gained or suffered by the abolition of the chorus. It must be admitted, that the chorus tended to render tragedy both more magnificent and more instructive and moral. It was always the most sublime and poetical part of the work; and being carried on by singing, and accompanied with music, it must, without doubt, have diversified the entertainment, and added to its splendour. The chorus, at the same time, uniformly conveyed lessons of virtue. It was composed of such persons as might most naturally be supposed present on the occasion; inhabitants of the place where the scene was laid, often the companions of some of the principal actors, and therefore, in some degree, interested in the issue of the action. This company, which, in the days of Sophocles, was restricted to the number of 15 persons, was constantly on the stage, during the whole performance, mingled in discourse with the actors, entered into their concerns, suggested counsel and advice to them, moralised on all the incidents that were going on, and during the intervals of the action, sung their odes, or songs, in which they addressed the gods, prayed for success to the virtuous, lamented their misfortunes, and delivered many moral and religious sentiments.

The office of the chorus is thus described by Horace (*De Art. Poet.*):

"Actoris partes chorus, officiumque virile
Defendat; neu quid medios intercinat actus,
Quod non proposito conducatur, et hæreat apta.
Ille bonis faveatque, et conciliatur amicis,
Et regat iratos, et amet peccare timentes;
Ille dapnes laudet mensæ brevis; ille salubrem
Justitiam, legesque, et apertis otia portis.
Ille tegat commissa; deosque precetur, et oret
Ut redeat miseris, abeat fortuna superba."

"The chorus must support an actor's part,
Defend the virtuous, and advise with art;
Govern the choleric, and the proud appease,
And the short feasts of frugal tables praise;
Applaud the justice of well-govern'd states,
And peace triumphant with her open gates.
Intrusted secrets let them ne'er betray,
But to the righteous Gods with ardour pray,
That fortune, with returning smiles, may bless
Afflicted worth, and impious pride depress;
Yet let their songs with apt coherence join,
Promote the plot, and aid the just design."

FRANCIS.

The judgment of two such critics, as Horace in the passage above cited (l. i.), and also Aristotle (*περί ποιη. κ. 16.*), and the practice of wise antiquity, concurring to establish this precept concerning the chorus, it should thenceforth, one would think (says Dr. Hurd, *Notes on the Art of*

Poetry), have become a fundamental rule and maxim of the stage. And so indeed it appeared to some few writers. The most admired of the French tragic poets ventured to introduce it into two of his latter plays, and with such success, that, as one observes, "it should, in all reason, have disabused his countrymen on this head:" *P'essai heureux de M. Racine, que les chœurs a fait revivre dans Athalie et dans Esther, devoit, ce semble, nous avoir detrompez sur cet article.* (P. Brumoi, vol. i. p. 105.) And before him, our Milton, who, with his other great talents, possessed a supreme knowledge of antiquity, was so struck with its use and beauty, as to attempt to bring it into our language. His "Samphon Agonistes" was, as might be expected, a matter-piece. But even his credit hath not been sufficient to restore the chorus. Hear a late professor of the art declaring, "De choro nihil differui, quia non est essentialis dramati, atque a neoteris penitus, *at, me judice, merito, repudiatur.* (Præl. Poet. vol. ii. p. 188.) Whence it hath come to pass, says Dr. Hurd, that the chorus hath been thus neglected is not now the enquiry. But that this critic, and all such, are greatly out in their judgments, when they presume to censure it in the ancients, must appear (if we look no farther) from the double use, insisted on by the poet. For, 1st, A chorus interposing, and bearing a part in the progress of the action, gives the representation that *probability* (Le Théâtre des Grecs, vol. i. p. 105.), and striking resemblance of real life, which every man of sense perceives, and *feels* the want of upon our stage; a want, which nothing but such an expedient as the chorus can possibly relieve. And, 2d, The importance of its other office (*Ille bonis faveatur, &c.*) to the *utility* of the representation, is so great, that, in a moral view, nothing can compensate for this deficiency. For it is necessary to the truth and decorum of characters, that the *manners*, bad as well as good, be drawn in strong vivid colours; and to that end, that immoral sentiments, forcibly expressed, and speciously maintained, be sometimes *imputed* to the speakers. Hence the sound philosophy of the chorus will be constantly wanting, to rectify the wrong conclusions of the audience, and prevent the ill impressions that might otherwise be made upon it. Nor let any one say, that the audience is able to do this for itself: Euripides did not find even an Athenian theatre so quick-sighted. The story is well known (Sen. Ep. 115.), that when this painter of the *manners* was obliged, by the rules of his art, and the character to be sustained, to put a run of bold sentiments in the mouth of one of his persons, the people instantly took fire, charging the poet with the *imputed* villainy, as though it had been his own. Now if such an audience could so easily misinterpret an attention to the truth of character into the real doctrine of the poet, and this too, when a chorus was at hand to correct, and disabuse their judgments, what must be the case, when the whole is left to the sagacity and penetration of the people? The wiser sort, it is true, have little need of this information. Yet the reflexions of sober sense on the course and occurrences of the representation, clothed in the noblest dress of poetry, and enforced by the joint powers of *harmony* and *action* (which is the true character of the chorus) might make it, even to such, a no unpleasant or unprofitable entertainment. But these *traces* are a small part of the uses of the chorus; which in every light is seen so important to the truth, decorum, and dignity of the tragic scene, that the *modern* stage, which hath not thought proper to adopt it, is even, with the advantage of, sometimes, the justest moral painting and sublimest imagery, but a very faint shadow of the *old*; as must needs appear to those who have looked into the ancient models, or, divelling themselves of modern prejudices, are

disposed to consult the dictates of plain sense. Dr. Hurd, for a fuller view of the important benefits arising to the drama from the observance of Horace's rule, refers to "the 8th tome of the History of the Academy of Inscriptions and Belles Lettres;" or, he says, it may be sufficient to refer the English reader to the tragedies of "Elfrida" and "Caractacus," which furnish a better apology than he could make for the ancient chorus.

To the above reasoning it has been replied by Mr. Colman, in the notes to his "Translation of Horace's Art of Poetry," 4to. 1783, that the judgment of two such critics as Aristotle and Horace, cannot be decisively quoted as concurring with the practice of wise antiquity, to establish the chorus. Neither of these two critics, it is said, have taken up the question; each of them giving directions for the proper conduct of the chorus, considered as an established and received part of tragedy, and indeed originally, as they both tell us, the whole of it. Aristotle, in his "Poetics," has not said much on the subject; and from the little he has said, more arguments might perhaps be drawn in favour of the omission, than for the introduction of the chorus. It is true that he says, in his 4th chapter, that "tragedy, after many changes, paused, having gained its natural form." This might, at first sight, seem to include his approbation of the chorus, as well as of all the other parts of tragedy then in use; but he himself expressly tells us in the same chapter, that he had no such meaning; saying, that "to enquire whether tragedy be perfect in its parts, either considered in itself, or with relation to the theatre, was foreign to his present purpose." In the passage from which Horace has, in the verses above cited, described the office, and laid down the duties of the chorus, the passage referred to by Dr. Hurd, the words of Aristotle are not particularly favourable to the institution, or much calculated to recommend the use of it. For Aristotle there informs us, "that Sophocles alone, of all the Grecian writers, made the chorus conducive to the progress of the fable; not only even Euripides being culpable in this instance; but other writers, after the example of Agathon, introducing odes as little to the purpose, as if they had borrowed whole scenes from another play."

Mr. Colman concludes upon the whole, that, whatever may be the merits, or advantages of the chorus, the judgment neither of Aristotle nor of Horace can be adduced in recommendation of it. As to "the probability given to the representation, by the chorus interposing and bearing a part in the action," the public, he adds, who have lately seen a troop of singers assembled on the stage, as a chorus, during the whole representations of "Elfrida" and "Caractacus," are competent to decide for themselves how far such an expedient gives a more "striking resemblance of human life," than the common usage of our drama. As to its importance in a moral view, to correct the evil impression of vicious sentiments, imputed to the speakers; the story told, to enforce its use for this purpose, conveys a proof of its inefficacy. To give due force to sentiments as well as to direct their proper tendency, depends on the skill and address of the poet, independent of the chorus. M. Dacier, as well as Dr. Hurd, censures the modern stage for having rejected the chorus, and having lost thereby "at least half its probability and its greatest ornament;" so that our tragedy is "but a very faint shadow of the old." Learned critics, however, ought to consider, that if it be expedient to revive the chorus, all the other parts of the ancient tragedy must be revived along with it. Aristotle mentions music as one of the six parts of tragedy, and Horace no sooner introduces the chorus, but he proceeds to the pipe and lyre. If a chorus be really necessary, our dramas, like those of the ancients,

CHORUS.

ents, should be rendered wholly musical; the dancers also will then claim their place, and the pretensions of Vestris and Noverre must be admitted as classical. Such a spectacle, if not more natural than the modern, would at least be consistent; but to introduce a group of spectatorial actors, speaking in one part of the drama, and singing in another, is as strange and incoherent a medley, and full as unclassical, as the dialogue and airs of the "Beggar's Opera." Admitting the full force of Mr. Colman's arguments, nothing, it may be said, though somewhat harshly, but the most invincible pedantry can wish for the revival of the ancient chorus on the modern stage.

Notwithstanding the advantages, which were obtained by means of the chorus, it is alleged, (see Blair's Lectures, vol. iii. lect. 45,) that the inconveniences on the other side are so great, as to render the modern practice of excluding the chorus far more eligible upon the whole. For if a natural and probable imitation of human actions be the chief end of the drama, no other persons ought to be brought on the stage, than those who are necessary to the dramatic action.

The introduction of an adventitious company of persons, who have but a slight concern in the business of the play, is unnatural in itself, embarrassing to the poet, and though it may render the spectacle splendid, tends, without doubt, to render it more cold and uninteresting, because it becomes more unlike a real transaction. The mixture of music, or song, on the part of the chorus, with the dialogue carried on by the actors, is another unnatural circumstance, removing the representation still farther from the resemblance of life. Besides, the poet is subjected to innumerable difficulties in so contriving his plan, that the presence of the chorus, during all the incidents of the play, shall consist with any probability. The scene must be constantly, and often absurdly, laid in some public place, that the chorus may be supposed to have free access to it. To many things that ought to be transacted in private, the chorus must ever be witnesses; they must be the confederates of both parties who come successively upon the stage, and who are, perhaps, conspiring against each other. In short, says Dr. Blair, the management of a chorus is an unnatural confinement to a poet; it requires too great a sacrifice of probability in the conduct of the action; it has too much the air of a theatrical decoration, to be consistent with that appearance of reality, which a poet must ever preserve in order to move our passions. The origin of tragedy among the Greeks, as we have above observed, was a choral song, or hymn, to the gods. There is, therefore, no wonder, that on the Greek stage it so long maintained possession. But it may confidently, as Dr. Blair thinks, be asserted, that if, instead of the dramatic dialogue having been superadded to the chorus, the dialogue itself had been the first invention, the chorus would, in that case, never have been thought of. One use, however, might still be made of the ancient chorus, which would be a considerable improvement of the modern theatre; if, instead of that unmeaning, and often improperly chosen music, with which the audience is entertained in the intervals between the acts, a chorus were then to be introduced, whose music and songs, though forming no part of the play, should have a relation to the incidents of the preceding act, and to the dispositions which these incidents are presumed to have awakened in the spectators. By these means, the tone of passion would be kept up without interruption; and all the good effects of the ancient chorus might be preserved, for inspiring proper sentiments, and for increasing the morality of the performance, without those inconveniences which arose from the chorus forming a constituent part of the play, and

mingling unseasonably, and unnaturally, with the personages of the drama. See DRAMA, and CHORUS *infra*.

CHORUS, to give the, among the Greeks, was to purchase a dramatic piece of the poet, and defray the expences of its representation.

The person who did this was called *choragus*. At Athens the office of *choragus* was imposed on the *archons*; and at Rome on the *ediles*.

CHORUS, in Music. It has already been said, (see CHOEUR) that there are choruses of various kinds: ecclesiastical choruses, such as those in the mass of Roman Catholics, in the service of the Lutheran church, in the psalmody and hymnology of the Calvinists, and in the cathedral service of the church of England. In this last, a species of music has been retained to English words, such as had been cultivated in all Christian churches before the reformation, to Latin words. In our choral music, fugues, canon learning and complication, with what was called by the Puritans *curious singing*, have been allowed to have place with propriety in our services and anthems on Sundays and festivals, regarding them as the voice of prayer, supplication, or jubilation, by voices of different pitch, harmonized; but always with one mind, addressing the Supreme Being, sometimes together, and sometimes after each other, as the psalms and responses are uttered in a parish-church, but with less regularity and reverence.

To dramatic choruses there are many objections, on the side of probability, to elaborate counterpoint, when different personages are uttering different words at the same time, all talking together, without listening to each other. This is unnatural, and as difficult to perform without book, as if it were extempore.

There are few dramatic situations where a *chorus*, even in plain counter-point, can have place with propriety. It may happen, indeed, that the representatives of a whole people at once shall cry out with joy, sorrow, or even demand concessions with united clamour; as the citizens in Metastasio's oratorio of *Betulia liberata* did, to surrender the town, uttering the same words in the language of the piece, be it sung or declaimed. This may, for a short space, be reconciled to probability; but for a whole nation to continue a long discourse in the same words, is improbable, unless they were supposed to be formed into an harangue, and gotten by heart, as a hymn to some divinity, or on a solemn celebration of rites.

A distinction should therefore be made between an extemporaneous chorus, and a chorus repeated by memory, as well as between an oratorio chorus performed by book, and an opera chorus sung in action by heart. Handel, whose sublime choral genius enabled him with facility to produce choruses of all kinds, never exercised that genius in composing elaborate choruses for his operas, all which were as short and simple as those of the Italians in present use; all built on a short air easily retained in memory. But Sacchini, and other Italian masters, finding how much Handel was admired and revered for his oratorio choruses, composed some to be performed in action on the stage; but though many of these, particularly Sacchini's, were admirable productions, full of grace, pathos, and dramatic effects; yet, being performed by occasional singers, unacquainted with the Italian language and vocal expression, they produced no other effect than that of exciting as much laughter as our early operas did, when sung half in Italian and half in English. See Spectator, No. 18.

An ecclesiastical chorus may be extended to what length the composer pleases; but a dramatic chorus, analogous to the fable, and situation of the interlocutors, must be of a length

length and character suitable to the drama, and the scene in which it is introduced. See *GENERA*, and *Ancient Greek Music*.

CHORZENA, in *Ancient Geography*, a country of Asia, in Greater Armenia, situated, according to Strabo, towards the north, in the mountains of Caucasus, and belonging to Iberia and the Colchide.

CHORZIANI, a people of Asia, in the Astiatene territory, a country of Armenia; placed by Procopius in the environs of fort Citharisa, 4 journeys from Theodosiopolis.

CHOSCIABAD, in *Geography*, a town of Persia in the province of Kerman; 57 miles S.W. of Sirgian.

CHOSE, *thing*. This word, in *Law*, is used in various circumstances, and with various epithets: as,

CHOSE in action, which is not any thing corporeal, but only a right, v. g. an annuity, obligation, covenant, &c. the possession of which may, however, be recovered by a suit or action at law; from whence the thing so recoverable is called a thing, or *chose*, in *action*. Thus money due on a bond is a chose in action; for a property in the debt vests at the time of forfeiture mentioned in the obligation, but there is no possession till recovered by course of law. If a man covenants with me, or promises, to do any act, and fails in it, by which I suffer damage, the recompence for this damage is a chose in action, for though a right to have recompence vests in me, at the time of the damage done, yet what and how large such recompence shall be, can only be ascertained by verdict; and the possession can only be given me by legal judgment and execution. If a person disseises me of land, or takes away my goods, my right or title of entry into the lands, or action and suit for it, and so for the goods, is a chose in action; a condition and power of re-entry into land upon a feoffment, gift, or grant, before the performance of the condition, is of the nature of a chose in action. Co. Lit. 214. 6 Rep. 50. Dyer, 244. If one have an advowson, when the church becomes void, the presentation is but as a chose in action, and not grantable, but it is otherwise before the church is void. Dyer, 296. Where a man hath a judgment against another for money, or estate, these are choses in action. An annuity in fee to a man and his heirs is grantable for ever; but it has been held, that an annuity is a chose in action, and not grantable. 5 Rep. 89. Fitz. Grant. 45.

Chose in action may also be called *chose in suspense*, as having no real existence, and not being properly in possession; being a thing, as it is expressed, rather in *potentia* than in *esse*.

No *chose in action* could, by the ancient common law, be transferred or assigned; but this is now allowed; and the form of doing it is in the nature of a declaration of trust, and an agreement to permit the assignee to make use of the name of the assignor, in order to recover the possession: and when a debt or bond is assigned over, it must still be sued in the original creditor's name: the person to whom it is transferred being rather an attorney than an assignee. The king, however, is an exception to this general rule; for he might always either grant or receive a chose in action by assignment; and our courts of equity, considering that in a commercial country almost all personal property must necessarily lie in contract, will protect the assignment of a chose in action, as much as the law will that of a chose in possession. The legal possibility and convenience of assigning a chose in action, which our ancestors so long doubted, have been sufficiently evinced since the introduction and establishment of paper credit by indorsements upon bills and notes.

CHOSE local, is something annexed to a place, v. g. a mill.

CHOSE transitory, something moveable, and which may be transported from place to place.

CHOSE in possession. See *POSSESSION*, and *PROPERTY*.

CHOSISTAN, in *Geography*. See *CHUSISTAN*.

CHOSROES I. or **KHOSROU**, in *Biography*, king of Persia, celebrated as the *Magnanimous*, was the third son of Cabades or Cobad, by whose appointment he succeeded to the throne in 531, to the prejudice of his elder brothers. The example of his father, a prince of a proud and imperious disposition, and who was a bitter persecutor of those who did not embrace the Persian religion, had, in some measure, blunted the moral feelings of the son, who commenced his reign with acts of great severity. A conspiracy was indeed formed in behalf of his brother, which having discovered, he put to death all who were in any respect engaged in it. He then executed Mazdak, the head and leader of a new sect, who preached a community of all things, even of property and women; and he treated the Jews with still greater rigour than they had experienced from his father. He next removed such governors of provinces as, during his father's reign, had rendered themselves obnoxious to the people, and for the better administration of justice, he divided his dominions into four viceroyships, viz. those of Assyria, Media, Persia, and Bactriana. At his accession to the crown, Persia was involved in a war with the Roman empire under Justinian, to whom he granted a peace, having accepted a large sum of money as its price. This peace, which was denominated perpetual, was soon broken, and in 540, Chosroes invaded Syria, and marched to Antioch, which he soon reduced to ashes. After an unsuccessful attempt upon Dara, he returned across the Euphrates laden with spoil, leaving his generals to contend with Belisarius, who had come to the defence of the Roman empire. Chosroes then made an expedition into Colchos, at the extremity of the Euxine sea, whither he had been invited by the inhabitants as their protector from the oppression of Justinian. It would not comport with our limits to follow this prince in all his expeditions: he went on conquering, and received as tokens of homage, ambassadors from the greatest potentates of the East, at his splendid palace at Ctesiphon, one of the wonders of that part of the world. In the midst of his prosperity one of his sons, whom he had by a Christian slave, raised the standard of rebellion; but in an engagement with the general sent against him by his father, he lost his life. Chosroes having invaded India, marched to the opposite quarter of his vast dominions, and entered Arabia Felix, where he dispossessed many usurpers of their power, restored the ancient lords, and used the people with so much kindness that he obtained the title of *Just*. Towards the conclusion of Justinian's reign, Chosroes was attacked with a dangerous disease, from which he sought relief from the physicians of Constantinople, whose aid he borrowed of the emperor. This interchange of kindness did not prevent a renewal of hostilities between the two empires after the accession of Justin. Chosroes took the field, and reduced and sacked the principal cities of Mesopotamia and Syria. These and other serious losses obliged the imperial court to solicit a truce, which Chosroes granted for three years. In the mean time Tiberius succeeded to the imperial throne, who improved the discipline and strength of his army so as to be able to contend with and finally overcome the Persian monarch. Chosroes, in his retreat, was so closely pursued, that he was forced to pass the river Euphrates on an elephant, while several of his lords and great men were drowned in attempting to follow him. The Roman general took up his winter quarters in the Persian provinces, an indignity which Chosroes severely felt, and which, joined to the in-

firmities

firmities of old age, put an end to his life, in the year 579, having reigned forty-eight years, and lived eighty. Chosroes possessed many qualities that confer splendour on a despotic monarch, and his memory is still venerated in the East. He was famed for his love of justice, which, as we have seen, was sometimes accompanied with cruelty. He was an encourager of the arts, and paid considerable attention to the improvement of his subjects. He, in imitation of the ancients, founded academies for literature and the sciences, and obtained himself a proficiency in moral and philosophical studies, a report of which having reached Greece, he received a visit from seven sages who adhered to the religion and philosophy of antiquity. They expected to see the republic of Plato realized in Persia, but returned to their own country greatly disappointed. Chosroes, however, so far merited their gratitude, that in a treaty with the emperor Justinian, he insisted that they should be exempt from the penal laws enacted against the remaining advocates for paganism. To Chosroes has been ascribed, by the Persian historians, the completion of the great wall of Jabouge and Magouge, commencing at Derbent, and running from mountain to mountain, so as to secure the Persian territories from invasion. His son Hormidas succeeded him, who, in 590, was deposed by

CHOSROES II., grandson to Chosroes the Great. The Persian nobility conspired against this prince, and obliged him to seek the assistance of the Romans, who placed him again on the throne. He afterwards carried his arms into Judea, Libya, and Egypt, and made himself master of Carthage. In 617 he pressed the Constantinopolitan empire still closer; in vain did Heraclius endeavour to avert his enmity and obtain a peace for his almost ruined empire. To an embassy of this kind, brought by officers of the highest distinction, and conducted by Sain, the Persian general, Chosroes replied, "I will hearken to no terms from the Roman emperor till he and all his subjects have renounced their crucified God, and embraced the worship of the sun, the great deity of the Persians;" he cruelly caused Sain to be flayed alive for his presumption, and imprisoned the ambassadors. Distress, however, roused the dormant courage and talents of the Roman emperor, who, in his turn, penetrated into the centre of the Persian dominions, and put Chosroes first upon his defence, and afterwards drove him a fugitive from his palace, which was pillaged and burnt by the Roman soldiers. Still he disdained to ask for peace, but being taken suddenly ill, was desirous of resigning his crown to his favourite son Merdaza; his eldest son, however, seized the sovereignty, and stopped Chosroes in his flight; eighteen of his sons were massacred before his face, himself was loaded with chains, and thrown into the dungeon in which he had been accustomed to conceal his treasure. Here every indignity was inflicted upon him that malice could devise, and to which his own cruelty fairly entitled him, had the punishment of his crimes been exacted by any other hands, than by those of his own son. In five days death put an end to his sufferings, which happened in 628, and at no great distance of time the Persian empire was subjugated to the power of the Arabian caliphs. See PERSIA. Univers. Hist.—Gibbon.

CHOSSESO, in *Geography*, a town of Poland, in the palatinate of Volhynia; 64 miles E. of Lucko.

HOSTLARN, a town of Germany, in the circle of Bavaria; 22 miles W.S.W. of Passau.

CHOTA, a town of America, in the state of Georgia; 55 miles W. of Tugaloo.—Also a town of South America, in the country of Peru, and jurisdiction of Caxamarca; 60 miles N.W. of Caxamarca.

CHOTASTITE, a town of Bohemia, in the circle of Czaflau; 2 miles N. of Czaflau.

CHOTIEBOR, a town of Bohemia, in the circle of Czaflau; 8 miles N.N.E. of Teutsch-Brod.

CHOTIN, in *Conchology*, a name given by Adanson to a shell of the cone kind, found in the West Indies, *Conus jamaicensis* of Gmelin, which see.

CHOTMIZSK, or KHOTMYSK, in *Geography*, a town of Russia, in the government of Charkov, or Kharkof; seated on the Vorosla; 52 miles N.N.W. of Charkov, and 588 S.S.E. of Petersburg.

CHOTOW, a town of Lithuania, in the palatinate of Minsk; 22 miles S.W. of Minsk.

CHOTUSITZ, a town of Bohemia, in the circle of Czaflau.

CHOTZEMITS, a town of Bohemia, in the circle of Caucim, near the Elbe.

CHOTZEN, a town of Bohemia, in the circle of Chrudim; 3 miles N.N.E. of Hoheumaut.

CHOVACOURT, a river of North America, in Canada.

CHOUAN, in *Ichthyology*, synonymous with Chevanne, names by which the Linnæan *Cyprinus cephalotes* is known in some parts of France.

CHOUAN, in the *Materia Medica*, the name of a small seed, called by some also carmine seed. It is a very light and chaffy seed, in a great measure resembling worm-seed, of an acid taste, and a yellowish-green colour, but is larger than worm-seed. It is brought into Europe from Turkey, and many parts of the East, and the choice should be made of such as is largest, cleanest, of the greenest colour, and least marked with specks or holes. It is not used in medicine, but is of some value among the people who make carmine for the painters. It is called *santonium viride*, or the green worm-seed, in our catalogues of the *Materia Medica*, but is unknown in the shops. Lemery.

CHOUANS, in *Modern History*, the denomination of a powerful body which sprung up in France, during the late revolution, derived from three sons of a blacksmith of the name of Chouan, near Fougères. They were at first no better than highway-robbers; but their number was increased by the system of terror, which induced all persons, declared to be suspected by Robespierre's government, to fly for safety to the woods, and join the Chouans. They were at last said to amount to nearly 30,000 men, dispersed in different bodies through the woods of Brittany, from the north to the south, from Fougères to Vannes; and they gave occupation to upwards of 80,000 republicans, who were endeavouring to enclose them in that great extent, and starve them into a surrender. They submitted to organization and discipline, and dropping the trade of robbers, declared for the king, and put themselves under the command of officers of reputation.

CHOUANG-LEOU, in *Geography*, a town of China, of the third rank, in the province of Se-tchuen; 10 miles S.W. of Tching-tong.

CHOUANG-TAL, a town of Tartary, in the country of Hami; 9 miles N.N.W. of Tchontori.

CHOVANNA-MANDARU, in *Botany*, Rheed. Mal. Burm. Ind. See *BAUHINIA variegata* & *purpurea*.

CHOUCARI de la nouvelle Guinée, in *Ornithology*. The *Corvus papuensis* of Latham is described under this name by Buffon.

CHOUCAS, the generic name under which several species of the *Corvus* genus are described by Buffon, and later French writers; as *choucas*, the jackdaw, *Corvus monedula*, Linn.—*Choucas moustache*, & *Choucas du Cap de Bonne Espérance*,

rance, the Corvus hottentottus.—*Choucas des Philippines*, the *Corvus baliassius*, &c. See CORYUS. *Chocotte* is the most common French name of the choucas.

CHOUCHA, in *Geography*, a town of Africa, in Upper Guinea, on the river Maguiba, surrounded with rocks.

CHOUQUEN, a town of Canada, on the lake Ontario, where the English carry on their commerce of furs with the savages.

CHOQUET, JOHN-ROBERT, in *Biography*, an eminent philosopher and magistrate of Geneva, was born in 1642. He studied philosophy and dialectics with great ardour and success under professor Wifs of Geneva; and when he was only 22 years of age, obtained the professorship at Saumur, against the interest of his rivals. He succeeded Wifs at Geneva, in 1669, when his lectures were uncommonly crowded. Among the more celebrated of his pupils was Bayle, who speaks of him with great applause. In 1672 he went to Paris, where his society was much courted: upon his return to Geneva, he became rector of the academy; and, in 1686, he was admitted into the council of twenty-five. From this period he devoted himself to public employments, for which he was admirably qualified. He was well versed in the history of the state which gave him birth, and introduced into its archives a method of order and clearness never known before. He was several times syndic, and distinguished himself as a negotiator with the French and Sardinian ministers. Notwithstanding these employments, his attachment to literature was unabated, and he greatly promoted the progress of science by augmenting, at his own expence, the public library. This amiable man died in 1731, regretted by all his fellow-citizens. His publications are, "An Introduction to Logic," in Latin, 8vo. 1672; "Theses Physicæ de varia Astrorum luce," 4to. 1674; "Memoire succincte sur la Reformation," 1694; "Reponses à des Questions de Milord Townsend sur Geneve ancienne faites, en 1696, et publies en 1774. Besides these, he left in MS. in 3 vols. folio, a work entitled, "Diverses Recherches sur l'Hist. de Geneve, sur son Gouvernement et sa Constitution." Hist. de Geneve.

CHOQUETTE, in *Ornithology*; the French call the owls in general by this name. *La chouette* of Buffon is our brown owl, *Strix ulula*; *La chouette blanche* is the *Strix nivea* of Latham; *La chouette blanche tachetée*, *Strix alba*, &c. See OWL and STRIX.

CHOUG, or SHOGLE, in *Geography*, a town of Asia, in Syria, on the Orontes, in the route from Sayd to Aleppo; where all travellers are entertained gratis in an excellent caravanserai for three days, without any distinction of country or religion.

CHOUGH, in *Ornithology*, the name by which the common jackdaw is sometimes called in England. See CORYUS *monedula*.

CHOUGH, *Cornish*, of Albin and Borlase, is the *Red-legged crow* of later English authors. See CORYUS *graculus*.

CHOU-CHAN, in *Geography*, a town of Asia, in the kingdom of Corea; 12 miles N.W. of Haimen.

CHOU-SONG, a town of China, of the third rank, in the province of Kiang-si; 25 miles N.E. of Ki-ngan.

CHOU-YUNG, a town of Asia, in the kingdom of Corea; 20 miles S.S.W. of Haimen.

CHOU-KING, a town of China, of the third rank, in the province of Kiang-si; 65 miles E. of Kan-cheou.

CHOU-NGAN, a town of China, of the third rank, in the province of Tche-kiang; 4 leagues S. of Ouen-tcheou.

CHOU-TCHANG, a town of China, of the third rank, in the province of Tche-kiang; 12 leagues W.N.W.

of Tehu-tcteo.—Also, a town of the third rank, in the province of Kiang-si; 6 leagues W. of Kieou-kiang.

CHOU-TCHEOU, a city of China, of the first rank, in the province of Kiang-si; 712 miles S. of Peking. This town is situated on the bank of a river, in a fertile country; and the adjacent mountains contain mines of lapis lazuli. N. lat. 28° 25'. E. long. 114° 53'.

CHOU-YUEN, a town of Asia, in the kingdom of Corea; 37 miles N.E. of Haimen.

CHOU, WILLIAM DU, in *Biography*, a Lyonsese gentleman, and one of the earliest Frenchmen who applied to antiquarian pursuits. He lived at the summit of the mountain Gorgillon, where the ground could scarcely be dug without discovering Roman inscriptions, medals, urns, lamps, &c. Du Choul made a collection of these remains, with a view of decyphering them; the fruit of his labours he published in a "Discourse on the Religion of the ancient Romans, illustrated by a great number of Medals and Figures." This work was printed in folio at Lyons, in 1556. It was afterwards reprinted in 1580, in 4to. with the addition of a "Discourse on the Castrametation and Military Discipline of the Romans, their Baths and Antiques, and Greek and Roman Exercitations." The work in this form has been highly celebrated, and translated into the Latin, Italian, and Spanish languages. The Latin edition was printed at Amsterdam in 1686, 4to.

CHOU, in *Geography*, a river of the duchy of Luxembourg, or the department of the Forêts, in the Ardennes, which discharges itself into the Meuse.

CHOULE, a town of India, on the coast of Concan, with a fortified harbour for small vessels, belonging to the Portuguese; 25 miles S. of Bombay. N. lat. 18° 37'. E. long. 72° 46'.

CHOU-LOU, a town of China, of the third rank, in the province of Pe-tche-li; 12 miles S.W. of Ching.

CHOU-TRIES, a name given in India to houses built for the accommodation of travellers, which are frequent in every part of the country, and are useful, whilst they are noble monuments of Indian munificence and humanity. The structure of these choultries is alleged by Dr. Robertson (Hist. Diss. concerning India), as one evidence of the high state of civilization to which the Indians had attained. On the ceilings of these buildings, as well as other ancient edifices, the twelve signs of the zodiac are frequently delineated; and from their resemblance to those which are now universally used, it is highly probable, says this judicious historian, that the knowledge of these arbitrary symbols was derived from the East. Col. Call has published a drawing of the signs of the zodiac, which he found on the ceiling of a choultry at Verdappettah, in the Madura country. (Phil. Trans. vol. lxii. p. 353.)

CHOU-PA-TOU, in *Geography*, a town of Asia, in the country of Tibet; 265 miles E. of Lassa.

CHOURAGUR, a town of Hindoostan, in the country of Gurry Mundelia; 57 miles S.W. of Gurrah.

CHOURTONG, a town of Asia, in the country of Tibet; 235 miles E.S.E. of Lassa.

CHOUS, in the *Eastern Military Orders*, the title of the messengers of the divan of janizaries. There are several degrees of honour in this post. When a person is first advanced to it, he is called *cuchuck*, or little *chous*; after this he is advanced to be the *alloy chous*, that is, the messenger of the ceremonies; and from this, having passed through the office of *petelma*, or procurator of the effects of the body, he is advanced to be the *bas chous*.

CHOUSGIMAYAN, in *Geography*, a town of Persia, in the province of Chorasan; 220 miles N.N.E. of Herat.

CHOU-

CHOU-TCHUEN, a town of Asia, in Corea; 30 miles S. of Haimen.

CHOUX, in *Natural History*, a name given by the French to a species of shell-fish of the *cardiform* or *bucardium* kind. Fabius Columna has elegantly described it, and Lister has given a figure of it twice over, in two different parts of his book. There is another species less elegant, and wanting the hollowed ribs. See *CORDIFORMIS*.

CHOUYANG, in *Geography*, a town of Asia, in Corea; 40 miles N.E. of King-ki-tao.

CHOUZE', a town of France, in the department of the Indre and Loire; seated on the Loire; 4 leagues E. of Saumur, and 6 leagues N.W. of Tours.

CHOWAN, a county of North America, in Edenton district, North Carolina, on the N. side of Albemarle sound; containing 5011 inhabitants, of whom 2588 are slaves. The chief town is Edenton.—Also, a river of North Carolina, which falls into the N.W. corner of Albemarle sound. At its mouth it is 3 miles wide, but quickly becomes narrower, as you ascend it. It is formed 5 miles from the Virginia line, by the confluence of Meherrin, Nottaway, and Black rivers, all which rise in Virginia.

CHOWDER-BEER, a provincial phrase of Devonshire, denoting a cheap and easily prepared drink, highly commended for preventing the scurvy in long voyages, or for the cure of it where it may have been contracted. It is prepared in the following manner: take twelve gallons of water, in which put three pounds and a half of black spruce; boil it for three hours, and having taken out the fir or spruce, mix with the liquor seven pounds of melasses, and just boil it up; strain it through a sieve, and, when milk warm, put to it about four spoonfuls of yeast to work it. In two or three days stop the bung of the cask, and in five or six days, when fine, bottle it for drinking. Two gallons of melasses are sufficient for an hoghead of liquor; but if melasses cannot be procured, treacle or coarse sugar will answer the purpose.

CHOWRY, in *Geography*, one of the Nicobar islands, in the Indian Sea. N. lat. $8^{\circ} 27'$. E. long. $93^{\circ} 32'$.

CHO-YANG, a town of China, of the third rank, in the province of Hou-quang; 10 leagues E.N.E. of Siang-yang.

CHOZALA, or CHOIZALA, in *Ancient Geography*, a town of Africa, in Mauritania Cæsariensis; situated at the foot of a craggy rock, about 4 miles S.E. of Julia Cæsarea.

CHOZEVA, in *Geography*, a town of Siberia, on the river Tchiuna; 180 miles E.S.E. of Eniseik.

CHRABAZA, in *Ancient Geography*, a town of Africa Propria. Ptolemy.

CHRRABRATE, in *Natural History*, a name given by the writers of the middle ages to a pellucid stone, said to have great virtues against disorders of the liver and spleen, and many other imaginary qualities. It appears by their descriptions to have been no other than the common pebble crystal.

CHRAST, in *Geography*, a town of Bohemia, in the circle of Boleslau; 6 miles S.E. of Melnik.—Also, a town of Bohemia, in the circle of Chrudim; 5 miles S.E. of Chrudim.

CHREBET *Chandabga*, a range of mountains, between Russian Tartary and Chinese Tartary. N. lat. 52° . E. long. from $96^{\circ} 14'$ to $101^{\circ} 14'$.

CHREBET *Dirgak*, a range of mountains similarly situated with the preceding. N. lat. 52° to 53° . E. long. $96^{\circ} 14'$.

CHREMETES, in *Ancient Geography*, a river of Africa, the mouth of which is placed in the Atlantic Ocean by Aristotle and Helychius; supposed to be the Zaire.

CHREMPES, in *Ichthyology*, a name given by the eldest Greek writers to the fish since called *chromis*.

CHRENDI, in *Ancient Geography*, a people of Asia, in Hircania. Ptolemy.

CHRENECRUDA, a term occurring in *Writers of the Middle Age*, and expressing a custom of those times, but its signification is doubtful. It is mentioned in *Leges Salicae*, Tit. 61. which says, he who kills a man, and hath not wherewithal to satisfy the law, or pay the fine, makes oath that he has delivered up every thing he was possessed of; the truth of which must be confirmed by the oaths of twelve other persons. Then he invites his next relations by the father's side to pay off the remainder of the fine, having first made over to them all his effects by the following ceremony. He goes into his house, and, taking in his hand a small quantity of dust from each of the four corners, he returns to the door, and, with his face inwards, throws the dust with his left hand over his shoulders upon his nearest of kin. Which done, he strips to his shirt; and, coming out with a pole in his hand, jumps over the hedge. His relations, whether one or several, are upon this obliged to pay off the composition for the murder. And if these (or any one of them) are not able to pay, *iterum super illum chrenecruda qui pauperior est, jaceat, & ille totam legem componat*. Whence it appears, that *chrenecruda jaccare*, is the same with throwing the dust, gathered from the four corners of the house. Goldastus and Spelman translate it *viridem herbam, green grass*, from the German, *gruen kraut*, or from the Dutch, *groen, green*, and *gruid, grass*. Wendelinus is of a contrary opinion, who thinks that by this word *denotari purificationis approbationem*, from *chrein, pure, chaste, clean*; and *keuren, to prove*; so that it must refer to the oaths of the twelve jurors. Be this as it will, king Childebert reformed this law by a decree, chap. 15, both because it favoured of pagan ceremonies, and because several persons were thereby obliged to make over all their effects: *De chrenecruda lex quam paganorum tempore observabant, deinceps nunquam valeat, quia per ipsam cecidit multorum potestas*.

CHRES, in *Ancient Geography*, a large river of Libya, on the western coast of Africa, and near the island of Cerne, according to the Periplus of Hannon.

CHRESTOIA, in *Geography*, a town of Istria; 9 miles E.S.E. of Capo d'Istria.

CHRETES, in *Ancient Geography*, a lake of Libya, containing, according to the Periplus of Hannon, three islands.

CHRETIEN, FLORENT, in *Biography*, a French poet and man of letters, was born at Orleans in 1541. He was educated in the Protestant religion, and having made considerable progress in literature, was appointed preceptor to Henry IV. of France. He wrote poems in the learned and dead languages, as well as in his own. In the French he composed a severe satire against Ronfard, with whom he had a quarrel. He translated Oppian, some plays of Aristophanes, and other Greek works into the French. He composed tragedies and Greek epigrams, and also learned and considerable annotations on various classical authors. He died at the age of 56, having first been reconciled to the Catholic church. Though he wrote satires, his temper was mild and friendly, and his mind was elevated above mean and servile complaisance, and he was incapable of uttering a sentiment that he did not believe.

CHRETINA, in *Geography*, a town of Spain, placed by Ptolemy in Lusitania Propria.

CHREWITZ. See GREITZ.

CHRISM, from *χρῖμα*, *I anoint*, oil consecrated by the bishop, and used in the Romish and Greek churches, in the

administration of baptism, confirmation, ordination, and extreme unction, which is prepared on Holy Thursday with much ceremony. In Spain it was anciently the custom for the bishop to take one third of a sol for the chrism distributed to each church, on account of the balsam that entered its composition.

Du Cange observes, that there are two kinds of chrism; the one prepared of oil and balsam, used in baptism, confirmation, and ordination; the other of oil alone, consecrated by the bishop, used anciently for the catechumens, and still in extreme unction.

The Maronites, before their reconciliation with Rome, besides oil and balsam, used musk, saffron, cinnamon, roses, white frankincense, and several other drugs mentioned by Rynaldus, in 1541, with the doses of each. The jesuit Dandini, who went to mount Libanus in quality of the pope's nuncio, ordained, in a synod held there in 1596, that chrism, for the future, should be made only of two ingredients, oil and balsam; the one representing the human nature of Jesus Christ, the other his divine nature.

The action of imposing the chrism, is called *chrismation*: this the generality of the Romish divines hold to be the next matter of the sacrament of confirmation.

The chrismation in baptism is performed by the priest; that in confirmation by the bishop; that in ordination, &c. is more usually styled *unction*, which see.

CHRISM *pence*, CHRISMATIS *denarii*, or CHRISMALES *denarii*, a tribute anciently paid to the bishop by the parish-clergy, for their chrism, consecrated at Easter for the ensuing year: this was afterwards condemned as simoniacal.

CHRISOM, CHRISMALE, has been said to have denoted anciently the face-cloth, or piece of linen laid over the child's head when it was baptized. Whence, in our bills of mortality, children who die in the month, or such as have never been baptized, are usually called *chrifoms*. The time between the child's birth and baptism was also called *chrifomus*.

But the chrifom was, in reality, a white vesture or garment, which, immediately after the child was baptized, was put upon it by the priest, who with the act pronounced these words: "Take this white vesture as a token of the innocency, which, by God's grace in this holy sacrament of baptism, is given to thee, and for a sign whereby thou art admonished so long as thou livest, to give thyself to innocence of living, that, after this transitory life, thou mayest be partaker of life everlasting. Amen." As soon as the priest had pronounced these words, he anointed the infant upon the head, saying, "Almighty God, the father of our Lord Jesus Christ, who hath regenerated thee by water and the Holy Ghost, and hath given unto thee the remission of all thy sins; may he vouchsafe to anoint thee with the unction of his Holy Spirit, and to bring thee to the inheritance of everlasting life. Amen." From this anointing, or chrism, the white garment obtained the name of "Chrifom," which, after being worn a few days, was presented to the priest to be kept in the church, or vestry, in order to be produced as evidence against the person whose chrifom it was, if he afterwards denied the faith in which he was baptized. These ceremonies were retained, for some time after the reformation, in the church of England, which ordered the mother of the child, if the child was then alive, to offer, when she was churched, the chrifom, and other accustomed offerings. If the child died before its mother was churched, the chrifom was not given to the priest, but employed as a shroud, in which the body was buried; and hence it is that chrifoms are now enumerated in the weekly bills of mortality, very absurdly; because, children who die unbaptized

are called chrifoms, though the chrifom, when it was used, was never put on till baptism was administered. Whence in the Book of Common Prayer, &c.

CHRIST, an appellation synonymous with MESSIAH; usually added to Jesus: and, together therewith, denominated the Saviour of the world. The word $\chi\rho\iota\varsigma$ signifies *anointed*, from $\chi\rho\omega$, *inungo*, *I anoint*. Sometimes the word Christ is used singly, by way of *antonomasis*, to denote a person sent from God, as an anointed prophet, king, or priest.

Christ, says Lactantius (*de Vera Sapientia*, l. iv. c. 6.) is no proper name, but one denoting power; for the Jews used to give this appellation to their kings, calling them Christ, or anointed, by reason of their sacred unction. But he adds, "the Heathens, by mistake, call Jesus Christ, *Chrestus*." Accordingly, Suetonius, speaking of Claudius, and of his expelling the Jews from Rome, says, that he banished them because they were continually promoting tumults, under the influence of one "Chrestus." "Judæos, impulsore *Chresto*, assidue tumultuantes, Romæ expulit."

The names of Messiah and Christ, which, as we have already observed, are synonymous, were originally derived from the ceremony of anointing, by which the kings and the high-priests of God's people, and sometimes the prophets (1 Kings, xix. 16.) were consecrated and admitted to the exercise of their holy functions; for all these functions were accounted holy among the Israelites. As this consecration was considered as adding a sacredness to their persons, it served as a guard against violence, from the respect that was paid to religion. The term, "anointed," in Hebrew "Messiah," and in the Greek of the lxx, "Christ," was, in its original use, applicable to the whole succession of kings and priests, both good and bad, of the people of Israel. But, as the king and the high-priest were the heads of the whole nation, the one in civil, the other in religious matters, the term "anointed," that is "Messiah" or "Christ," might not improbably serve, by a figure, to denote the chief, head, or principal of any class or people. This, however, is the opinion of the learned Grotius. Accordingly the high-priest is sometimes distinguished from ordinary priests by the title of "the anointed priest," in the lxx $\epsilon\iota\varsigma\iota\upsilon\varsigma\ \epsilon\chi\chi\rho\iota\varsigma\tau\omicron\varsigma$; but the word is sometimes applied, when, in the literal sense, no anointing had been used. Thus it is applied to Cyrus, the Persian monarch, by the prophet Isaiah: (Isai. xlv. 1.) The word was also employed to denote those especially favoured of God, as were the patriarchs Abraham, Isaac, and Jacob; concerning whom he is represented by the psalmist (Ps. cv. 15.) as having said; "touch not mine anointed." From scripture there is no ground for concluding that any one of them was in the literal sense anointed. But the most eminent use and application of the word concern the title of that illustrious personage, typified and predicted from the beginning; who is described by the prophets, David (Ps. ii. 2.) Isaiah (ch. xli. 1.) and Daniel (ch. ix. 25, 26.) under the character of "God's anointed," the "Messiah," or the "Christ." As to the use of the term in the New Testament, if we were to judge by the common version, or even by most versions into modern tongues, we should consider it rather as a proper name, than an appellative, or name of office, and should think of it only as a surname given to our Lord. To this mistake our translators have greatly contributed, by seldom prefixing the article before "Christ," though it is rarely wanting in the original. The word "Christ" was at first as much an appellative as the word "baptist" was, and the one was as regularly accompanied with the article as the other. Yet our translators who would always say "the

baptist," have, it should seem, studiously avoided saying "the Christ." Such is the importance of the article, that the common application of the words "Jesus" and "Christ" would lead an unlearned reader uniformly to consider them as no other than the name and surname of the same person. The article in such expressions as occur in Acts, xvii. 3. xviii. 5, 28. adds considerable light to them, and yet no more than what the words of the historian manifestly convey to every reader who understands his language. It should therefore be, "Paul testified to the Jews that Jesus was the Christ" or the Messiah, &c. Many other similar instances occur. Should it be asked, is the word "Christ" never to be understood in the New Testament as a proper name, but always as having a direct reference to the office or dignity? It may be replied, that this word, though originally an appellation, came at length, from the frequency of application to some individual, and only to one, to supply the place of a proper name. It would also very much accelerate this effect that the name "Jesus" was common among the Jews at that time, and this rendered an addition necessary for distinguishing the person. To this purpose Grotius remarks, that in process of time the name "Jesus" was very much dropped, and "Christ," which had never been used before as the proper name of any person, and was, for that reason, a better distinction, was substituted for it; inasmuch that, among the Heathens, our Lord came to be more known by the latter than by the former. This use seems to have begun soon after his ascension. During his life, it does not appear that the word was ever used in this manner; nay, the contrary is evident from several passages of the gospels. The Evangelists wrote some years after the period above mentioned; and, therefore, they adopted the practice common among Christians at that time, which was to employ the word as a surname for the sake of distinction. See Matt. i. 1, 18. Mark. i. 1. In all the three places it is *Ιησὺς Χριστὸς*, Jesus Christ, not *Ιησὺς τῷ Χριστῷ*, Jesus the Christ, or the Messiah. Afterwards, in their history, Matthew and Mark neither name him so themselves, nor mention this name as given him by any of his contemporaries. The word was never applied to him as a proper name, whilst he remained on this earth. It was at that time always understood as the denomination of the dignity or office to which some believed him entitled, others disbelieved, and many doubted. The same reason which induced our translators to have rendered *ὁ βαπτιστὴς* uniformly "the baptist" with the article, should have led them to render *ὁ χριστός*, "the Christ," or the Messiah, with the article. By not doing this, they have thrown much obscurity on some passages, and weakened others. Upon the whole we may observe, that one mark of distinction, by which the title *χριστός* may be discriminated from the name, is its being attended with the article. When the article is inserted between the words *Ιησους* and *Χριστός* we have reason to consider the latter as used emphatically, and pointing directly to his office.

As a conclusion of this subject it may be added, that the word *χριστός* is frequently used by St. Paul as a trope, denoting sometimes the christian spirit and temper, as in Gal. iv. 19. Eph. iv. 20. Campbell's Prelim. Disc. to the four Gospels, vol. i. p. 165, &c.

CHRIST, *Order of*, a military order, founded in 1317, by Dionysius I. king of Portugal, to animate his nobles against the Moors.

Pope John XXII. confirmed it in 1319, and appointed for the knights the rule of St. Bennet. Alexander VI. permitted them to marry.

This order had been under the controul of 12 grand masters, when Pope Adrian VI. in 1522, conferred the

administration of it on John III. In 1557, pope Julius III. vested in the crown a perpetual right to the grand mastership: from which time the kings of Portugal have taken the title of perpetual administrators of the order, which consisted of 417 commanderies. Before the grand mastership was united to the crown, it was by election of the knights, who are now under the same regulations, and enjoy the same privileges, as those of the order of Calatrava in Spain.

According to the statutes, the candidate should prove his nobleness of blood for four generations; but this is usually dispensed with by the sovereign. The badge of the order is "a cross pattée gules, charged with a cross argent," pendant to "a collar of gold, composed of three rows of chains:" on common days the knights also wear round their necks a scarlet ribbon with the badge of the order pendant to it. They had their residence, at first, at Castromarin: afterwards they removed to the city of Thomar, as being nearer to the Moors of Andalusia and Estremadura.

CHRIST is also the name of a military order in Livonia, instituted in 1205, by Albert bishop of Riga. The professed end of their institution was to defend the new Christians who were successively converted in Livonia, but were persecuted by the heathens.

The first occasion of their institution is said to have been as follows: In 1158 some merchants of Bremen, bound to Wisby, in the isle of Gothland, driven by stress of weather, landed at the mouth of the Duna, trafficked with the natives, and gradually established a settlement. A German monk of the Augustine order, who accompanied the new colonists, acquired the language of the country, converted several of the natives to christianity, and persuaded them to be baptized. According to the custom of that barbarous era, an order of knighthood, first called "the knights of Christ," and afterwards with greater propriety "the knights of the sword," was instituted for the propagation of Christianity by force of arms. These military missionaries, equally fanatic and sanguinary, gradually overran the country, and reducing the ancient inhabitants, rendered them at the same time Christians and slaves. In 1231, these knights, being incorporated in the Teutonic order, styled themselves "knights and lords of the cross," and purchased Esthonia, in 1521, from the king of Denmark. Walter Plettenburgh, chief or general, having obtained from the grand master of the Teutonic order the jurisdiction of Livonia, was considered as independent, and admitted by Charles V. among the princes of the empire. The knights continued in possession of Esthonia and Livonia, until the impolitic conduct of their masters, and civil dissensions, incited the ambition of the neighbouring powers, and involved the country in a series of bloody wars. See LIVONIA. These knights wore on their cloaks a sword with a cross over it; whence they were also denominated "*brothers of the sword*."

CHRISTBURG, in *Geography*, a town of Prussia, in the territory of Culm; 12 miles S.E. of Marienburg.

CHRISTEBURG, or ALT-CHRISTEBURG, a town of Prussia, in the territory of Oberland; 4 miles S.W. of Preuschmark.

CHRIST-CHURCH or CHRIST-CHURCH-TWYNHAM, but more correctly *Twynham-bourne* or *Tweon-ea*, as it was called in the Saxon Chronicle, is situated near the sea-coast on the S.W. verge of Hampshire, England, between the rivers Avon and Stour, which unite their streams at a short distance below the town, and soon afterwards join with the waters of the ocean at Christ-Church Bay. It is a market and borough town; and though it presents no claim to a British or Roman origin, it certainly has been a place of note in the Anglo-Saxon dynasties. From their Chronicle it appears that Ethelwold, cousin-german to Edward the Elder,

took possession of it during his short-lived revolt. Christ-Church is mentioned in Domesday as a Royal Manor: and continued to be a part of the crown demesne till it was given, with other possessions of immense value, by Henry I. to Richard de Repariis, or Redvers; who is supposed to have strengthened the town by walls, and to have erected a castle here, though Norden attributes its erection to Edward the Elder: that it must have been built previously to the twelfth century is evident from the *fossum castelli* being expressly mentioned in a charter granted to the priory by Baldwin, son of the above Richard de Redvers. This family retained possession of the town, except a short alienation by the marriage of an heiress, till Isabella de Fortibus released it to Edward II. The borough, manor, and hundred of Christ-church, after passing through the families of sir William de Montacute, Richard Neville Earl of Salisbury, and several others, were purchased by the right honourable George Rose in 1790. Parts of the castle, by which the town was formerly defended, are now standing; the principal appear to be portions of the keep, and of the state apartment or governor's residence. The latter is upwards of seventy feet long, and nearly thirty broad; its walls, like those of the keep, being of immense thickness. On the ground floor are a number of loop holes, formed by a large semicircular arch within, lessening by degrees, and terminating in a chink. The access to the upper apartments was by a stone stair-case, part of it is yet remaining. "The place for receiving the floor of the first story is very visible; it seems to have had one room only, lighted by three large windows on the east, and as many on the west side: they were all included in semicircular arches, formed of stones very neatly cut, and divided by a small pillar in the centre. In the east side, and somewhat north of the centre, was a very large fireplace, worked circularly into the main wall, having also a high cylindrical stone chimney, seemingly the only (original) one in the building. At the north end there appears to have been a large arched window; the columns and part of the internal arch are still remaining and answer to a handsome semicircular arch on the outside, decorated with zig-zag ornaments. From what remains of the ornamental parts of this building, it appears to have been elegantly finished, and cased with squared stones; most of which, however, have been taken away: by the ruins of several walls, there were some ancient buildings at right angles to this hall, stretching away towards the keep." (Grose's Antiquities, vol. ii.) The priory of Christ-church was, according to Camden, founded early in the Saxon times: its inmates were secular canons of the order St. of Augustine, and the establishment, as early as Edward the Confessor's reign, consisted of a dean and twenty-four canons. The church and convent were given by William Rufus to the minion of his tyranny, Ralph Flambard, bishop of Durham, who in his early days held this deanery. This prelate determined to rebuild the church, and the other conventual edifices, which he found extremely out of repair, on a scale more extensive and superb than their original construction; and for this purpose seized the revenues of the canons, merely allowing to each a bare subsistence. Godric, then dean, strenuously opposing this arbitrary measure, was deprived of his dignity, and forced to seek an asylum on the continent; but had afterwards permission to return and re-assume his office. The bishop having thus subdued all opposition to his designs, levelled the ancient building with the ground; and, having completed his undertaking, solemnly dedicated the church to Christ. At the dissolution, its revenues were valued, according to Speed, at 544l. 6s. 0d.: the site was given by Henry VIII. to Stephen Kirton, and Margaret his wife.

In the following year, the church, with the church yard, and all appurtenances, were granted to the churchwardens and inhabitants of the town for ever. This grant was confirmed 9 James I., and has undoubtedly operated to the preservation of the church from the destruction in which the other buildings situated to the south were involved. The church is a very large and interesting building; and though great alterations have taken place in it since the time of Flambard, yet the nave, the south-western aisle, and the northern transept still display considerable portions of his work. The nave is formed by a double row of massive square pillars, ornamented with demi-columns: between these pillars are semicircular arches springing from grouped pilasters, which are lateral projections from the main pillars. The south-western aisle, called also the Lower Walk, exhibits some semicircular arches, with zig-zag moulding, and other ornaments. At the end of this aisle is a neat chapel, which is said to have been erected by John Draper, the first prior of that name, who was installed in 1477. The north transept, though greatly altered, still displays evident marks of the Norman style; especially on the outside in the escallop and net-work ornaments. Here are two small chantries or oratories, adjoining each other, supposed to have been built by some earl and countess of Salisbury, as the pavement within and contiguous has been composed of square tiles ornamented with the family arms. The chancel, and all that part which is east of the transept, is of more modern date. Most of the windows are large, and decorated with mullions and tracery: from the low aisles at the sides the upper part is strengthened by flying buttresses. The altar-piece is a very curious specimen of ancient carving in wood, which Mr. Warner considers as coeval with bishop Flambard. It represents the genealogy of Christ by a tree springing from the loins of Jesse, who is represented in a recumbent position, supporting his head with his left hand: in niches, on each side of Jesse, are David playing on his harp, and Solomon in a musing posture. Above these are the Virgin, infant Jesus, and Joseph, with several other figures illustrative of the circumstances of our Saviour's birth. North of the altar is a beautiful, but now mutilated, chapel, erected in the reign of Henry VII. by the venerable Margaret, countess of Salisbury, for her burial-place: the sculpture of the ornaments is excellent, and the most florid style of that age pervades the whole interior. At the eastern extremity of the church is a spacious chapel, dedicated to the Virgin Mary, and supposed to have been built by the West family, ancestors of the lords Delawar, about the close of the 14th century: as sir Thomas West, by will dated April 1405, ordered his body to be interred in the new chapel, and bequeathed 100l. towards the completion of the works of the church. Immediately over this chapel is a large room, called St. Michael's Loft, which is recorded, in the old register of this parish, to have been set apart and used as a free grammar school-room ever since the year 1662. A school is known to have existed in this town so early as the time of the first Baldwin de Redvers, as appears from his confirmation of his father's grant to the priory. The dimensions of the church, and its principal parts, are as follow; whole length, including St. Mary's chapel and the tower, 311 feet; extreme breadth at the western extremity 60 feet; extent of the transept 104 feet, breadth 24; chancel in length 70 feet, in breadth 27; breadth of the nave 27 feet; the great pillars in circumference 36 feet 6 inches, in height 36 feet; height of the tower 120 feet. In the reign of Edward I. Christ-church received a precept, ordering the return of two members to the national council. This was repeated in the first and

second years of Edward II., but no returns were made, through the "poverty of the burgesſes." It was again ſummoned 13 Eliz. as a preſcriptive borough; and the circumſtances of the times inducing compliance, it has ever ſince been repreſented by two members. The right of election is exerciſed by the corporation, which conſiſts of the mayor, recorder, aldermen, bailiffs, and common council; in all 24: but Browne Willis and others have ſtated the real right to be in the inhabitant houſeholders paying ſcot and lot. Chriſt-church is 105 miles S.W. of London; has a market on Mondays, and two annual fairs. The inhabitants, according to the return to parliament in 1801, were 1410; the number of houſes 295. Many of the former find employment in two large breweries that have been eſtabliſhed here; others in the ſalmon fiſhery on the rivers Avon and Stour, or in fiſhing round the neighbouring ſhores, where various kinds of fine fiſh abound. The lower order of females, both in the town and its vicinity, are moſtly engaged in knitting ſtockings; and children derive employment from a manufactory of watch-ſpring chains lately eſtabliſhed here. The poor-houſe is conducted on a very excellent plan, by which conſiderable ſums are ſaved to the pariſh. The former expenditure has alſo been greatly reduced by the eſtabliſhment of ſeveral friendly ſocieties; the advantages ariſing from which have been conſiderably increaſed under the influence of Mr. Roſe.

The Bay or Harbour of Chriſt Church is ſpacious; but, from various local cauſes, it is too ſhallow and dangerous to be frequented by veſſels that draw more than five feet and a half of water. This imperfection is chiefly owing to a bar or ledge of ſand, that extends from the point called Hengiltbury-head, on the Hampſhire ſide, to St. Chriſtopher's Cliff, in the Iſle of Wight. The ſituation of this bar is occaſionally ſhifted, either by a ſucceſſion of heavy rains, which increaſe the force of the waters diſcharged into the bay by the rivers Avon and Stour, or by-ſea ſtorms attended by ſoutherly winds. Another circumſtance peculiar to this harbour, and the neighbouring port of Poole in Dorſetſhire, is that of every tide producing two high waters. This phenomenon, ſo inexplicable from the general laws of tides, is occaſioned by the ſituation of this coaſt with reſpect to the Iſle of Wight, and from the contraction of the channel by the jutting out of the point of land on which Hurſt Caſtle ſtands. The tide flows into this channel from the weſt; and though it ſets in with uncommon violence at Hurſt Caſtle, it does not meet the tide that paſſes round the iſland, till it has reached Spithead: the paſſage being too narrow for all the water to paſs through, the time of high water at Hengiltbury-head is of courſe much earlier than either at Portſmouth or Chicheſter; at the full and change of the moon the difference is three hours and a half. When the water begins to ebb, by flowing off from the weſt, the contraction in the channel at Hurſt caſtle operates in a contrary direction; and, by confining the water that has ſpread itſelf over the whole ſurface of the Southampton water, and of the channel within the iſland, gives the water in Chriſt-church bay an opportunity of flowing off much quicker, by which means it becomes ſo low, that the water that now pours through with great velocity at Hurſt caſtle is ſufficient to produce a ſecond riſe in Chriſt-church and Poole harbours of nearly three feet.

CHRISTENING. See BAPTISM.

CHRISTIAN, in a general ſenſe, ſomething that relates to Chriſt.

The king of France bore the title or ſurname of the *moſt Chriſtian king*. The French antiquaries trace the origin of the appellation up to Gregory the Great; who, writing a letter to Charles Martel, occaſionally gave him

that title, which his ſucceſſors during the exiſtence of the French monarchy retained.

Lambecius in the third tome of his Catalogue of the emperor's library, holds, that the quality of *moſt Chriſtian* was not aſcribed to the ancient French kings, Louis le Debonair, &c. as kings of France, but as emperors of Germany: but the French hiſtorians endeavour to refute this plea.

CHRISTIAN, in a more reſtricted and peculiar ſenſe, denotes a diſciple of Chriſt. The followers of Chriſt, or the proſelytes to his religion, from among both the Jews and Gentiles, were diſtinguiſhed by various appellations. Thoſe which they generally appropriated to one another were believers, brethren, faithful, ſaints, holy, and diſciples. By the Gentiles and their adverſaries, they were called Nazarenes and Galilæans. They were firſt called Chriſtians at Antioch; about A.D. 43 or 44, according to the vulgar computation, (Acts xi. 26.) "The name of Chriſtian," ſays Tertullian, (Apol.) "comes from the unction received by Jeſus Chriſt; and that of 'Chriſtianus,' which you ſometimes through miſtake give us (for you are not particularly acquainted with our name) ſignifies that gentleneſs and benignity of which we make profeſſion;" thus deriving the name of Chriſtian from the Greek *χρηστος*, good or uſeful. It was in conſequence of the conversion of Cornelius and his family, that the believing Jews and Gentiles were formed into one church; and, therefore, in order to prevent the continuance of that ſeparation and diſtance which ſubſiſted between them, under the former appellations of Jews and Heathens, this new name of Chriſtians was given them; as ſome conceive according to the prophecy mentioned (If. lvi. 15). It has been maintained by learned commentators, (in loc.) among whom we may reckon Benſon and Doddridge, that this name was given them by divine direction or appointment; accordingly, they allege that the word *χρηματισαι*, implies as much, and Dr. Doddridge has translated the paſſage: "and the diſciples were by divine appointment firſt named Chriſtians at Antioch." (Compare Matt. ii. 12. 22. Luke, ii. 26. Acts, x. 22. Heb. viii. 5. xi. 7. xii. 25.) Some have ſaid, that Euodius was then biſhop of Antioch, and gave the diſciples this name; but the ſilence of St. Luke with regard to this circumſtance renders it improbable; nor is there any ſufficient evidence that it was given by Barnabas or Saul, as biſhop Pearſon (on the Creed, p. 103.) ſeems to think. There is, however, a manifeſt propriety in the name, as it expreſſes their relation to Chriſt; and reminds them of their obligation to adhere to his doctrine; and it is certain that they gloried in it, and avowed it before the face of their enemies. (Tertull. Apolog. c. 3. 5. Euseb. Hiſtor. Eccleſ. l. v. c. 1.) Witſius (de Vit. Paul. cap. iii. § 5.) thinks it a circumſtance of remarkable wiſdom, that this celebrated name ſhould ariſe from Antioch, a church conſiſting of a mixture of Jews and Gentiles, rather than from Jeruſalem, dignified in ſo many other reſpects; and that it was a kind of victory, gained over Satan, who from Antioch had, ſome ages before, raiſed ſo many cruel perſecutors of the church of God. Witſius, however, does not diſcern any particular emphasis in the word *χρηματισαι*, and readily admits the interpretation of Grotius, that the Greek word, according to its uſual meaning in the beſt Greek writers, and in the New Teſtament itſelf, ſignifies named, or called. And he inclines to the conjecture of archbiſhop Uſher, that this appellation was given to the believers by the Romans then at Antioch. Suicer, in his "Theſaurus," explains the original word, and underſtands this text exactly as Grotius did. Dr. Heumann has a diſſertation concerning the origin of the name of Chriſtians, in which he ſhews it to be very probable, that this name had not its

its rise from the Jews. Nor did the disciples of Jesus take it to themselves. But, probably, they were first so called by Heathens, particularly the Romans, as archbishop Usher had argued; the name not having a Greek but a Latin termination. St. Paul, therefore, did not give the name, as bishop Pearson, after Chrysostom, conjectured; and indeed Dr. Heumann shews, that both St. Luke and St. Paul seem to have declined the use of it; possibly lest our Saviour should have been esteemed an ordinary leader of a sect, like the philosophers at that time much celebrated among the Greeks and Romans. However, it was not long before it obtained, and was very acceptable to the followers of Jesus. It is used by St. Peter i. iv. 16. And some have thought it to be the "worthy name," intended by St. James, ch. ii. 7. And it is certain, that afterwards it was much, and justly valued by those who bore it. In the epistle of the churches of Vienne and Lyons, giving an account of their late sufferings, it is styled an honourable, and glorious, and reviving appellation. Benson's Hist. Plant. Christi. Rel. vol. i. ch. i. § 6. Doddr. in loc. Lardner's Works, vol. vi. p. 265.

The conduct of the first Christians corresponded to the name by which they were distinguished. They were humble, upright, and diligent in availing themselves of the instructions of the apostles; they were resolute and persevering in maintaining their profession of Christianity amidst various reproaches and sufferings, and they testified their sincerity by numerous exercises of self-denial, fortitude and patience, and by submitting even to death, in its most awful forms, rather than incur the guilt of renouncing their faith in the gospel and its divine author. Their general character was not only irreproachable, but exemplary; and they recommended their religion by their uniform temper and practice, as well as by verbal declarations of its excellence and invincible adherence to their profession. We have many early testimonies to this purpose, delivered not only by persons of unquestionable integrity among themselves, but also by their adversaries and persecutors. To their lives they were able to appeal, and did frequently appeal, in vindication of their character against the accusations of their enemies; and they thus evinced the falsehood and inveterate malice from which such accusations originated. We shall here select, out of a variety of ancient documents to the same purpose, the letter of Pliny the younger, who was proconsul of Bithynia, in the third year of the reign of Trajan, about the 65th year after our Lord's ascension, A. D. 100. In this letter Pliny, who was a person of good sense and moderation, explained to Trajan the difficulties which occurred to him in the execution of the severe laws that were enacted against the Christians. He informs him concerning the method which he had observed in punishing the Christians, gives him an account of their faith, worship, and manners, according to the account which he had received from those who had apostatized to avoid persecution, and requests the emperor's advice how he should act towards them for the future. This letter is cited by Tertullian and Eusebius; and being still extant, does great honour to the Christian religion and its votaries. In the process of his examination of those who were brought before him under the charge of being Christians, he says, that some of them denied that they were Christians, or even had been of this number; and to other evidence of their not being justly subject to this charge, they added, as he informs the emperor, that of reviling Christ; which none of those, as they themselves acknowledged, who were really Christians, could be compelled to do. Others of them affirmed, that the whole of their fault or error was, "that they were wont on an appointed day to meet before it was light, and to sing

with one another a hymn to Christ as a God, and to bind themselves with an oath, not to do any wicked thing, but to commit no thefts, no robberies, no adulteries, to break on promise, and to refuse giving back no pledge when asked. These things finished, it was their custom to depart, then to meet again in order to take food, which, however, was innocent and eaten in common." He adds, as a reason for not proceeding against them with rigour and severity, that this was a matter worthy of deliberation, "chiefly because of the number of those who are in danger. For many of all ages, of every rank, and of both sexes also, are called to account, and will be called. Neither through the cities only, but the villages also, and the country, is the contagion of that superstition spread, which, it appears, may yet be stopped and corrected: at least it is very certain, that the almost desolate temples are begun to be frequented, and the sacred rites long neglected to be renewed. Moreover the victims every where are sold, of which hitherto scarcely any buyer was found. Hence it is easy to collect, what a multitude of men may be reclaimed, if there be allowed place for repentance." A rescript of Antoninus Pius (see his article) also bears honourable testimony to the character of the Christians. In this rescript Antoninus intimates that the Christians gained advantage over their opposers, and manifested their superiority by their readiness to lay down their lives in support of their cause; and that they incurred enmity and persecution on account of their greater regard to religion; and he issued an edict, ordering among other things, that "if any shall still proceed to create trouble to one that is a Christian, or to accuse him of crimes merely because he is a Christian, let him who is indicted be discharged though he is found to be a Christian, and let the informer himself undergo the punishment." But it is needless to multiply instances of this kind.

CHRISTIAN Church. See CHURCH.

CHRISTIAN Court. See COURT Christian.

CHRISTIAN Name, that given at baptism. See NAME.

CHRISTIANS, persecution of. See PERSECUTION.

CHRISTIAN Religion, or CHRISTIANITY, that instituted by Jesus Christ, comprehending doctrines of faith and rules of practice, all of which are contained in the New Testament, and are designed to recover mankind from ignorance and vice, from guilt and death, to true knowledge and virtue, to the divine favour, and everlasting life. Its aptitude to this end, its conformity to reason, and to the state of man, the sublimity and excellence of its doctrines, the equally venerable and lovely character of its author, the purity of its precepts, its benign tendency and salutary effects, concur, with the external evidence of PROPHECY and MIRACLES, to establish its divine origin and truth.

Dr. Gerard, in the introduction to his "Dissertations on Subjects relating to the Genius and Evidences of Christianity," observes, that the evidences of the Christian religion may very properly be distinguished into two kinds; the *direct* and the *collateral*. The direct evidences are *internal* and *external*. The external evidences of Christianity are miracles and prophecy; these are the most direct proofs of its divinity. The internal evidence, arising from its excellence, has also great force. But when its excellence is urged as a *direct* proof of its truth and divinity, it should be considered in reference to the principal end of Christianity. The end which Christianity professedly aims at is the spiritual improvement of mankind, the present virtue and comfort, and the future perfection and happiness of all who yield themselves up to its power. This end it keeps continually in view; it represents all its doctrines and precepts as means of promoting this end; and it is careful to set them in that attitude in which they may most directly and powerfully contribute

to it. If it contains powerful means of virtue; if it affords solid grounds of joy, suited to the condition of human creatures, it is excellent.

It not only is such a religion as may have been revealed by God, and ought to be received as a positive proof that it was revealed by him; but its very structure indicates that it is actually divine, in a manner similar to that in which the wise and benign contrivance of the world proves it to be the work of God. It is sufficient, that Christianity is exactly adapted to its own end. It is from the importance of this and from its fitness for promoting it, that the proper excellence of Christianity arises. Whatever does not either belong to its excellence considered in this light, or falls under the head of miracles wrought on purpose to attest it, or of prophecies fulfilled; and yet affords a proof of any real presumption of its truth and divinity, is a *collateral* evidence of it. The use of such arguments is either to rouse the inattentive and the prejudiced to a careful and impartial examination of the more direct evidences of the Gospel, or to strengthen the conviction which these evidences have already produced. To keep it steadily in view, that this is their proper use, is necessary for prosecuting arguments of this kind to the greatest advantage. All the *collateral* evidences of Christianity are in one sense *internal* evidences; they all arise from some particulars in the nature of this religion; from some circumstances which have attended its reception or springing from it, or from some remarkable facts connected with it, and related in the Gospel-history. Some of them are in the strictest sense *internal*. That excellence of Christianity, which constitutes its internal evidence, may be sufficiently ascertained by an examination of the doctrines and precepts of this religion: an examination of its nature is indeed the direct and proper method of bringing its excellence to the trial; and if, on this trial, it be approved, the direct argument thence resulting for its divinity is completed. If there be any topic from which a proof of its excellence can be deduced, additionally to, and dependent on, what arises from the examination of its nature, that topic may really be considered as affording a separate and collateral proof of its truth. Such is the argument deduced from its great efficacy at its first appearance, in banishing polytheism, idolatry and superstition, and the arts of magic, and in reforming the temper and manners of those who embraced it. This efficacy gives us new assurance of the excellence of Christianity, by shewing us corresponding effects, actually resulting from it. By this it strengthens our belief of its divine original; it likewise begets a general presumption, that there must have been very satisfying evidence of its truth, or else men would never have made so great sacrifices to it. Again, though the virtue and spiritual good of man be the only main and ultimate end of Christianity, yet it may at the same time be fit for promoting many other good ends subordinate to this or consistent with it. A fitness for promoting such an end is a new instance of the excellence of Christianity, distinct, indeed, from its proper and essential excellence, but strengthening the argument for its divinity arising from this, and strengthening it by a similar operation on the mind. It begets an additional degree of conviction, by giving an additional perception of excellence. Thus, the spirit of Christianity naturally softens the rigour of despotism, introduces moderation into government, banishes many inconvenient civil laws once generally prevalent, gives rise to others of a very happy tendency, refines the laws of war, humanizes the manners and improves the customs of nations. See "Montesquieu's Spirit of Laws," b. iv. ch. 3, 4. 6. 19.

Another class of *collateral* arguments for the truth of the

Christian religion arises from particulars in its nature, or from effects produced by it, or from facts in the Gospel-history which cannot be at all accounted for but on the supposition of a divine original, or which are, at least, most naturally explicable on that supposition. Such arguments produce conviction, not by simply exciting a perception of excellence, but by making us feel, that we must offer violence to the natural principles of our understanding, and be involved in absurdities, if we deny the divinity of Christianity. Whatever circumstance is unaccountable, without supposing the truth of Christianity, affords a real presumption for it. See "Duchal's presumptive Arguments, &c. in 10 Sermons, 1753."

Some of these presumptive arguments, with respect to the circumstances from which they arise, and the manner in which they affect the understanding, are allied chiefly to the internal evidences of Christianity; others to the external. The circumstances from which some presumptive arguments for our religion arise, are such in their nature as, while they are inexplicable without supposing its divinity, excite at the same time a perception of excellence. Thus, the character of Jesus is such, and so uniformly supported, that, if it had not been real, the evangelists cannot be supposed capable of delineating it. There are several circumstances in our Saviour's last discourses with his disciples which prove that, if he had not really spoken them, the evangelists could never have feigned or ascribed them to him. The characters of some of the apostles of Christ; the controversies among Christians, in the apostolic age; the practice of Christ and his apostles in uniformly referring their claim to the impartial inquiries of men, and renouncing every other method of recommending it, have been shewn by Dr. Duchal to contain strong presumptions of the truth of Christianity. All these arguments have an affinity to the internal evidence of Christianity. There are others which bear affinity to its external evidences. They add credibility to them; they predispose the mind to admit them, or heighten its acquiescence in their sufficiency. They contain a mixture of something miraculous, which, by being such, implies the divinity of this religion, and which carries along with it satisfying evidence of its own reality. Thus, Bell, in his "Inquiry into the divine Mission of John the Baptist and Jesus Christ," has shewn, that the claims of both mutually support each other; and that the circumstances attending their births, many of which were miraculous, and their whole conduct towards one another in their public life, afford a full proof that Jesus was the Messiah, and John his forerunner. The case is the same with regard to the miraculous conversion and subsequent conduct of the apostle Paul, forbidding us to ascribe the origin and prevalence of Christianity either to enthusiasm or imposture; as has been displayed with great strength of reason by Lord Lyttelton and by Dr. Duchal. See PAUL.

There are other arguments, which corroborate the truth of Christianity, by adding weight to its external evidence in a manner still more direct. They arise from circumstances not absolutely necessary for rendering these evidences complete; and therefore they may be considered as separate and independent evidences of the collateral kind. Thus, when we consider that many of the particulars predicted concerning the Messiah and accomplished in Jesus are perfectly extraordinary in their own nature, and seemingly incompatible with one another, this affords evidence of the truth of our religion, additional to what arises merely from the accomplishment of any prophecy. A similar confirmation of Christianity has been deduced by Dr. Duchal, from some circumstances in the character of the Man of Sin, foretold by Paul, so singular, that mere imagination could scarcely have suggested them; and if it had, they never could

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have taken place. These instances have an immediate relation to the proof of Christianity from *prophecy*, which see. Others are related to the proof from *miracles*, which see; such is the argument from the quick and extensive propagation of the Gospel, illustrating the evidence from miracles in the same way as the efficacy of the Gospel corroborates its internal evidence; and the argument from the concessions of ancient infidels, stated by Gerard, in one of his dissertations. The argument for Christianity from the continuance and present state of the Jewish nation, is almost equally related to the proof from miracles and to that from prophecy. See "Lardner's Discourses on the Circumstances of the Jewish People, an Argument for the Truth of Christianity." There are other arguments, which have an equal relation to the internal and external evidences for Christianity, and which add weight equally to both. Such are the two arguments illustrated by Dr. Gerard; the one deduced from the manner in which Christ and his apostles proposed the evidence of their mission, which was the most proper; and the other, from the result of the scrutiny and examination of infidels. There are other arguments, deducible from the permanence of the positive institutions of Christianity, which are a kind of monuments of its truth and divine original; and others again, of the presumptive kind, furnished by the history of the *Acts of the Apostles*; which see. Dr. Leland has given an excellent summary of the evidences of Christianity, in his "View of the Deistical Writers, vol. i. p. 411, &c." See also Beattie's "Evidences, &c." and Paley's "View of the Evidences of Christianity, vol. i." Macknight's "Truth of the Gospel History." "An Answer to the Question, Why are you a Christian?" by John Clarke, minister of a church in Boston, 6th ed. Lond. 1803. See APOSTLES, BIBLE, CANON, GOSPEL, RELIGION, REVELATION, TESTAMENT, &c."

The argument in proof of the truth of Christianity, to which we have above referred, deduced from its sudden and extensive propagation, and permanent duration, deserves, on various accounts, to be more amply stated, and to be vindicated from the objections that have been alleged against it. No just and satisfactory reason can be given for its speedy diffusion, general prevalence, and continued subsistence in the world; without admitting its divine original, and the supernatural efficacy that contributed to its reception and propagation. In its own nature and avowed design, it had to encounter with a host of enemies both among Jews and Heathens; whose passions and prejudices, secular interest and honour, and established habits and usages, would combine in discouraging its advocates and raising obstacles, which it would be difficult to surmount. More especially when we consider that independently of its claims to a divine origin, and of the supernatural power which accompanied it, the missionaries in the Christian cause laboured under a variety of personal and local disadvantages. They were destitute of those natural talents and acquired accomplishments, and of that authority and influence usually resulting from rank and opulence, which would of themselves have contributed to their favourable reception with the multitude. Nevertheless, Christianity "grew mightily and prevailed;" of the weapons that were wielded against it by prejudice and error, talents and learning, wealth and worldly power, none eventually prospered. Many circumstances concurred, indeed, to favour its reception and spread soon after the time, when it was introduced. This was the precise period, which had been predicted many ages before it occurred. This was the time in which a general expectation of the Messiah or Saviour prevailed. At this time the Jewish system both of doctrine and practice was become ex-

tremely corrupt, and the inquiries of the studious heathens had been found insufficient to satisfy them on the most important and interesting subjects. There are also several other collateral circumstances, which mark the period in which our Saviour appeared as the most proper for the introduction, establishment, and propagation of the religion which he communicated to mankind. This was an age of general knowledge and inquiry, when genius and science were cultivated and promoted, both in Greece and Rome, and when the human mind was beginning to emancipate itself from that blind and obstinate attachment to old opinions and systems, venerable merely on account of their antiquity, which is inseparable from ignorance and barbarity. This was an age in which men began to discover a very general disposition for moral inquiries; and in which some of the most distinguished sages and philosophers flourished. The Augustan age is proverbially celebrated for its refinement and culture; for the knowledge and investigation by which it was distinguished. This was a period of general peace throughout the whole Roman empire. It was likewise a period of general toleration and liberty; it was also a time, in which by the wide extent of the Roman empire, an intercourse was opened and maintained between the inhabitants of very distant nations; and this intercourse was farther promoted by the dispersion of Jews and Christians in consequence of the destruction of Jerusalem and the dissolution of the Jewish state. The Greek language at this time was almost universal; and, therefore, the inspired writers, whose gospels and epistles were published in this language, enjoyed peculiar advantage for extending the knowledge of the sacred doctrines, precepts, and institutions of Christianity. Our limits will not allow our enlarging on these particulars; and we must, therefore, content ourselves with merely suggesting them.

Of the success and prevalence of Christianity, during the apostolic age, we have already given a brief account under the article APOSTLES. In process of time, it made a wonderful progress through Europe, Asia, and Africa; and its progress was much accelerated by means of the wide extent of the Roman empire, and by a variety of circumstances which took place, at and soon after the period of its first introduction. In the third century there were Christians in the camp, in the senate, and in the palace; in short, everywhere, as we are informed, except in the temples and theatres; they filled the towns, the country, and the islands. Men and women of all ages and ranks, and even those of the first dignity, embraced the Christian faith; inasmuch that the Pagans complained that the revenues of their temples were ruined. They were in such great numbers in the empire, that, as Tertullian expresses it, if they had retired into another country, they would have left the Romans only a frightful solitude. For the further illustration of this argument, we may observe that the Christian religion was introduced everywhere in opposition to the sword of the magistrate, the craft and interest of the priests, the pride of the philosophers, the passions and prejudices of the people, all closely combined in support of the national worship, and to crush the Christian faith, which aimed at the subversion of heathenism and idolatry, and the abrogation of the Jewish law. Moreover, this religion was not propagated in the dark, by persons who tacitly endeavoured to deceive the credulous; nor delivered out by little and little, so that one doctrine might prepare the way for the reception of another; but it was fully and without disguise laid before men all at once, that they might judge of the whole under one view of it. Consequently mankind were not deluded into the belief of it, but received it upon proper examination and conviction.

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tion. Besides, the gospel was first preached and first believed by multitudes in Judæa, where Jesus exercised his ministry, and where every individual had access to know whether the things that were told him were matters of fact; and in this country, the scene of the principal transactions on which its credibility depended, the history of Christ would never have been received, unless it had been true, and known to all as truth; again, the doctrine and history of Jesus were preached and believed in the most noted countries and cities of the world, in the very age when he is said to have lived. On the 50th day after our Lord's crucifixion, 3000 persons were converted in Jerusalem, by a single sermon of the apostles; and a few weeks after this, 5000 who believed were present at another sermon preached also in Jerusalem. (Acts ii. 41. iv. 4. vi. 7. viii. 1. ix. 1. 20.) About 8 or 10 years after our Lord's death, the disciples were become so numerous at Jerusalem and in the adjacent country, that they were objects of jealousy and alarm to Herod himself. (Acts, xii. 1.) In the 22d year after the crucifixion, the disciples in Judæa are said to have been many *myriads*. (Acts, xxi. 20.) See APOSTLES. The age, in which Christianity was introduced and received, was famous for men, whose faculties were improved by the most perfect state of social life, but who were good judges of the evidence offered in support of the facts recorded in the gospel-history. For it should be recollected, that the success of the gospel was not restricted to Judæa; but it was preached in all the different provinces of the Roman empire. The first triumphs of Christianity were in the heart of Greece itself, the nursery of learning and the polite arts; for churches were planted at a very early period at Corinth, Ephesus, Beroa, Thessalonica, and Philippi. Even Rome herself, the seat of wealth and empire, was not able to resist the force of truth, at a time when the facts related were recent, and when they might, if they had been false, have easily been disproved. From Greece and Rome, at a period of cultivation and refinement, of general peace, and extensive intercourse, when one great empire united different nations and distant people, the confutation of these facts would very soon have passed from one country to another, to the utter confusion of the persons who endeavoured to propagate the belief of them. Farther, although most of the early converts were persons in the middle and lower classes of life, yet even these, in an age of such general knowledge and intercourse, were sufficiently secured against every kind of false pretensions; and as for the more ignorant, their attachment to their first religious notions would be strong; and consequently, miracles, or unquestionable operations of divine power, would be necessary to convince persons of this rank and character, and to induce them to change their principles. Their conversion, therefore, affords an incontestible argument in proof of the facts by which it was accomplished. It should here be considered that the religion to which they were proselyted was *exclusive*. It denied, without reserve, the truth of every article of heathen mythology, the existence of every object of their worship. It accepted no compromise; it admitted no comprehension. If it prevailed at all, it must prevail by the overthrow of every statue, altar, and temple in the world. It pronounced all other gods to be false, and all other worship vain. These are considerations which must have strengthened the opposition to it, augmented the hostility which it must encounter, and enhanced the difficulty of gaining proselytes. More especially when we recollect, that among the first converts to Christianity in the earliest age, a number of persons remarkable for their station, office, genius, education, and fortune, and who were personally interested by their emolu-

ments and honours in the continued subsistence either of Judaism or heathenism, appeared among the Christian proselytes. Its evidences approved themselves, not only to the multitude, but to men of the most refined sense and most distinguished abilities; and it dissolved the attachments which all-powerful interest and authority created and upheld. Among the proselytes to Christianity we find Nicodemus, and Joseph of Arimathea, members of the senate of Israel; Jairus, a ruler of the synagogue; Zaccheus, the chief of the publicans at Jericho; Apollos, distinguished for eloquence; Paul, learned in the Jewish law; Sergius Paulus, governor of the island of Cyprus; Cornelius, a Roman captain; Dionysius, a judge and senator of the Athenian Areopagus; Erastus, treasurer of Corinth; Tyrannus, a teacher of grammar and rhetoric at Corinth; Publius, governor of Malta; Philemon, a person of considerable rank at Colosse; Simon, a magician in Samaria; Zenas, a lawyer; and even the domestics of the emperor himself. These are noticed in the sacred writings; and the heathen historians also mention some persons of great note who were converted at an early period. To all the preceding circumstances we may add a consideration of peculiar moment, which is, that the profession of Christianity led all, without exception, to renounce the world, and to expose themselves to the most ignominious and excruciating sufferings. On the other hand, we should reflect on the character and condition of the persons, who persuaded mankind to change their belief, and to abandon all their former connections and habits. They were a few, selected from the meanest of the people, and they belonged to a nation that was despised on account of the ill-will which they bore to the rest of mankind. By such persons were thousands prevailed upon in a very short time to change their belief and to reform their lives. And, without adding any more in this way, the Christian religion, thus introduced by the power of God and of truth, has been supported in the world by the same powers through a course of many ages, amidst the corruptions of its friends, the opposition of its enemies, the dangers of prosperous periods, and the persecutions and violence of adverse circumstances; all which must have destroyed it, if it had not been founded in truth, and guarded by the protection of an Almighty providence.

Mr. Gibbon, the elegant and instructive historian, has endeavoured to account for the wonderful propagation of Christianity, independently of its truth and divine original, in a manner which tends, in our opinion, to make an impression on the mind of his reader not at all advantageous to our holy religion. To the inquiry by what means the Christian faith obtained so remarkable a victory over the established religions of the earth, he says, an obvious but satisfactory answer may be returned; that it was owing to the convincing evidence of the doctrine itself, and to the ruling providence of its great author. But afterwards, in assigning for this astonishing event, *five* secondary causes, derived from the passions of the human heart and the general circumstances of mankind, he seems to have insinuated, that Christianity, like other impostures, might have made its way in the world, though its origin had been as human as the means by which he supposes it was rapidly spread. Whether it was his intention to depreciate the primary means by which Christianity prevailed, and to intimate his dissatisfaction with the obvious answer which others have returned to the inquiry concerning its reception and spread, we shall not presume to determine; but we may be allowed to say, without incurring the charge of want of candour, that his reasoning on this subject has a tendency to divert the attention of his readers from the principal cause of the triumph of Christianity to other causes less favourable to its truth

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and divine original, and altogether inadequate to this great event. As the subject is in a high degree important and interesting, we shall here avail ourselves of the replies that have been made by the advocates of Christianity, and particularly by the learned and ingenious Dr. Watson, bishop of Landaff, to the reasoning of the acute historian.

The *first* cause, which he alleges, is, "the inflexible, and, if we may use the expression (he says), the intolerant zeal of the Christians, derived, it is true, from the Jewish religion, but purified from the narrow and unsocial spirit, which, instead of inviting, had deterred the Gentiles from embracing the law of Moses." The zeal of the Christians is allowed to have been inflexible, as far as it concerned a steady adherence to their religious principles and profession, and intolerant, in not admitting to Christian worship those who supplicated the image of Cæsar, who bowed down at the altars of Paganism, who mixed with the votaries of Venus, or wallowed in the filth of Bacchanalian festivals; but, instead of deducing it, as Mr. Gibbon does, from the Jewish religion, it ought to be ascribed to a full persuasion of the truth of Christianity. The zeal of the apostles or primitive Christians did not bear the slightest similitude to the fierceness and bigotry of the Jews; it was derived from very different causes, and aimed at far nobler ends. It is not conceivable, that a zeal resulting from the Jewish religion should urge the Christians to propagate the gospel amongst Jews as well as Gentiles; and that such a zeal as Mr. Gibbon has described, whatever might be its principle, should ever have been devised by any human understanding as a probable mean of promoting the progress of a reformation in religion; much less that it should have been thought of or adopted by a few ignorant and unconnected men.

The *second* cause to which Mr. Gibbon has attributed the rapid growth of Christianity is, "the doctrine of a future life, improved by every additional circumstance which could give weight and efficacy to that important truth." Such a doctrine is unquestionably congenial to the nature of man as a moral and accountable agent; it is repeatedly inculcated in the gospel, and must ultimately, and in a favourable state of things, have increased its efficacy; but, considering the circumstances of the persons to whom this doctrine, in its whole extent, as comprehending punishments and rewards, and the immortality of the soul, in connection with the resurrection, was delivered, it is not likely that, abstracted from the supernatural testimony by which it was enforced, it could have met with any very extensive reception among them. It was not the kind of future life, which they expected. Future punishments, which constituted a prominent part of this doctrine, were reckoned by the philosophers among the *aniles fabulas*; nor was the absurdity of this part of the Christian doctrine confined to the writings of the philosophers, and to the circles of the learned and polite; but Cicero makes no secret of it in his public pleadings before the people at large. Besides, its rewards were not attractive, nor were they such as the multitude wished. The pride of the philosopher was shocked by the doctrine of a resurrection, the mode of which he was unable to comprehend: and the imaginations of other men were feebly impressed by the representation of a future life, which did not portray the serene sky, the verdant garden, and the luxurious enjoyments of an Elysium. Upon the whole, the Christian doctrine of a future life was neither agreeable to the expectations, nor corresponding with the wishes, nor conformable to the reason of the Gentiles: and it, therefore, afforded no inducements for their receiving it, and, in consequence of their belief, regulating their loose morals according to the rigid standard of gospel purity, upon the mere authority of

a few contemptible fishermen of Judæa. Mr. Gibbon himself observes in another place, that the "Pagan multitude, reserving their gratitude for temporal benefits alone, rejected the inestimable present of life and immortality, which was offered to mankind by Jesus of Nazareth." When this writer ascribes the conversion of the Gentiles to the influence of their fears, excited, as he pretends, but without sufficient reason, by the expectation of Christ's speedy appearance, of the millennium (which see,) and of the general conflagration; it is natural to ask from what source they derived those fears which converted them? not, we may say, from the labours of such men, as the apostles and first preachers of Christianity, who from their mean condition and rude speech were very ill adapted to inspire the haughty and the learned Romans with any other passions than those of pity or contempt.

"The miraculous powers ascribed to the primitive church," are the *third* of the secondary causes to which Mr. G. ascribes the rapid propagation of Christianity. It must be allowed that the miracles, not merely ascribed to the primitive church, but really performed by the apostles, ought to be considered not only as a secondary, but as one great primary cause of the conversion of the Gentiles. But the miraculous powers attributed by Mr. Gibbon to the primitive church, and which he describes with a degree of derision, implying his scepticism or incredulity concerning them, were by no means calculated, at least in any eminent degree, to spread the belief of Christianity amongst a great and an enlightened people. When we consider that the pretended miracles of the heathens were so numerous as to have insensibly lost their force, and sunk in their esteem, those that were ascribed to the first propagators of Christianity must have created an immediate and stubborn prejudice against their cause; and nothing could have subdued that prejudice, but miracles, really and visibly performed. See MIRACLE.

The utility of Mr. Gibbon's *fourth* cause, viz. "the virtues of the first Christians," cannot be disputed; as they very much conduced to the spread of their religion: but these virtues are depreciated by his representation of them, as proceeding from their mean and timid repentance for having been the most abandoned sinners, or from an impetuous zeal in supporting the reputation of the sect or society to which they belonged. "After the example of their divine master," says Mr. G. in language that more than insinuates unmerited reproach, "the missionaries of the gospel disdained not the society of men, and especially of women, oppressed by the consciousness, and very often by the effects of their vices." The pernicious tendency of such a declaration, connected with the gross misrepresentation implied in it, reflects reproach on the character of the historian, and seems to indicate a design to degrade the importance of Christianity and to expose it to contempt. But whatever may be its effect on the heedless and dissipated, it supplies its own antidote in the estimation of the impartial, thoughtful, and judicious, who will not fail to distinguish between assertion and fact. Very contrary to the declaration of Mr. G. was the conduct enjoined on the first teachers of Christianity; for they were ordered to turn away from, to have no fellowship or intercourse with, such as were wont "to creep into houses, and lead captive silly women laden with sins, led away with divers lusts." And if a few women, who had either been seduced by their passions, or had fallen victims to the licentious manners of their age, should be found amongst those who were most ready to receive a religion that forbade all impurity; this circumstance cannot warrant an insinuation of discredit, either upon the sex, or upon those

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those who wrought their reformation. The attention manifested by the primitive Christians with regard to their conduct is invidiously ascribed to improper motives; whereas their solicitude to avoid reproach in this respect might as candidly, perhaps, and as reasonably, be derived from a sense of their duty, and an honest endeavour to discharge it, as from the mere desire of increasing the honour of their confraternity by the illustrious integrity of its members. After all, the austere morality of the primitive Christians, which Mr. G. describes as adverse to the propensities of sense, and abhorrent from all the innocent pleasures, and amusements of life, is exhibited under such dismal colouring, that instead of alluring persons to a closer inspection of it, it must have made every man of pleasure or of sense to turn away from it with horror or disgust; and so far from contributing to the rapid growth of Christianity, it must excite wonder, how the first Christians ever made a single convert. The aversion of Christians from the business of war and government is charged upon them by Mr. G. as a criminal disregard to the public welfare. By way of general reply it may be observed, that Christianity does not concern itself with ordering the constitutions of civil societies, but levels its whole influence at the hearts of individuals who compose them; and, as Origen said to Celsus, if every individual in every nation was a gospel Christian, there would be neither internal injustice, nor external war; there would be none of those passions which embitter the intercourse of civil life, and desolate the globe. It can therefore be no reproach to the Christian religion, that it should inculcate doctrines, which, if universally practised, would introduce universal tranquillity, and the most exalted happiness amongst mankind. Nothing but a total misapprehension of the design of the Christian dispensation, or a misinterpretation of particular injunctions, forbidding its votaries to make riches or honours a primary pursuit, or the prompt gratification of revenge a first principle of action, can lead any one to infer, that a Christian is obliged to offer his throat to an assassin, and his property to the first plunderer; or that a society of Christians may not repel, in the best manner they are able, the unjust assaults of hostile invasion. No precepts of the gospel, whatever may be asserted or insinuated to the contrary, debar a man from the possession of domestic comforts, or deaden the activity of his private friendships, or prohibit the exertion of his utmost ability in the service of the public.

The fifth and last secondary cause of the rapid and extensive spread of Christianity, mentioned by Mr. G. is "the union and the discipline of the Christian church." Union, it must be allowed, is strength to every association; and it is much to be wished, that it could be found even in the early period of the Christian dispensation, and much to be lamented that the too general defect of it has been the reproach of Christians from the apostolic age to our own. There was, indeed, a certain community of doctrine, an intercourse of hospitality, and a confederacy of discipline established among the individuals of every church; so that none could be admitted into any assembly of Christians without undergoing a previous examination into his manner of life, and without protesting in the most solemn manner that they would not be guilty of murder, adultery, theft, or perjury. It may be also granted, that those who broke this compact were ejected by common consent from the confraternity into which they had been admitted; and this confederacy extended itself to independent churches; so that those who had, for their immoralities, been excluded from Christian community in any one church, were rarely, if ever, admitted to this privilege by another:—but it is not

admitted, that this severity and this union of discipline could ever have induced the Pagans to forsake the gods of their country, and to expose themselves to the contemptuous hatred of their neighbours, and to all the severities of persecution, exercised with unrelenting barbarity, against the Christians. After this brief abstract of the reasoning of Mr. Gibbon, and the replies of the advocates of Christianity on the subject of its propagation, we must refer to Gibbon's History of the Decline and Fall of the Roman Empire, vol. ii. chap. 15. Bp. Watson's Apology for Christianity, passim; White's Sermons, Sermon III. and other writers who have either directly or indirectly written on the same subject. See COMMUNITY of Goods, EXCOMMUNICATION, PENANCE, PERSECUTION, &c.

CHRISTIAN I., in *Biography*, king of Denmark, son of Theodoric count of Oldenburg, was elected to the throne in the year 1448. and in him we behold the founder of the royal house of Oldenburg, which still possesses the throne of Denmark. He owed his elevation as well to his lineal descent from Eric VII. as to the moderation of his uncle Adolphus, duke of Sleswick, to whom the crown was offered upon the death of Christopher of Bavaria without issue. Adolphus declined the honour on account of his advanced age, and recommended, in his stead, Christian, then twenty-two years of age. In the same year that he ascended the throne of Denmark, he was crowned king of Norway, in right of his descent from one of their ancient kings. After some struggles he obtained also the crown of Sweden in 1558, upon the deposition of Charles Canutson. About the same time the duchy of Sleswick reverted to the crown of Denmark, and Christian obtained possession of the counties of Holstein and Stormar. The Swedes, in a short time, grew discontented with the government of Christian, who neglected to visit them, and had applied the public money in the purchase of Holstein and Stormar. To put an end to their machinations, Christian seized the archbishop of Upsal, whom he suspected, and sent him prisoner to Denmark. This action caused an open revolt, and led to the deposition of the king. From this period Christian abandoned all projects of ambition, and attended to the concerns of his own kingdom. He was distinguished for his liberality to the clergy, and in 1473 made a pilgrimage to Rome, where he was received with extraordinary honours. On his return he founded the university of Copenhagen, and died in 1481, after a reign of thirty-three years. He was a sovereign of great moderation and humanity, whose qualities, being less shining than solid, were more adapted to the administration of his own government, than to the exploits of war. By Mallet, the most celebrated of Danish historians, Christian I. is characterised as one of those princes who do not attract the admiration of mankind, yet whom Providence never bestows upon a nation but as a signal mark of favour. Christian was succeeded by his son John, whom he had already associated with himself in this throne.

CHRISTIAN II. king of Denmark, was born in 1481, the same year in which his grand-father died. In his youth he discovered a lively genius and a good understanding, which, if they had been properly cultivated, might have rendered him the ornament, instead of becoming, as he proved, the disgrace of his country. The young prince was first entrusted to the care of a common burgher of Copenhagen, and was afterwards removed to the house of a school-master, who was canon of the cathedral. In this situation his chief employment consisted in regularly accompanying his master to church, where he distinguished himself beyond the other scholars and choristers in chanting, and singing psalms. He was afterwards placed under the tuition of a German preceptor,

ceptor, under whom he made a considerable proficiency in the Latin tongue. From this humble education, or from other circumstances not known to the world, Christian imbibed a taste for bad company; was accustomed to haunt common taverns, to mix with the lowest of the populace, and was, in short, guilty of almost every excess. The king, his father, who had, unintentionally, been the cause of his son's misconduct, was now indignant at the irregularities which were become notorious to the whole country, but the bad habits which the prince had contracted were too strongly rooted to yield to any effort. He nevertheless feigned contrition for his past behaviour, and recalled his father's affections by his military prowess and successes in Norway, and by an unwearied application to the affairs of government. He succeeded his father in 1513, and during the first years of his reign, his administration was in many respects worthy of praise, and the excellence of his laws induced Holberg to affirm, that if the character of Christian II. were to be determined by his laws, and not by his actions, he would merit the appellation of Good, rather than of Tyrant. Foreseeing the difficulties he should meet with in obtaining the crown of Sweden, he resolved to strengthen himself by an alliance with the house of Austria, and accordingly married Isabella, sister to the emperor Charles V. Notwithstanding this marriage, which was merely political, he kept a mistress named Columbula, in whose favours he suspected that Torbern Oxy, a young nobleman, had participated. The monarch, amidst the festivity of banquet, urged him to avow the fact. The young man possessed a mind incapable of falsehood; he acknowledged, that he had loved Columbula, and had solicited, but never obtained her favours. He was instantly arrested, imprisoned, and arraigned; but by the senate Torbern was acquitted, because the law had assigned no punishment for simple concupiscence. Dissatisfied with this decision, Christian assembled another tribunal, where he had him convicted and immediately executed. In 1517 Lutheranism began to excite attention; and in Denmark it was favoured by the king, who hoped it might lead to the confiscation of the church lands. He was, however, obliged to submit to the pope, and to sue, through the house of Austria, for a reconciliation with the holy see. The domestic government of Christian became more oppressive, chiefly through the extortions contrived by Sigebrette, the mother of Columbula, who had the complete confidence of the king. This base woman, who felt no compassion for the poor, nor regard for the rich: who paid no respect to the laws, and who acknowledged no other rule than the passions of the monarch, commanded with despotic authority, disposed of all places and preferments, imposed taxes at pleasure, and exacted them with such rigour, that the household furniture and cloathing of those who did not pay them were seized and publicly sold. In 1519 Christian renewed the war against Sweden, defeated and killed the administrator of that country, and through the treachery of the archbishop of Upsal, he was in the succeeding year recognized king of Sweden. He fixed upon the following November for his coronation, and then returned to Denmark, where, with two of his prelates, he concerted one of the most atrocious and sanguinary projects that stands recorded in history. Returning to Sweden, he convoked the assembly of the states, and was publicly crowned at Stockholm. After the ceremonial, the Swedish nobility were invited to a splendid entertainment, and received with the utmost affability. In the midst of the festivity, he caused the soldiers to arrest the administrator's widow, the senate, and the principal nobility; and after accusing them of various crimes for which there was no pretence, he instituted a mock

prosecution by Danish commissioners. The process was, however, too slow for his blood-thirsty disposition; he caused a summary condemnation to be pronounced, and they were led to instant execution. Four score or ninety noblemen and senators of the first rank, both of the laity and clergy, were in one day hanged on gibbets, as felons or traitors. Not contented with this exhibition of his savage cruelty, to conclude the scene, the soldiers were ordered to butcher the surrounding spectators, and the burghers of the city. He even caused the administrator's body to be dug from its grave, which, in its putrid state, he tore to pieces with his teeth and nails like a wild beast. His progress on his return to Denmark was marked with blood, and he left no memorials behind him but those of cruelty.

The massacre of Stockholm, in which six hundred persons were murdered in cold blood, and amidst the rejoicings of a coronation, exhibited such a striking instance of the malignant and implacable character of the king, that upon the revolt of Gustavus Vasa, the spirit of resistance diffused itself rapidly from Sweden to Denmark, where he had exasperated his subjects by repeated cruelties and oppressions. In 1523 he was publicly deposed by the states of Denmark, and the crown transferred to his uncle Frederic, duke of Holstein. The deposition of this infamous tyrant was in consequence only of the just abhorrence in which he was held by all ranks of people. For several years he submitted without a struggle to the ignominy of banishment, but in 1532 he invaded the Danish dominions, and was taken prisoner. The place of his confinement was a dungeon in the castle of Sunderborg, in the isle of Alsens. Having entered the gloomy cell, with a favourite dwarf, the sole companion of his misery, the door was instantly blocked up. In this state he remained till the year 1546, when he made a solemn renunciation for himself and heirs of all claims to the crowns of Denmark and Norway, and promised never to go out of the fortrefs of Callemburg without the king's consent, and never to speak to a stranger but in the governor's presence. On these conditions he was allowed the privilege of hunting and fishing, within certain limits, and received a handsome appointment, and other advantages were stipulated for him in a treaty concluded between the king of Denmark and the emperor at Spire. In this retreat did Christian reach his seventy-eighth year, enjoying a degree of comfort to which his many crimes gave no title whatever. He died in 1559, leaving two daughters, one electress Palatine, the other, duchess first of Milan, then of Lorraine. Of himself is left the character of the Nero of the North. It is said, that during his imprisonment, he was occasionally so much affected with reflections on his past conduct, that he would burst into tears, throw himself upon the ground, utter the most bitter lamentations, and continue for some time in a state approaching to insanity.

There were several other monarchs of Sweden of the name of Christian, concerning whom little need be said.

CHRISTIAN III. succeeded Frederic in 1534; he embraced the Lutheran religion, introduced it among his subjects, and at length established it as the religion of the state. This prince united in his character firmness and moderation: he was a lover of letters and learned men, and founded a valuable library at Copenhagen. He died in 1558, and was succeeded by Frederic II., who was followed in 1588 by

CHRISTIAN IV. This prince ascended the throne before he was twelve years of age. The regency paid every attention to his education, and masters were procured in all the various accomplishments of mind and body from different parts of Europe, to whose exertions the prince did the greatest credit. He was able to converse with all the ambas-

fadours from foreign courts, and, at an early period, to dictate to his own ministers who were abroad. In 1611 he made war against Sweden, and was elected chief of the Protestant league against the emperor for the re-establishment of the prince palatine in 1625. The several wars in which he was engaged were detrimental to the finances of his country. He died in 1648, leaving a high character for vigour of mind and body. He was a slave to violent passions, which gained strength with increasing years. He was addicted to women, a circumstance that injured his reputation. It must, however, be admitted in his praise, that he was a firm and intrepid warrior, a prince of extensive genius, and possessing great generosity and magnanimity.

CHRISTIAN V. ascended the throne of Denmark in 1670. He found his kingdom involved in various foreign and domestic disputes, which led him to employ the first years of his reign in putting the revenue into a state of order, restoring discipline among his troops, and strengthening his fortifications. In 1675 he joined the league against Sweden, and in the war between the Danes and their allies with the Swedes, Christian displayed great activity and enterprise. His fleet, in conjunction with that of the Dutch under Van Tromp, completely defeated that of the Swedes. For two years the king was generally successful in all his undertakings, but in 1677 the tide of victory seemed to turn against him, and in 1679 he was glad to conclude a peace. From this period he aimed to settle all disputes with foreign powers by means of negotiation. He attempted to gain possession of Hamburg, and obtained at first a considerable tribute from that city, but his conduct there led the neighbouring princes to guarantee its protection. Christian died in 1699, at the age of fifty-four, when his subjects were enjoying the fruits of his mature wisdom and reputation. As a prince he had established a high character, and claimed respect throughout Europe. As a man, he spoke with fluency most foreign languages, was a promoter of the sciences, and had made great progress in those branches of the mathematics which relate to the military art. See DENMARK. Mod. Univerf. Hist. Coxe's Travels. Du Fresnoy.

CHRISTIAN, ANDREW, born at Rippen, a small town in Denmark, in 1551. He received the rudiments of his education at Wittenburg, which he perfected at Balle, where he took his degree of doctor in medicine. Being called to Copenhagen, he taught medicine there for fifteen years, at the end of which time he was sent by his sovereign, Christian IV. to preside in the college of nobles lately established at Sorø. In this situation he died in 1606. The work by which he is known, is entitled "Enchiridion Medicum, de cognoscendis, curandisque externis et internis Humani Corporis Morbis," Basilæ, 1583, 8vo. It contains, in epitome, the method, then most approved, of treating diseases; as such it was several times re-printed. Haller. Bib. Eloy. Dict. Hist.

CHRISTIANA, in *Geography*, a post-town of America, in the state of Delaware and county of Newcastle, seated on a navigable creek of the same name, which falls into Delaware river from the south-west, a little below Wilmington. The town, consisting of about 50 houses and a Presbyterian church, stands on a declivity, commanding a pleasant prospect of the country towards the Delaware, and carries on a considerable trade with Philadelphia in flour. This is the greatest carrying-place between the navigable waters of the Delaware and Chesapeake, which are here 13 miles apart. It was built by the Swedes in 1640, and derived its name from that of their queen. It is 9 miles S.W. of Wilmington, and 37 S.W. of Philadelphia.

CHRISTIANA, *Great and Little*, two islets in the Grecian Archipelago, situated 2 leagues S.W. of Santorin.

CHRISTIANA, or CHRISTINA, *Santa*, one of the Marquesas islands, called by the natives *Ohitaboo*, or *Waitabá*, lying under the same parallel with St. Pedro, or Onateaya, 3 or 4 leagues more to the west. Resolution bay, near the middle of the west coast of the island, lies in S. lat. $9^{\circ} 55' 30''$, and W. long. $139^{\circ} 8' 40''$; and the west end of Dominica, or Ohevahooa, lies N. 15° W. Capt. Cook gave this bay the name of his ship. By the Spaniards it was called Port Madre de Dios. It is not more than 2 miles across at its mouth by $\frac{3}{4}$ of a mile in depth; and the two points which form it lie, with respect to each other, in a north by east and south by west direction. The south point is terminated by a steep rock, and a hill of gentle declivity terminates the north point, which is formed by bold and excavated rocks, and is covered with "casuarinas," the large trees, whose hard and heavy wood is used for making clubs and other weapons. The lands at the bottom of the bay present a chain of high hills, slightly broken at their summits, and steep in several places. Mr. G. Forster says, that the bottom of the harbour is filled up with a very high ridge, level at top, and resembling the Table-mountain at the Cape of Good Hope. With the exception of two small coves, which both receive a rivulet, and where an accessible beach occurs, the remainder of the circumference of the bay exhibits, throughout, nothing but bold rocks, close to which the lead indicates a coral bottom, with a depth of water of 20 fathoms and upwards. One of these coves is called the "North Cove," the other the "South Cove." Two valleys, well covered with trees, terminate at the north cove, and a pretty rivulet, after having fertilised the lands, affords, at its mouth, a good watering-place for ships. The bottom of the bay is sandy, excellent for holding, over a depth of water, which shoals, towards the shore, from 36 to 13 or 14 fathoms. Fresh water of the best quality is procured in the North Cove, and wood is also easily obtained. It appears from different accounts, that the springs and rivers of the island are subject to considerable augmentations and diminutions; and alternate inundations or drought oblige the natives to remove their dwellings from one part of the island to another. The huts or cabins occupied by the inhabitants are built on a little platform of stones, raised somewhat above the level of the ground. The walls are formed with bamboo-canes, 7 or 8 feet high, placed close together; and the roof, the middle of which rises 9 or 10 feet above the foundation, is formed by other bamboos laid in a parallel direction, one above the other, and covered with leaves of a species of the fan-palm, or of the bread-fruit tree. The roofs are ridged, so as to carry off the water by a double slope; and in one of the fronts are a door and window. These cabins are, in general, 9 or 10 feet long, by 5 or 6 broad, and some are square. The floor is paved with large stones, joined together very neatly, and covered with mats. On the outside of these habitations are platforms, on which the natives sit down and amuse themselves; and these are paved, in order to guard against damp in the rainy season. The religious ceremonies of the inhabitants resemble those of the Society Islands. The French, during their stay here, discovered nothing that had the appearance of worship to a Supreme Being. Pleasure is the divinity of the country; they have no superstition, no ceremony, no priests or jugglers, says Marchand. In each district they have a morai, where the dead are buried beneath a pavement of large stones. They have a multitude of deities; and they only offer hogs in their sacrifices, but never men. They have no regular government,

ment, established law, or punishments; but custom is the general rule. Their chief food is the hog, which they eat five or six times a day, without having any regular meals. Their pork, and also their fowls, they dress in ovens dug in the ground, and heated with stones; sometimes in wooden vessels, where the water is made to boil by means of hot stones, which they throw into it repeatedly. Not unfrequently they eat fish raw, and even pork. They know how to extract from the cocoa-nut an oil, which is probably employed in the dressing of their dishes; but which is principally used for anointing the whole body: the women consume great quantities of it in maintaining the gloss and beauty of their hair. When they are destitute of animal food, they use the roasted bread-fruit, fish, mahie, pudding made of it and other vegetables, a kind of walnuts, and a paste made of a root resembling the yam. Their common drink is pure water, and also cocoa-nut milk. They also prepare a strong liquor, either of pepper-root, which they use as a token of peace, or of the root of ginger; but they are temperate in the use of it, and no instance of intoxication occurs amongst them. To their friends they manifest their civility in a singular manner, by offering to them bits which they have previously chewed, in order to put them to no other trouble than that of swallowing what is thus prepared. The women are not allowed to eat hog, and are probably under other prohibitions, as at Otaheite, and seem much more servile to the men, and more harshly treated. It has been said that the women are not allowed to mess with the men, as is the case in other islands; but Capt. Chanal says that he was several times at their meals, and that he saw the men, women, and children eat in common, and feed on the same dishes. They are employed in making cloth and matting, but not in cookery, except for themselves. The men seldom work, some old persons excepted, who make cords and nets. The rest bask indolently in the sun, telling their stories, and thus beguiling their time. The chief is said to have three wives, and has several children; but polygamy seems to be a privilege restricted to the chief. From what is known, however, of the disposition and manners of the natives of St. Christiana, we may hesitate in admitting that they are at all acquainted with conjugal union; at least it is certain, that the men know no more of jealousy than the women do of fidelity. Every woman seems to be the wife of all the men; and every man the husband of all the women. Every man makes to strangers the offer of every woman without any distinction. The Spaniards lead us to believe that the women are common without any distinction of age or kindred; but surgeon Roblet assures us, that the intimate union of the sexes between relations is rigorously prohibited; but he cannot assign the degree of relationship to which the prohibition extends. These people appear to be very fond of their children. Before the age of puberty, the operation of sitting the prepucce, is performed; and all the men are tattooed (see TATTOOING), even to the lips and eye-lids. They have few diseases, and, as the missionaries say, are yet happily free from the fatal malady which has made such ravages in the Society Islands. Capt. Cook, in his Second Voyage, describes them as surpassing all other nations in symmetry of shape and regular features. His observations have been confirmed by those of Capt. Chanal and surgeon Roblet, recorded by Marchand. Not a single deformed or ill-proportioned person was seen on the island; all were strong, tall, well-limbed, and remarkably active. The men are from 5 feet 10 inches high to 6 feet. Their eyes are not so full, nor their teeth so good as those of many other nations; but Capt. Chanal says, that they have fine large black eyes and handsome teeth; their hair is of various co-

lours, but none red; some have it long, but the general custom was to wear it short, except a bunch on each side of the crown, which is tied in a knot. In these respects there is a great variety; and also in their treatment of the beard. Those who preserve it at full length, which is commonly the case, arrange it in different ways; generally parting it into two tufts, and either shaving or plucking out the portion which belongs to the chin. When it is suffered to grow to its full length, it is parted into locks, of which they form braids, or to which they fasten the teeth of fishes, or of men, or small pieces of bone, shells, and beads of coloured glass, which they receive from the Europeans. Some eradicate the whole of the beard. On their heads they place various ornaments, formed of feathers, cloth, or cocoa-nut leaves, to which they suspend pearl oyster-shells, tortoise-shell, and pieces of mother of pearl, of various sizes and differently arranged; all which pieces being concentric, and of unequal diameter, form together a large cockade, striped circularly. This kind of diadem is sometimes surmounted by a plume. They also use various kinds of ornaments for the neck, which are composed of small pieces of light wood, with small red seeds attached to them with gum or size, or of red husks, or of polished bone, shells, white coral, or stone. Men and women have, in general, their ears pierced; but none habitually wear pendants. In the number of their most curious ornaments, they reckon all that they receive from strangers, and even all that they can steal from them; and every thing is hung to the neck, the ears, and the waist. They also adorn their heads, arms, waist, knees, and even insteps, as well as clubs and other weapons, with tresses or locks of hair, which may be that of the enemies whom they have slain in battle, or rather, when we consider their mild and placable disposition, that of their friends or deceased relatives. To their waist, and on their shoulders, they suspend one, two, and sometimes three skulls; but they are not so highly appreciated as the hair. They have, among their ornaments, large fans formed of the fibres of grass and whitened with lime, which they use for cooling themselves, and parasols made of large palm-leaves adorned with a variety of feathers. Their countenances are pleasing and open, and display much vivacity. Their complexion is tawny, and rendered almost black by the punctures of the whole body. Capt. Chanal thinks there are no such differences among individuals as warrant an inference, that there exist among them species essentially different. But the physical differences in individuals, noticed by surgeon Roblet, seemed to him to indicate a difference in the species. It is also known, that in order to designate the same object, they have several names which seem not to belong to the same language. Possibly the Mendoçans, from their mild and hospitable disposition, have been induced to receive strangers among them, thrown by storms or the chances of war on their coasts, and to incorporate them in the primitive nation, with which they are at this day confounded. They were entirely naked, except a small piece of cloth round their waist and loins. Their punctures were disposed with the utmost regularity, so that the marks on each leg, arm, and cheek, were in general similar. The women, who are extolled for their beauty, are rather of tall stature, though well-proportioned, and their general colour inclining to brown. Some few are punctured or tattooed. They wear a long narrow piece of cloth wrapped two or three times round their waist, and having the ends tucked up between their thighs; above this is a broad piece of cloth, nearly as large as a sheet, tied at the upper corners; they lay the knot over one shoulder, and the garment, hanging loose, reaches half-way down the leg. Their garments, however, are of little use to the females;

females; as they are a sort of amphibious animals, who spend a great part of the day in water; and appear there as much at their ease as if they were reclined on a mossy carpet, or sporting on a feather-bed. Among these females a very great degree of libertinism prevails; and they either sell or gratuitously give their favours to any indiscriminately who seek them. Surgeon Roblet describes the licentiousness of their amours, though in guarded language, in a manner that must disgust every chaste reader, and that shews their extreme degeneracy and indecorum. Their canoes are made of wood, and the bark of a soft tree, which grows near the sea; they are from 16 to 20 feet long, and about 16 inches broad. The head and stern are formed out of two solid pieces of wood; the former is curved, and the latter ends in a point, which projects horizontally, and is decorated with a rude carved figure, having a faint resemblance to a human face. Some of the canoes have a latteen sail, but they are generally rowed with paddles.

Their naval architecture, however, is still in its infancy, if we compare it with that of the Otaheitans. Sometimes two of their ill-constructed and leaking canoes are joined together; but they most commonly content themselves with adapting to them an outrigger, composed of two bamboos projecting laterally, and fastened at their outer extremities by a branch of a light wood, which forms the gunwale of the frame. These canoes carry from three to seven men, and from ten to fifteen when two are lashed together. If a canoe oversets, an accident not uncommon, the men jump overboard, right her, bale her out, and get into her again very quietly. Capt. Chanal says, that the construction of their houses and canoes evinces no inconsiderable share of industry and patience. In the fabrication of their weapons, they display great care and ingenuity. These consist of lances from nine to eleven feet long, a sort of sabre, pikes or javelins, and clubs, having at one extremity a large knob, and made of casuarina wood, ornamented with carving. In the rainy season they maintain intercourse with one another by means of stilts, composed of two pieces, so adapted to each other, as to admit of being accommodated to shallow or deep water.

Their tools, rude as they are, their fishing implements, differing very little from ours, and the various utensils, articles of furniture, garments and dresses, all announce intelligence and industry in the persons by whom they were invented, and also in those by whom they are fabricated. Their hatchet, which is a black and sharp stone, shaped like an elongated wedge, or a mortise chisel, and fastened to a piece of crooked wood by small fennit made of cocoa-nut bafs; their pieces of shell, formed in sharp-edged instruments and saws, and their rough skin of some fish, serve to fashion and polish their different works of carpentry and of sculpture. Their fishing implements, consisting of the scoop-net and the sweep-net, are made, some of them with cocoa-nut bafs, others with the cortical fibres of a species of nettle. The same materials are employed for making ropes, fennit, and mats. Their household utensils consist of calabashes of different capacities, which they contrive to stop so hermetically, that they may be employed for the conveyance of liquids, and of various wooden vessels used for their food; and on these they amuse themselves in carving and engraving figures of men, fishes, and birds. The substance of their cloths is the bark of the paper mulberry tree; and some are also made of the cortical fibres of the bread-fruit tree; and these not only wear tolerably well, but are sometimes dyed yellow. After all, the principal occupation of the natives of St. Christiana is to sing, dance, and amuse themselves. The music of Otaheite and of this island are much the same, and the inhabitants of both

make use of the same kind of drums. They amuse themselves in running on their stilts, and also in swimming, to which exercise they devote whole days, without any other nourishment besides the flesh and the milk of cocoa-nuts. Thus devoted to amusement and pleasure, the Mendoçans are an amiable, hospitable, and generous people. Although, from the levity and indolence that are natural to them, they are addicted to theft, yet they restore on the first demand, and even with laughter, the articles which they have purloined. Nevertheless robbery is not authorized, nor even tolerated at Santa Christiana: and whilst they steal from strangers, they observe the most scrupulous fidelity among one another. It is not easy to estimate the population of this island; but Marchand, allowing 1000 inhabitants for every league of coast, estimates the whole number at 7000.

On making a general comparison between the island of St. Christiana and that of Otaheite, it is evident that the former does not exhibit the opulence, the luxury, the profusion of food, the studied variety and vast quantity of cloth, which are remarked in the principal island of the great equinoxial ocean. The Taheiteans have many superfluities; they have made great advances towards civilization, and great progress, not only in the useful, but even in the agreeable arts. The Mendoçans possess a respectable competence, and in every respect a desirable degree of comfort, and their disposition inclines them not to wish for more than they enjoy; divided between pleasure and idleness, they appear sheltered from the political storms which must frequently disturb the government, partly monarchical, partly feudal, which is established among the Taheiteans. The latter have lost in liberty what they have acquired in civilization; one part lives by the labours of the other, and this is the natural and ordinary routine of great societies; they lead a sensual life; and hereditary diseases already begin to punish them for their excesses. The Mendoçans have preserved their primitive liberty in its full perfection; and every one lives through himself and for himself: the robust health which they enjoy is, without doubt, far preferable to that voluptuousness to which they are yet strangers. An European, I conceive, (says Marchand) would for himself prefer Taheitee to Waihiheto; but a Mendoçan would be much to blame, if he envied the lot of a Taheitean: by deviating more from nature, he could have little to gain, and, perhaps, much to lose.

The only tame fowls are cocks and hens, and their quadrupeds only hogs; but the woods are inhabited by small birds, whose plumage is exceedingly beautiful, and their notes sweetly varied.

The Oceanic birds, which frequent the bay, are man-of-war birds, tropic birds, boobies, and different species of terns and swallows.

Captain Cook, Mr. Reinhold Forster, and Messrs. Chanal and Roblet, have given a vocabulary of the words commonly used in this island; from which it appears, that the Mendoçans employ no difficult articulation, and that their language, notwithstanding the frequent aspirations, and the vehemence with which they are accustomed to express themselves, possesses sweetness and a sort of harmony.

The language of this island has a great affinity to that of the Society islands, or it is rather, as Marchand suggests, the same tongue; and if this be true, it proves, that, although the two archipelagos are separated by an interval of sea of 260 leagues, and although it may be presumed, that their canoes do not maintain between them an habitual communication, the people who inhabit them must have had a common origin. A native of the Society islands, who was embarked in the Resolution, conversed fluently with the natives

tives of *Ia Madre de Dios*; but captain Cook says, that the English, who must in their visits to Otaheite have acquired a knowledge of most of the words spoken there, could never succeed in making themselves understood at Santa Christiana. As far as it has been examined, the language of this island employs 5 vowels, *a, e, i, o, u*, but the consonants, in 95 words that have been collected by captain Chanal, are only 8 in number, and perform the office of 12 of ours; viz. *b* or *p*, *d*, *c* hard, *g* hard, *k* and *q*, *f*, *m*, *n*, *t*, *v*. The natives of Santa Christiana cannot articulate our *r*, and they supply the defect by a sort of aspiration. Our consonants *z*, *j*, *x*, make no part of the articulations of the language of this island. Missionary Voyage, 1797, p. 144, &c. Marchand's Voyage, vol. i. and ii.

In Marchand's Voyage, (vol. i.) we have an account very much in detail of this island; together with a statement of the circumstances in which the Spaniards, English, and French, differ from one another. This island, it is said, presents itself under an agreeable aspect; being very lofty, as well as the other islands of the group. A narrow chain of high hills extends through its whole length, and from the shore run other chains of equal elevation, which branch out and join the principal chain; these hills are separated by confined and deep vallies, into which run some rivulets or cascades, that water every part of the island; fruit trees of various species here occasion coolness, and yield abundance to its inhabitants. According to the statement of captain Cook, the island is in length, from N. to S. 3 leagues, of 20 to a degree, and in circuit 7 leagues, whereas Quiros extends it to 9 Spanish leagues of $17\frac{1}{2}$ to a degree; but as neither of them examined more than a portion of the west coast of the island, its absolute extent and circumference remain still undetermined. The shores of this island present hollow rocks, the black, spongy, hard, and brittle stone of which indicates the effect and the produce of a great volcanic eruption; so that in regard to its origin and the nature of its minerals it is similar to the higher of the Society islands, which appear to have been the seat of ancient volcanoes. The soil of the vallies is a very strong mould, sometimes black, sometimes red, and very fit for vegetation, and it produces various species of lichens, grasses, purslains, and shrubs. These vallies are covered with trees; such as the cocoa-palm, the bread-fruit tree, the plantain tree, the casuarina, the paper-mulberry tree, (*morus papyrifera*), the fibres of the bark of which are employed by the natives in the fabrication of their cloths, &c. &c. Besides the fruits of the cocoa-nut, plantain, and bread-fruit tree, the island furnishes a sort of sweet potatoe, a species of apple, ginger, cucumbers like those of the West-India islands, water-cress, and purslain, the yam, the chestnut, the walnut, &c. Santa Christiana possesses the sugar-cane; but the inhabitants are ignorant of its value. European animals, though left there by captain Cook, either could not accommodate themselves to this climate, or were neglected, and perhaps exterminated, by the inhabitants, so that later voyagers could not discover any of them; neither could they find any of the European utensils or commodities, such as looking-glasses, knives, hatchets, nails, glass-beads, &c. left there by captain Cook, in 1774. The only quadruped found in Santa Christiana was the hog, small in size, but of delicate and well-tasted flesh; if we except the rat, which, to the great detriment of the inhabitants, has exceedingly multiplied in the island. Poultry are scarce; and apparently reared merely for the sake of plucking the cocks, whose large tail-feathers, assorted for forming plumes, are employed in shading their head-dresses. The sea furnishes excellent rock-fish;

the bonito is very common. The bay is often frequented by porpoises and shark. The climate is salubrious, and the natives appear healthy and robust; but the temperature is subject to great variations from one season to the other. In 1774 the variation observed by Mr. Wales was $4^{\circ} 22' 15''$ E. and in 1791, it was observed by captain Marchand to be $3^{\circ} 14' 18''$. From comparing the observations of Mr. Wales and captain Marchand, it may be concluded, that in the space of 17 years, the variation of the compass has not undergone any material change in this latitude.

CHRISTIANIA, a city and sea-port of Norway, in the government of Aggerhuus; situated at the extremity of an extensive and fertile valley, forming a semicircular bend along the shore of a beautiful bay, which, being enclosed by hills, uplands, and forests, has the appearance of a large lake; and about 30 English miles from the open sea. The navigation of the bay is somewhat difficult, but it is sufficiently deep for the largest vessels, having six or seven fathoms of water close to the quay. It is esteemed the capital of the kingdom; because it contains the supreme court of justice. It lies in N. lat. $59^{\circ} 56' 37''$, and E. long. $10^{\circ} 50'$, on the northern extremity of the bay of Biorning, an inlet of the sea, forming the northern extremity of the gulf of Christiania, whose rocky shores are overspread with thick forests. The town is divided into three parts, viz. the city and the three suburbs of Waterlandt, Peterwigen, and Fierdingen, the fortrefs of Aggerhuus, and the old town of Opsloe, or Apsloe. The city contains 413 houses, the suburbs 682, Opsloe 400, including the episcopal palace, (the bishop of Christiania being metropolitan of Norway, and the fee yielding an annual revenue of 400*l*.); and the number of inhabitants amounts to about 9000. The city formerly occupied the site of Opsloe, and was rebuilt in its present situation by Christian IV. in 1624, after a plan designed by himself: the streets are carried in straight lines, and at right angles to each other, and are uniformly 40 feet broad, and very neat and clean. It has a Latin school, founded by Christian IV. in 1635, and a public library. The castle of Aggerhuus is built on the west side of the bay, at a small distance from the city; and was erected in 1310 by the Swedes, and strengthened in 1633 by Christian IV. and by succeeding kings of Denmark at subsequent periods. See AGGERHUUS.

Christiania has an excellent harbour, and carries on a considerable trade. The principal exports are tar, soap, iron, copper, planks, and deals; allum manufactured at Mr. Cooper's works for about 3000*l*.; iron from the four works of Borum, Edfwold, Narkedahl, and Ondahlen, 14,000*l*.; copper from Foldahl, 10,000*l*.; planks and deals, 90,000*l*.; principally to England. The planks and deals are said to be of superior estimation to those sent from America, Russia, and the different parts of the Baltic; because the trees grow on the rocks, and are therefore firmer, more compact, and less liable to rot than the others, which chiefly shoot from a sandy or loamy soil. The planks are either red or white fir or pine. The red wood is produced from the Scotch fir, and the white wood, which is in such high estimation, from the spruce fir. Each tree yields three pieces of timber, eleven or twelve feet in length, and is usually sawed into three planks; a tree generally requires 70 or 80 years' growth before it arrives at the greatest perfection. The greatest part of the timber is hewn in the inland country, and floated down the rivers and cataracts. Saw-mills are used for cutting the planks; but they must be privileged, and they are restricted to cut only a certain quantity. The proprietors are bound to declare on oath, that they have not exceeded

exceeded that quantity: and if they do, the privilege is taken away, and the saw-mill destroyed. At Christiania there are 136 privileged saw-mills, of which 100 belong to the family of Anker. The quantity of planks permitted to be cut amounts to 20,000,000 standard deals, 12 feet long, and $1\frac{1}{4}$ inches thick.

CHRISTIANIA, a government of Norway, otherwise called AGGERHUUS; which see.

CHRISTIANAO, ST. a Portuguese town on the coast of Brasil; off which is a small bay without the northernmost reef of the river Serugippa, which is six leagues from the river Francisco, where is good anchorage.

CHRISTIANOFLE, a fortified sea-port town of South Gothland in Sweden. N. lat. about $56^{\circ} 26'$. E. long. $15^{\circ} 41'$. It is four leagues from the S. end of the island of Oeland to the point of Christianople, which is the breadth of the S. entrance of Calmar sound.

CHRISTIANOPOLIS, in *Ancient Geography*, an episcopal town of the Peloponnesus, in Arcadia.

CHRISTIANS of St. John, in *Ecclesiastical History*, a corrupt sect of Christians, very numerous in Bassora, and the neighbouring towns.

They formerly inhabited along the river Jordan, where St. John baptized: and it was thence they had their name. But after the Mahometans became masters of Palestine, they retired into Mesopotomia and Chaldea.

They hold an anniversary feast of five days; during which, they all go to their bishops, who baptize them with the baptism of St. John; their baptism is always performed in rivers, and that only on Sundays.

They have no notion of the third person of the Trinity; nor have they any canonical books, but several which are full of charms, &c. Their bishoprics descend by inheritance, as our estates do; though they have the ceremony of an election. There is no satisfactory account of the origin or principles of this sect. See SABÆANS

CHRISTIANS of St. Thomas, or San Thomé, a sect of ancient Christians found in the East Indies, when the Europeans touched at the port of Calicut; who pretend to be descended from those of St. Thomas converted in the East Indies; whence the name.

The natives call them, by way of contempt, *Nazarenes*; their more honourable appellation is *Mappuleymar*. See THOMÆANS.

Some learned men in Europe say, it was not St. Thomas the apostle that converted that country, but another St. Thomas: others say, it was a Nestorian merchant, called Thomas. It is certain they are Nestorians, and have been so a long time; inso much that *Christians of St. Thomas* now passes for the name of a sect. They have a patriarch, who resides at Mosul. The pope has made several attempts to reduce them under his obedience, but to no purpose. The number of these Christians must have been very considerable in the beginning of the 16th century, when the Portuguese became first acquainted with them, since they possessed about 110 churches, in the countries now subject to the Travancore and Cochin rajahs; and, at the present time, after the manifold persecutions, oppressions, and successive revolutions, that have almost depopulated the whole coast, they are computed to amount to no less than 150,000 persons. They are indiscriminately called St. Thomé Christians, Nestorians, Syrians, and sometimes the Malabar Christians of the mountains, by the Portuguese writers of that time, and by the subsequent missionaries from Rome. The most common name given to them by the Hindoos of the country is that of "Nazaranee Mapila," and more frequently "Surians," or "Surianee Mapila." The appellation of "St. Thomé

Christians," which the Portuguese were fond of bestowing upon them, probably originated from the chief who settled the first colony of Syrians on the coast, and who, according to their tradition, was their first bishop and founder of their religion in these countries, whose name was "Mar Thomé." His arrival may, perhaps, be ascertained to have occurred during the violent persecution of the sect of Nestorius, under Theodosius II., or some time after. The Portuguese, however, pretend that St. Thomas the apostle arrived in India, and, having converted a great number of idolaters on the coast of Malabar, and afterwards on the other side of India, as far as Malliapor, now St. Thomé, suffered martyrdom there. The Malabar Christians, as they say, remained a long time without ecclesiastical chiefs, and without intercourse with the rest of the Christian world, till they procured bishops from Mosul in Syria, who introduced into this country the heresy of Nestorius. This story, though very improbable, and unsupported by any historical proof, has been repeatedly asserted, even by Protestant writers. Common tradition, which has been admitted by the Portuguese writers of the 16th century, probably on the foundation of written records in the Syriac language, which then existed, and were afterwards all destroyed by the famous archbishop De Menezes at the synod of Odiampor, mentions Mar Thomé as the first who introduced the Christian religion into Malabar. The Nestorians consider him as their first bishop and founder, from whom they derive their name of St. Thomé Christians. His arrival may be placed towards the middle of the 5th century; as notice is taken by Cosmas Indicopleustes of Christians in the pepper country or Malé, who received their bishops from Persia, where the Nestorian patriarch of that period resided, whose first seat was at Seleucia in Persia, afterwards removed to Babylon, and at last to Mosul.

In the Malabar histories the first mention of a Syrian colony of Christians is made in the reign of Cocoorangon Perumal, who probably lived in the 6th century; and again we have an account of two Syrian or Chaldean bishops, named Mar Sapor and Mar Peroses, who arrived at Coilan, about 100 years after its foundation, where they were extremely well received by the raja, and permitted to build a church, which subsisted when Cabral first visited Coilan. The grants and privileges, which they received from the raja, were engraved upon copper-plates, which many centuries after were shewn to archbishop de Menezes, probably the same that are now in possession of the Jews at Cochin. Other circumstances, such as the name of Syrians retained by the St. Thomé Christians, their peculiar features and complexion, the style of their buildings, especially of their churches, and above all, the general use of the Syrian or rather Chaldean language preserved in all their religious functions, concur in confirming the opinion, that the St. Thomé Christians were originally a colony of Nestorians. They formerly possessed, according to the Portuguese account, upwards of 100 villages; situated mostly in the mountainous part of the southern division of Malabar. They were distinguished from the other inhabitants in a variety of respects; and as to their religious tenets, they generally followed the doctrine of Nestorius. Upon the arrival of the Portuguese, attempts were made to proselyte them to the church of Rome; and, when persuasion failed, recourse was had to open force. At length Menezes, archbishop of Goa, made a personal visit to the Malabar Christians, and having appointed a synod at Odiampor, in the vicinity of Cochin, in 1599, he assembled the Syrian priests of "Cassanas" and 4 elders from each village, and after some shew of disputation and explanation of the controverted tenets of the church of Rome, he dic-

tated the law to them; and overpowering them by his authority, effected in appearance an union of the Nestorians of Malabar with the Romish church; and they were for some time governed by Roz and his successors, under the title of archbishop of Cranganore. But this union was neither general, sincere, nor permanent; for soon after some Maronites, or Nestorian priests, found their way to the mountains of Travancore, where they revived the old doctrines and rites, and ever since kept up their communication with the Jacobites, Maronites, and Nestorians of Syria. At present there are 32 churches of this description remaining, which are called Schismatic Christians by the Portuguese and Roman clergy. They have a bishop or "Mar Thomé," who resides at Narnatte, about 10 miles inland from Porca, and was consecrated by some Jacobite bishops sent from Antiochia, for that purpose, in 1752. He adheres more to the doctrine of Eutyches than of Nestorius. About 84 of the old St. Thomé churches remain united to the Roman catholic religion, and are governed by the archbishop of Cranganore, or, as he styles himself, the archbishop of the Malabar Christians of the mountains. Since the death of the last archbishop, the government of Goa, which had formerly the nomination, has thought proper to appoint only a vicar-general, who resides at present at Packepallipote. The Chaldean language is still used in their churches, and they are furnished with the necessary books by the "Congregatio de propaganda fide."

The St. Thomé or Syrian Christians, of both descriptions, never claimed the particular protection of either the Portuguese or Dutch, as the new Christians do, but considered themselves as subjects of the different rajas in whose districts they lived, and for a considerable time remained unmolested. But when the rajas of Travancore and Cochin had succeeded in subjecting the petty rajas and chiefs, that were situated within the lines of Travancore, they established an oppressive despotism. The new or Portuguese Christians consist of that race of new converts, gained by the Portuguese mostly from the lowest castes along the sea-shore, where they built many churches; which, by way of distinction from the Syrian churches, are generally called the Latin churches. They formerly enjoyed the protection of the Portuguese and Dutch governments, without considering themselves as subjects of the rajas in whose territories they reside; and acknowledged only their jurisdiction in civil and criminal matters, and paid no taxes to their native princes. This exemption they maintained till the year 1785, when the governor of Cochin entered, for the preservation of their privileges, into a written agreement with the raja of Cochin, which stipulated that they should pay a yearly sum to the raja, and in delay or failure of payment, the Dutch, and the raja, were to enforce it; the raja, however, did not adhere to his stipulations; but compelled, by oppressive treatment, a great part of them to abandon his dominions. The number of these Christians who consider themselves as under the protection of the fort of Cochin, is estimated at about 36,000. In ecclesiastical matters they were formerly subject to the Portuguese bishop of Cochin; but being expelled by the Dutch, when they got possession of the fort, he fixed his residence at Coilan, retaining his former appellation of bishop of Cochin, and also his ecclesiastical jurisdiction over such churches as were not under the immediate controul of the Dutch. His successors continue to preside over the same diocese, which extends as far as the Cavery river, on the other coast, including the isle of Ceylon; comprehending more than 100 churches of the new or Latin Christians. When the Dutch had expelled the Portuguese bishops from Cochin, they applied to the

see of Rome for a new bishop subject to their controul; and the pope sent out a Carmelite prior, with episcopal powers, under the name of vicar-general, to whom the States-General granted a diploma to that purpose in 1698. This ecclesiastical dignitary has an annual stipend of about 400 rupees, paid him by the "Congregatio de propaganda fide;" and he resides at Varapoly, in a convent of his own order, supported by the "Propaganda." His diocese and power gradually declined; and at present only 14 churches are subject to his episcopal jurisdiction. The St. Thomé Christians formerly possessed a great number of churches or temples, sumptuously built, in the inland parts of the Travancore and Cochin dominions; some of these have cost upwards of a lack of rupees, and few less than half that sum. Now they are reduced to a wretched condition, being scarcely able to erect a shed for their religious meetings over the splendid ruins of their famous churches. As their opulence has decreased, their population has also diminished. Formerly the converts to Christianity were allowed to retain their patrimonial estates; and under the ancient mild Hindoo government, and even in modern times, till Hyder Ally made his first irruption, imposts on landed property were unknown in Malabar. Another source of the opulence of the St. Thomé Christians was trade; for they were, in fact, the only, or at least the principal merchants in the country, till the Arabs settled on the coast. See Asiatic Researches, vol. vii.

CHRISTIANSAND, in *Geography*, one of the governments into which Southern Norway, or Norway Proper, is divided. It occupies the south western part of the kingdom; and contains 113,024 inhabitants. It is a bishopric yielding an annual revenue of 600l.

CHRISTIANSAND, a sea-port town of Norway in the government or diocese of Christianland, opposite to the island of Flekker or Fleckeren. N. lat. 55° 16'. E. long. 8° 14'.

CHRISTIANSBURG, a fortress of Africa on the gold coast, belonging to Denmark. It was taken by the negroes in 1693, who pillaged it, and kept it for some time.

CHRISTIANSBURG, the chief town of Montgomery county, in the state of Virginia, North America. It contains few houses; has a court-house and gaol, situated near a branch of Little river, a water of the Kenhaway. N. lat. 37° 5'.

CHRISTIANSBAFEN, a part of the city of Copenhagen, built on the isle of Amak. See AMACK.

CHRISTIANSOE, a fortress of Denmark, built on a rock, on the east coast of the island of Bornholm.

CHRISTIANSTADT, a strong fortified town of Sweden, in the province of Skone, or Scania, built in 1614, by Christian IV. king of Denmark, when this province belonged to the Danes, and finally ceded to the Swedes by the peace of Roschild in 1658. The town is small, but neatly built, and is esteemed the strongest fortress in Sweden. The houses are all of brick, and mostly stuccoed white. It stands on a marshy plain close to the river Helge-a, which flows into the Baltic at Ahus, at the distance of 20 miles, and is navigable only for small craft of 7 tons burden. English vessels annually resort to this port for alum, pitch and tar. The inhabitants have manufactories of silken cloth and stuffs, and carry on a small degree of commerce: 57 miles W. of Carlskrona. N. lat. 55° 58'. E. long. 14° 6'.

CHRISTIANSTADT, a town of Silesia, on the west side of the Bober, 32 miles W. of Glogau, and 54 N.E. of Dresden.

CHRISTIANSTED, the principal town in the island of Santa Cruz, seated on the north side of the island, with a fine

fine harbour. It is the residence of the Danish governor, and is defended by a stone fortress.

CHRISTIANSUND, a small island of the Northern Ocean on the Western coast of the province of Drontheim in Norway N. lat. $63^{\circ} 10'$ E. long. $7^{\circ} 58'$.

CHRISTIGNETH, a river of North Wales, which runs into the Dee, in the county of Denbigh.

CHRISTINA, in *Biography*, queen of Sweden, the only child of the great Gustavus Adolphus, who succeeded to the throne of her father in 1632, when she was only five years of age. During her minority Sweden enjoyed internal repose, but involved in a long state of warfare with the German empire, in consequence of the invasion of Gustavus, as supporter of the protestant league. The war was conducted by able men whom the king left behind him. The abilities of Oxenstiern, who pursued the plans laid down by Gustavus, preserved for Christina that preponderancy which the cabinet of Sweden possessed in the affairs of Germany. The young queen, at an early age, discovered but little taste for the society and occupations of her sex. Her education was conducted upon a very liberal plan. She possessed a strong understanding, and a great turn for abstract studies. At an early age she was capable of reading the Greek historians. Thucydides, Polybius and Tacitus were her favourite authors, and as she advanced in life, the love of letters became her ruling passion, which influenced the fortune and conduct of her whole life. At the age of eighteen she assumed the reins of government, and proved herself fully able to conduct the affairs of a powerful kingdom. The general peace of Westphalia had in 1648 restored tranquillity to Sweden on terms sufficiently honourable and advantageous to a nation which had attained to a military reputation in no wise inferior to that of any European state. Several princes of Europe aspired to the hand of Christina, but she rejected their proposals, pleading as the motives of her conduct, political interests, contrariety of religion, and diversity of manners. Her people, anxious for her marriage, recommended to her Charles Gustavus, count palatine, her cousin; she rejected their solicitations, having an insuperable aversion to the marriage state, of which she made no secret, declaring, in reply to one of the remonstrances made to her on the occasion, "that there were certain duties required in the nuptial ceremony with which she could not persuade herself to comply." These words were variously interpreted, but she probably regarded the conjugal connection, as a complete humiliation, as it regards the female sex. To prevent a renewal of applications on this subject, she solemnly appointed Gustavus her successor, but without the smallest participation in the rights of the crown during her own life. In the year 1650 she was crowned with great splendour. From this time she entertained a philosophical contempt for pomp and parade, and a kind of disgust for the affairs of state. She seemed to be only interested in that part of the sovereign power which gave her the opportunity of acting as the patron of the learned throughout Europe, and the encourager of the fine arts. She invited to her court men of the first reputation in various studies; among these were Grotius, Descartes, Bochart, Huet, Vossius, and others who were highly celebrated. Her choice with regard to these seems to have been directed more by general fame, than by her own judgment, or taste for their several excellencies, and in general estimation she has derived no great credit either as a learned lady, or as a discriminating patroness of literature. She was much under the influence of a Bourdelot, a physician who gained his ascendancy by outrageous flattery: and her inattention to the high duties of her station disgusted her subjects. She was a collector of books, manu-

scripts, medals, paintings, antiques and other curiosities, and by her profusion, and indiscreet grants, she soon brought the finances of her country into a state of disorder.

In 1652 she resolved to resign the reins of government to her successor, and communicated her intentions to the states, who dissuaded her from the purpose; Charles Gustavus, who had manifested no desire to reign in her stead, and who since the settlement of the crown had avoided meddling with state affairs, joined the states in their remonstrances. For a time she renounced the project, but in 1654, when she was only in the twenty-eighth year, Christina abdicated the crown, in order that she might live a life of freedom, and indulge unrestrained in the pursuits to which she was irrevocably addicted. With her crown, she renounced the Lutheran, and embraced the Roman catholic religion: she had however exhibited too great an indifference to the duties and modes of any religion to be suspected of having taken this step through conscientious motives. It was probably preparatory only to her residence in those countries of Europe which for other reasons were most agreeable to her. In quitting the scene of her regal power, she appeared, or affected to appear, as one who had escaped imprisonment; at Inspruck she made her abjuration, and proceeded from thence to Rome, where she intended to fix her abode. Some disgust which she received at Rome, induced her in the space of two years to determine to visit France. Here she was treated with respect by Louis XIV. but the ladies were shocked with her masculine appearance and demeanor, and the unguarded freedom of her conversation. The learned of Paris paid her every attention, but the person whom she most distinguished was Menage, whom she appointed master of the ceremonies, an office rarely conferred upon a man of letters. Apartments were assigned to her at Fontainebleau, where she committed an action which has indelibly stained her memory, and for which in other countries she would have paid the forfeit of her own life. This was the murder of an Italian, Monaldeschi, her master of the horse, who had betrayed some secret entrusted to him. He was summoned into a gallery in the palace, letters were then shewn to him, at the sight of which he turned pale, and intreated for mercy, but he was instantly stabbed by two of her own domestics in an apartment adjoining that in which she herself was. The French court was justly offended at this atrocious deed, yet it met with vindicators, among whom was Leibnitz, whose name was disgraced by the cause which he attempted to justify. Christina was sensible that she was now regarded with horror in France, and would gladly have visited England, but she received no encouragement for that purpose from Cromwell; she therefore, in 1658, returned to Rome, and resumed her amusements in the arts and sciences. Her deranged finances were put in order by cardinal Azzolini, but she still manifested much levity and inconstancy in her plans and character. In 1660, on the death of Charles Gustavus she took a journey to Sweden for the purpose of recovering her crown and dignity. She found, however, her ancient subjects much indisposed against her and her new religion. They refused to confirm her revenues, caused her chapel to be pulled down, banished all her Italian chaplains, and, in short, rejected her aims. She submitted to a second renunciation of the throne, after which she returned to Rome, and pretended to interest herself warmly, first in behalf of the island of Candia, then besieged by the Turks, and afterwards to procure supplies of men and money for the Venetians. Some differences with the pope, made her resolve, in 1662, once more to return to Sweden; but the conditions annexed by the senate to her residence there, were now so mortifying, that she proceeded no farther than Ham-
burgh.

burgh. She returned to Rome, and cultivated a correspondence with the learned men there and in other parts of Europe, which was her chief solace under the neglect of persons in power. At the peace of Nimeguen, she sent a plenipotentiary to take care of her interests, who with difficulty procured remittances of her arrears. In 1679 she took a decided interest in the doctrines of Molinos, the founder of the sect of Quietists, who was persecuted by the French government: and on the revocation of the edict of Nantz, in 1685, she wrote to the French ambassador in Sweden, animadverting with much freedom and good sense on the project of making converts by persecution, and the want of real policy in banishing useful artisans on account of differences in religion. Bayle published this letter, with his own remarks, which offended Christina, but the dispute was amicably settled. In a letter written in 1687 to mademoiselle Scudery, she expresses herself with great tranquillity on the prospect of approaching death, an event, however, which did not take place till 1689. The last scene she passed with philosophical composure; she died at the age of sixty-three, leaving behind her many letters; a "Collection of Miscellaneous Thoughts or Maxims;" and "Reflections on the Life and Actions of Alexander the Great." In Christina we behold qualities worthy of commendation and even high applause; but it cannot be concealed that she possessed faults meriting a strong and decided reprobation. In her we see a prince's discrediting her great endowments by a vain parade and affectation of singularity, and apostatizing to a religion which she sometimes affected to ridicule and despise. While upon the throne, she was desirous of a private station, and after she had attained her wishes by the voluntary sacrifice of her authority, incessantly repining, and anxious to recover, upon the most humiliating conditions, that crown which she had so capriciously resigned. Coxe's Travels. Universal History.

CHRISTINA, *Santa*. See CHRISTIANIA, *St*.

CHRISTINESADT, in *Geography*, a sea-port town of Sweden, in the province of East Bothnia, built in 1649.

CHRISTIPOLIS, in *Ancient Geography*, an episcopal town of Cappadocia.

CHRISTISEE, in *Geography*, a town of Poland, in the palatinate of Braclaw; 44 miles S.S.W. of Braclaw.

CHRISTMAS, the feast of the nativity of Jesus Christ.

It appears from St. Chrysostom, that in the primitive times, Christmas and Epiphany were celebrated at one and the same feast; that father observes, that it was but of a little while that Christmas had been celebrated at Antioch on the 25th of December, as a distinct feast; and that the use thereof came from the West. The Armenians made but one feast of them, as low as the 12th century.

It is commonly maintained, that pope Telephorus was the first who ordered the feast of the Nativity to be held on the 25th of December. John, archbishop of Nice, in an epistle upon this subject, relates that at the instance of St. Cyril of Jerusalem, pope Julius procured a strict inquiry to be made into the day of our Saviour's nativity, which being found to be on the 25th of December, they began thenceforth to celebrate the feast on that day. However, the precise day, or even the month, in which our Saviour was born, is extremely uncertain. Some, as Clemens Alexandrinus informs us, affixed it to the 25th of the month Pachon, corresponding to the 16th of May. But there are some circumstances which should rather lead us to conclude, that he was born in autumn; as this was, in every respect, the most proper season of the year for a general assessment, which took place at the birth of Christ, and which required personal at-

tendance; and as there were shepherds watching their flocks by night at the time when Christ was born; and therefore it is probable, that the era of the Nativity was either in September or October, A. U. 748 or 749. See EPOCHÆ.

CHRISTMAS harbour, in *Geography*, a safe and commodious harbour, with good anchorage and plenty of fresh water, situated on the N.E. coast of Kerguelen's land, otherwise called Desolation island. S. lat. $48^{\circ} 41'$. E. long. $69^{\circ} 4'$. Variation, in 1777, $27^{\circ} 45'$ W.

CHRISTMAS island, an island of the Pacific ocean, so called by capt. Cook, on account of his first landing there on Christmas day. It is situated between the Sandwich islands on the N., and the Marquesas on the S., at about an equal distance from the one and the other. It is about 15 or 20 leagues in circumference, covered with wood, and bounded by a reef of coral rocks; having on the W. side a bank of fine sand, which extends a mile into the sea, and affords good anchorage. In digging no fresh water could be found; and this almost desolate and uninhabited island furnishes nothing but turtle, fish, and a few birds. Capt. Cook caused the seeds of the cocoa-nuts, yams, and melons to be planted in this island. N. lat. $1^{\circ} 59'$. E. long. $202^{\circ} 30'$.

CHRISTMAS rose, in *Botany*. See HELEBORUS *niger*.

CHRISTMAS found, a bay on the S. coast of Terra del Fuego, at the extremity of S. America, in S. lat. $55^{\circ} 22'$. W. long. $70^{\circ} 3'$. The entrance into this bay is 3 leagues wide, and bears from St. Ildefonso's islands, at the distance of 10 leagues, N. 37° W. The shore is generally a rocky bottom, so that ships should not anchor very near it. The E. point of this found is named Point Nativity; and the E. side of York Minster forms the W. point of this found; the variation here is $23^{\circ} 30'$ E., and it has high water on full and change days at half past two o'clock. The adjacent land appeared to capt. Cook, when he visited this coast, desolate beyond any thing which he had yet experienced. It seemed to be entirely composed of rocky mountains, without the least appearance of vegetation. These mountains terminate in pointed precipices, the craggy summits of which rise to a vast height, so that scarcely any thing in nature can present a more barren and savage aspect than the whole country. Barren and dreary, however, as the coast was, it was not totally destitute of accommodations about Christmas found. Fresh water and wood for fuel were found about every harbour; and the country every where abounds with fowl, particularly geese. A considerable number of plants was also found upon it, almost every species of which was new to the botanists.

CHRISTO, MONTE, an island in the Mediterranean, S.E. from Corfica, in N. lat. $42^{\circ} 17'$. E. long. $10^{\circ} 55'$.—Also, an island, due W. from Port Plata, on the N. side of the island of Hispaniola.—Also, a remarkable mountain on the coast of Peru in S. America, a little to the southward of Point de Cames.

CHRISTO, Ponta, a point of land on the Asiatic shore, forming the S. limit of the gulf of Nicomedia; nearly S. from Scutari, and almost due E. across the Hellespont, from Constantinople.

CHRISTOFHER, in *Geography*, a town of Poland; in the palatinate of Sandomirz; 16 miles S.S.W. of Sandomirz.

CHRISTOGENON, from $\chi\rho\iota\varsigma$, *Christ*, and $\gamma\epsilon\gamma\omicron\mu\epsilon\tau\iota$, *I am born*; in the *Greek Church*, a fast of 40 days, immediately preceding the supposed time of Christ's nativity.

CHRISTOLYTI, from $\chi\rho\iota\varsigma$, *Christ*, and $\lambda\upsilon\tau\epsilon\iota$, *I dissolve*, a sect mentioned by Damascenus; so called, because they maintained that Christ descended into hell, body and soul;

soul; and that he left both there; ascending to heaven with his divinity alone.

CHRISTOMACHI, Χριστομαχι, from the Greek Χριστός, *Christ*, and μαχομαι, *I fight or oppose*, a designation given to all sorts of heretics who deny the divinity of our Saviour, or hold heterodox opinions concerning his incarnation.

CHRISTOPHER, HERB, in *Botany*. See ΑCΤΑΕΑ *spicata*.

CHRISTOPHER'S, *St.* commonly called *St. Kitt's*, in *Geography*, is one of the leeward Charibbee or Charaibean islands in the West Indies, which was called by its ancient possessors, the Charaibes, *Lienuiga*, or the fertile island. It was discovered, in November 1493, by Columbus, who, pleased with its appearance, gave it his own Christian name. It was neither planted nor possessed by the Spaniards; nevertheless it is said to have been the most early British territory in the West Indies, and the common parent both of the English and French settlements in the Charaibean islands. It was suggested by an experienced friend to Mr. Thomas Warner, that St. Christopher, though despised and deserted by the Spaniards, afforded the prospect of a favourable settlement for a colony; and in 1620 he formed the resolution of executing the project of his friend. Accordingly, he and 14 other companions took their passage in a ship bound for Virginia, and from thence they sailed to this island in January 1623, and by the following September they had raised a good crop of tobacco, which they proposed to make the staple commodity. Thus it appears, that the first actual establishment in this island was prior to that in Barbadoes, which did not take place before the latter end of 1624. The plantations of the English settlers were destroyed by a hurricane before the close of the year 1623; and Mr. Warner was obliged to return to England, where he sought and obtained the powerful patronage and support of James Hay, earl of Carlisle, and thus by a seasonable supply in 1624, he preserved the existence of the settlement. In the following year Mr. Warner returned to the island, accompanied by a large body of recruits, and at the same time arrived M. D'Esnambuc, captain of a French privateer, who, after a severe engagement with a Spanish galleon, sought refuge in these islands. Having brought with him to St. Christopher's about 30 hardy veterans, they were hospitably received by the English, who thought themselves thus secured against an apprehended attack on the part of the Charaibes. The fact seems to have been, that Warner's first colony lived on friendly terms with these savages, who liberally supplied it with provisions; but when their lands were seized by the planters, the latter, conscious of meriting retaliation, apprehended an attack, though none was really intended. The French and English feeling, or perhaps feigning, the alarm of a projected revolt, determined to seize the conspirators. With this view they fell on the Charaibes by night, and having in cold blood murdered from 100 to 120 of the stoutest, drove all the rest from the island, except such of the women who were young and handsome, of whom, says Pere Du Tertre, they made concubines and slaves. The Charaibes who had escaped the massacre, united with their countrymen in the neighbouring islands, made a vigorous attack in order to revenge themselves; and, after a severe conflict, the Europeans, indebted to the superiority of their weapons more than to that of their valour, obtained a complete conquest, purchasing their triumph with the loss of 100 men, who were left dead on the field of battle.

After this exploit the Charaibes quitted this and some of the small islands in the neighbourhood, and retired towards the south. Warner and d'Esnambuc returned to Europe in order to solicit farther succour. The former was

knighted, and was sent back as governor in 1626, with 400 new recruits, amply supplied with necessaries; and D'Esnambuc, patronized by Richelieu, then minister of France, projected the establishment of an exclusive company for trading to this and some of the neighbouring islands. The French, however, in general, either misunderstood or disapproved the project; and though D'Esnambuc sailed from France in 1627 with 532 recruits, they were so scantily supplied with provisions and necessaries, that the greater part perished miserably at sea for want of food. The survivors were kindly received by the English; and for preventing future contests, the commanders of each nation agreed to divide the whole island pretty equally between their respective followers. In May 1627 they signed a treaty of partition, which comprehended a league defensive and offensive; but this was of little avail against the Spanish invasion in 1629. For some time the French and English lived amicably; but at length national rivalry and hereditary animosity rendered the island a scene of internal contention and bloodshed. Who were the first aggressors it is not now easy to ascertain; it is probable, however, that each nation would lay the blame on the other. In the reign of Charles II., during the first Dutch war, the French king declared for the United States, and his subjects in St. Christopher's, disdaining an inglorious neutrality, attacked the English planters, and drove them out of their possessions; which were afterwards restored to them by the treaty of Breda. In 1689 the French planters, taking part with the interest of the abdicated monarch, again attacked and expelled their English neighbours; and laying waste their plantations, committed outrages that are unjustifiable among civilized nations, even in a time of open and avowed hostility. So cruel and treacherous was their conduct, that it was assigned by William and Mary as one of the causes which induced them to declare war against the French nation. The French, after having continued about eight months sole masters of the island, were compelled by the English, under the command of general Codrington, to surrender, and 1800 of them were transported to Martinico and Hispaniola. In 1705 many of the English possessions were again laid waste by a French armament, which committed such ravages that the British parliament found it necessary to distribute the sum of 103,000*l.* among the sufferers, in order to enable them to re-settle their plantations. At the peace of Utrecht, this island was ceded wholly to the English, and the French possessions were publicly sold for the benefit of the English government; part of this sum, viz. 80,000*l.* was appropriated in 1733, as a marriage portion to the princess Anne, who was betrothed to the prince of Orange. Some few of the French planters, who consented to take the oaths, were naturalized, and permitted to retain their estates. In 1782 it was compelled by a superior force to surrender to the French, after a very vigorous and noble defence; but by the general peace of 1783 it was restored to Great Britain.

St. Christopher lies in N. lat. 17° 15', and W. long. 63° 17'. It is about 14 leagues in circuit, and contains 43,726 acres of land, of which about 17,000 acres are appropriated to the growth of sugar, and 4000 to pasturage. Sugar is the only commodity of any account that is raised, except provisions and a little cotton, and consequently it is probable, that nearly one-half of the island is unfit for cultivation. The interior part consists of many rugged precipices and barren mountains. Of these the highest is Mount-Misery, (evidently a decayed volcano), which rises 3,711 feet in perpendicular height from the sea. The sterility of the mountains is, however, amply compensated by the fertility of the plains. The soil, which is peculiar to this island, is in general

ral a dark grey loam, very light and porous; and conceived to be the production of subterraneous fires, the black ferruginous pumice of naturalists finely incorporated with a pure loam, or virgin mould. The under stratum is gravel, from 8 to 12 inches deep. Clay is only found at a considerable height in the mountains. Sugar-canes planted in particular spots of this island yield 8000 lbs. of Muscovado sugar from a single acre. The general average produce for a series of years is 16,000 hogheads of 16 cwt., which, as one-half only of the whole cane-land, or 8,500 acres, is annually cut, (the remainder being in young canes) gives nearly 2 hogheads of 16 cwt. per acre for the whole of the land in ripe canes; and even this is a return such, it is conceived, as is not equalled by any other sugar country in any part of the globe. The planters of St. Christopher's, it is said, are at a great expence for manure; they never cut ratoon-canes, i. e. shoots from old roots; and although springs and rivulets are sufficiently plentiful in the country for the subsistence of the inhabitants, their plantations suffer much in dry weather, as the sub-stratum does not long retain moisture.

This island is divided into 9 parishes, and contains 4 towns and hamlets; viz. Basse-terre, the present capital, containing about 800 houses, Sandy-Point, Old Road, and Deep Bay. Of these, the two first are ports of entry established by law. The fortifications consist of Charles-fort and Brimstone-hill, both near Sandy-Point; three batteries at Basse-terre, one at Figtree bay, another at Palmeto point, and some smaller ones of inferior importance.

The proportion which St. Christopher's contributes, with the other islands, towards an honourable provision for the governor-general, is 1000*l.* currency per annum; which is settled on him by the assembly immediately on his arrival. He has also some perquisites, which, in time of war, are considerable. Each island within this government has a separate council, and each of them an assembly, or house of representatives. In St. Christopher's the council should consist of 10 members, but more than 7 are seldom present. The house of assembly is composed of 24 representatives, of whom 15 make a quorum. The requisite qualification is a freehold of 40 acres of land, or a house worth 40*l.* a year. Of the electors, the qualification is a freehold of 10*l.* per annum. The governor of this, and the other islands in the same government, is chancellor by his office, and in St. Christopher's sits alone. In this island the jurisdiction of both the King's Bench and Common Pleas centres in one superior court, in which justice is administered by a chief justice and 4 puisne judges. The chief is appointed by the crown, the other by the governor in the king's name; and they hold their commissions during pleasure. The office of chief judge is worth about 600*l.* The emoluments of the assistant judges are trifling. The present number of white inhabitants is computed at 4000, and taxes are levied on 26,000 negroes; and there are about 300 blacks and mulattoes of free condition. All the white men from the age of 16 to 60 are obliged to enlist in the militia, and they serve without pay. They form two regiments of foot, although the whole number of effective men in each regiment seldom exceeds 300. There is also a company of free blacks. The natural strength of this island is such, that a garrison of 2000 effective troops, properly supplied with ammunition and provisions, would, in all human probability, have rendered it impregnable to the formidable invasion of 1782. St. Christopher's is separated from the island of Nevis by a narrow strait about $\frac{3}{4}$ of a league broad; W. from Antigua, as some say, 15 leagues, and according to others 21; and St. Eustatia is about 3 leagues W. by N. from the W. point of this island. Edwards's Hist. of the West Indies, vol. i.

CHRISTOPHER'S, *St.* an island in the channel between the island of Madagascar and the coast of Africa. S. lat. 17° 20'. E. long. 42° 13'.

CHRISTOPHER'S, *St. River*, lies on the S.E. coast of Africa. S. lat. 32° 47'. E. long. 27° 33'.

CHRISTOPHORIANA, in *Botany*, *Africana rannunculoides*, Boerh. Lugdb. See *ADONIS capensis*.

CHRISTOPHORIANA, Clus. Hist. See *ACTÆA spicata*.

CHRISTOPHORIANA *arbor aculeata*, Pluk. Alm. See *ARALIA spinosa*.

CHRISTOPHORIANA *virginiana*, Pluk. Alm. See *ARALIA nudicaulis*.

CHRISTOPHORIANA *canadensis*, Morif. Hist. See *ARALIA racemosa*.

CHRISTOPHORSON, JOHN, in *Biography*, a learned divine, a native of Lancashire, who studied at Cambridge, and afterwards was master of Trinity college. He was promoted to the deanery of Norwich, but his attachment to papacy obliged him to retire from the kingdom during the reigns of Henry VIII. and his son Edward VI. He returned to England in the reign of Mary, and was by her made bishop of Chichester in 1557, an office which he enjoyed only a single year, when he paid the debt of nature. He was a man of great industry, and translated from the Greek the works of Philo, Eusebius, Socrates, Sozomen, and Evagrius. His style is obscure, and from an almost total ignorance of the Roman antiquities, he has made a multitude of errors in the names and duties of civil and military employments.

CHRISTOPOLIS, in *Ancient Geography*, an ancient episcopal town of Asia, under the metropolis of Bostra.

CHRISTOPHORUS *piscis*, a name by which some have called the *faber*, or as we call it the *doree*, or *jaune doree*, the gilded fish.

CHRISTORF, in *Geography*, a town of Bohemia, in the circle of Boleslau; 6 miles S.S.E. of Krottan.

CHRISTOVAL, *St. Bay*, a bay on the W. coast of California, in N. lat. about 26° 40'.

CHRIST'S THORN, in *Botany*. See *RHAMNUS paliurus*.

CHROË, in the *Musick of the Ancients*. See COLOURS, GENUS, and SPECIES.

CHROASTACES, in *Natural History*, a genus of pellucid gems, comprehending all those of variable colours as viewed in different lights, of which kind are the opal and the ASTERIA, or the *cati oculi*.

CHROBATI, in *Ancient Geography*, the denomination of a people who formed a part of the Slavi, as well as the Avari. They were armed by Heraclius, the successor of Phocas, against the Avari. They were under the direction of a prince called "Porga," who with several persons of the same tribe, left their habitations, advanced along the maritime coasts of Dalmatia, put the Avari to flight, and took possession of their provinces. Heraclius sent them priests and bishops, from whom they received baptism. These Chrobati migrated from the north of Bohemia and of Poland, where the Slavonian language prevailed, and they continued to speak it when they arrived on this side of the Danube. Some authors, according to M. de Peyssonel, pretend that the word Chrobati signifies possessors of large territories. Mr. Dodwell says this name was derived from that of their prince, Chrowatus; and Constantine Porphyrogenitus says they were the same people with the Bulgarians; but this opinion has been contested by Theophylact and others, who allege that the Bulgarians did not commence their incursions to the other side of the Danube till a later period. Besides, the

the Chrobati submitted to the emperors of Constantinople; whereas the Bulgarians remained independent.

CHROBERG, in *Geography*, a town of Poland, in the palatinate of Sandomirz; 52 miles W. of Sandomirz.

CHROKIEL, in *Ornithology*, the common quail, *Tetrao colurnix*, called Chrokiel, or Grande Caille de Pologne, by Buffon.

CHROMA, in the *Botanical Writings of the Ancients*, a word used to express a famous root brought from Syria into Greece, and used by the women of that country to paint their cheeks red. It was also called *rhizium* and *fucus*, and by the Latins *radicula*.

CHROMA, in *Geography*, a river of Siberia, which runs into the Frozen sea. N. lat. 73°. E. long. 139° 14'.

CHROMA, in the *Italian Music*. The Italians take this term from the Greeks, but use it to signify a note or character of time, by us called a quaver, and when the word *femi* is added thereto, it means our semiquaver. Eight of the former are contained in a bar, and sixteen of the latter in common time.

CHROMA, in *Rhetoric*, a colour or fair pretence.

The word is Greek, and literally denotes *colour*.

CHROMA is also a graceful way of singing, or playing with quavers and trilloes.

CHROMA also sometimes signifies the same as the chromatic DIESIS or semitone minor.

CHROMA is also used to signify the *genus chromaticum*. In this sense we find it used by Aristoxenus, and in Ptolemy's Harmonics.

CHROMATIC, in the *Ancient Music*, the second of the three *genera*, or kinds, in which the consonant intervals were subdivided into their concinnous parts.

The other two kinds were, the *enharmonic* and the *diatonic*. The chromatic consisted of semitones, and minor thirds: it had its name, either because the Greeks marked it with the character of colour, which they call *χρῶμα*; or as P. Parran suggests, because the chromatic kind is a medium between the other two, as colour is between black and white; or else because the chromatic kind varies and embellishes the diatonic kind, by its semitones; which have the same effect in music, with variety of colours in painting. M. Rousseau says, that this species of music was written in coloured notes. Aristoxenus divides the chromatic genus into three species; the *molle*, *hemiolion*, and *tonicum*: Ptolemy, into *molle* or *antiquum*, and *intensum*.

These species were also called *chromai*, or colours of the *genera*; the *molle* expresses a progression by small intervals, the *intensum* by greater.

The chromatic and enharmonic kinds only contain the smallest of the diatonic degrees; so that they have the same proportion to the diatonic, as fractions have to integers.

Boethius, and after him Zarlino, attribute the invention

of the chromatic genus to Timotheus, a Milesian, in the time of Alexander the Great. The Spartans banished it their city, on account of its softness. The characters of this genus, according to Aristides Quintilianus, were sweetness and pathos.

Mr. Malcolm observes, that we are at a loss what use the ancients could make of these divisions and subdivisions, into *genera* and *species*. All acknowledge the diatonic to be the true melody; the others seem only humorous irregularities, calculated to please the fancy by their novelty and oddness; and were besides so very difficult, that few, if any, are said to have ever practised them accurately.

The moderns have been much perplexed to understand the different species of the chromatic music in use among the ancient Greeks. Most of our musicians have no other notion of the chromatic than of a melody proceeding by semitones, major and minor. This is what Broffart says of it. But this is not sufficient to convey a true notion of the chromatic. Dr. Pepusch has given us a clearer light in this affair: his doctrine is as follows.

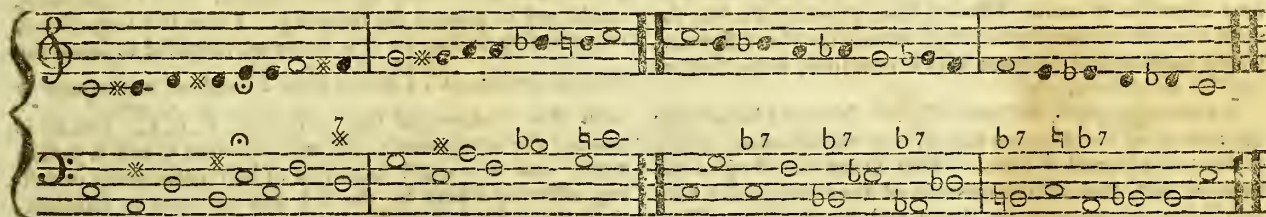
The ancients distinguished three sorts of *chromatic*, which were denoted by the names, *molle*, *sesquialterum*, and *tonium*.

The *chromaticum molle*, was a division of the diatessaron, or fourth, into three intervals, which were two subsequent semitones minor, and the interval, which is the complement of these two to the fourth; and this interval will be found equal to a third minor added to an enharmonic diesis. This species is not to be met with among the moderns.

The *chromaticum sesquialterum*, or *hemiolium*, was a division of the fourth into a semitone major, a semitone minor, and a third minor. This is mentioned by Ptolemy as the *chromatic* of Didymus. It occurs in modern compositions.

The *chromaticum tonium*, or *tonicum*, was a division of the fourth into a semitone major succeeded by another semitone major, and the complement of these two to the fourth, which is the interval, commonly called a superfluous tone. This often occurs in modern music. Dict. de Musique, p. 19. Phil. Transf. No. 481. p. 272. Wallis, Append. Ptolem. Harm. p. 164.

Of the modern *chromatic*, the scale of which is so different from the ancient, we can easily explain the principles upon which it is built, by giving it a fundamental base. The regular *chromatic* scale in modern music, consisting entirely of a series of major and minor semi-tones, such as the temperament of our keyed and wind instruments allows, ascending and descending, may receive the following fundamental bases. As it can very seldom happen that a complete octave of half notes can be wanted with a base to them, in order to avoid double sharps and flats, we have divided the *chromatic* octave into two tetrachords.



These are the general ideas throughout Europe of the ancient and modern *chromatic*. But the abbé Feytaud, who has meditated on these matters more perhaps than any other modern theorist, has furnished an article to the musical Encyclopedists, which, though very ingenious, will, we fear, Vol. VII.

puzzle the cause, and destroy the few ideas concerning this genus, which had been formed from the perusal of ancient and modern authors on the subject. The first period of this article is, however, clear and indisputable.

"CHROMATIC. The *semi-tone* is the element, the precise interval

interval which constitutes the *chromatic* genus; as the *tone* is that of the *diatonic*; and the *quarter-tone* that of the *enharmonic*; the half-quarter tone that of the *diatommatic*. This is evident, but it remains to be discovered, what ancient Greek, and modern authors, understand by a *semi-tone*.

"1st. It is more than probable that Aristoxenus did not understand himself, in speaking of half tones, or a third or fourth part of a tone; it is in vain for him to say that he was accused wrongfully of dividing a tone rigorously into halves, (Meibonius, p. 46. Aristox.) of consulting in his division of tones, only the judgment of the ear, (ib. pp. 14 and 33) rejecting musical ratios of intervals (ib. p. 32) which are their natural signs, and the proof of their degree of consonance and dissonance, i. e. of their harmonic or enharmonic character, it is wholly impossible for him to prove that a nominal semi-tone is, or is not, the precise half of a tone given.

"2dly. The Pythagoreans of the last ages of Greece, those who dared to assume that title, after the total extinction of the Italic sect, were not much more reasonable than the Aristoxinians, their opponents. Neglecting to consult the founts themselves in their theory, they were carried away by certain metaphysical prejudices, to calculations too complicated to lead to the simplicity of the ratio of sounds. Did they think that the ratio of the interval from the 7th to the 8th of a key (as in C, BC) which is 15 to 16, was with them 243 to 256: that of the major 3d (which is 4 to 5) to be 64 to 81? which rendered it so dissonant, that they agreed with the Aristoxinians, that it ought not to be ranked among concords. Aristoxenus pp. 20 and 45; Nichomachus, p. 20 and 21; Bacchius, pp. 3; Arist. Quint. p. 16. N. B. These three last were Pythagoreans, that is to say, pretended to possess the numerical theory of Pythagoras. Aristides Quint., indeed, (p. 114.) tells us, that the ancients, meaning the Pythagoreans, had determined the ratio of the semi-tones to be 16 to 17, and 17 to 18; but we do not find that this division had been adopted in the *Chromatic* genus, when the semi-tones were from 243 to 256.

"3dly. The moderns make the *Chromatic* scale proceed by semi-tones, major and minor, alternately; the first in the ratio of 15 to 16, the other of 24 to 25. Now an interval from 15 to 16, is not a semi-tone, but a true diatonic interval, a real sound of the natural scale. Modern *chromatic*, therefore, admits but a single *chromatic* interval, which therefore cannot constitute a genus; for the *chromatic* genus ought to proceed by semi-tones. Now it is impossible in practice, to use two equal intervals without changing the key. *Chromatic* melody therefore would not have place in any of our keys. We must then either suppose that the moderns have no *chromatic* genus, or that they use many kinds of semi-tones, which are only equalized by temperament."

It has long been said by writers on the subject, that modern *chromatic* is totally different from the ancient; but the abbé Feytaud endeavours to assign reasons for the difference, which we shall translate, not with a very lively hope that we shall be understood.

"*Chromatic* genus in Greek Music. It would be of little use to employ our time on the ratio of the *chromatic* strings of the tetrachordal system. What seems necessary to observe is, first, that all the formulæ of the three genera have two strings in common, the lowest and the highest. Thus the diatonic formula, in modern notes, being BCDE; B and E are the strings common to the three genera; these being what were styled *Chorde stabiles*. Whence I conclude that the Greeks never executed their different formulæ at once, but successively; whence we may infer, that they were not the inventors of their formulæ.

"2dly. That in each formula of the *chromatic* genus, the first semi-tone is always equal to the second; (see the table of Aristoxenus's system at the head of his treatise). Hence I conclude, that the Greeks had not the least notion of what we call a key; because they had not the curiosity, I durst not say the science, to use every tetrachord in one sole key. Now it is impossible to produce two consecutive similar intervals in one single key. But Ptolemy, in re-establishing the ratios of the Greek system in their ancient simplicity, demonstrates that these semi-tones were rendered equal only by temperament: (What says the abbé Roussier to this?) What ought to confirm us more and more in this idea, that the Greeks were not the inventors of their system, is their ignorance of its harmonic character, its modulation, and its relations. Though the tetrachord was the most ancient system of the Greeks, we must not conclude that it was the only one in each genus; they had likewise pentachords and diapasens, of which the intrinsic form has not been always the same: (could the diapason or octave have a latitude?) But in the last analysis, each of these systems is resolved, ultimately, in the tetrachord, which is, properly speaking, the gamut of the Greeks.

"*CHROMATIC*, in *Modern Music*. The *chromatic* may be practised in modern music by using at pleasure different gamuts, passages, transitions, and *chromatic* graces or embellishments.

"1st. *Of Gamuts*. The natural, physical, and primitive form of a gamut is progressive, since every scale is included in a progression of the harmonics of a generator, that is, of a key note. Thus the diatonic gamut is the result of the regular production of sounds, comprehended between the extremes of the 4th octave from C the generator. The *chromatic* gamut immediately follows the diatonic in the acute, and is comprised between the 16th and 32d harmonic of C. Thus this gamut forms the 5th octave of the key note C, $\overset{16}{C}, \overset{17}{C\sharp}, \overset{18}{D}, \overset{19}{D\sharp}, \overset{20}{E}, \overset{21}{E\sharp}, \overset{22}{F}$. But much is wanting to render our *chromatic* gamut progressive, in which the semi-tones decrease uniformly from grave to acute. For including only semi-tones major and minor, its melody is less natural than a melody formed of progressive sounds; and the accompaniment is forced, being reduced to three or four chords at most. For, when the *chromatic* melody proceeds by semi-tones major, in ascending each note is successively 7th and 8th of a key, or 3d and 4th, and reciprocally in descending. When the melody proceeds by semi-tones minor, we are driven to different combinations of the chord of the extreme flat 7th. When a succession of sounds alternately major and minor is used, we have a series of minor tones. But it is easy to procure a *chromatic* accompaniment superior to all those which have been in use hitherto, in supposing our gamut really progressive and altered only by temperament. Now temperament ought not to change the harmony. Upon this supposition, when we sing C, C \sharp , D, D \sharp , E, we are supposed to sound the natural gamut, $\overset{16}{C}, \overset{17}{C\sharp}, \overset{18}{D}, \overset{19}{D\sharp}, \overset{20}{E}$, and we accompany it with this fundamental base only $\overset{1}{C}, \overset{2}{C}, \overset{3}{C}, \overset{4}{C}, \overset{5}{C}$, (which is making the intermediate half notes between C and E passing notes; and in a rapid succession of half notes rising or falling, allowing a base to the first and last note is sufficient. And this is the best apology that can be made for rapid semitonic successions.)

"*CHROMATIC Passages*, which we have hitherto accompanied by the several revolutions of the extreme flat 7th, and extreme sharp 6th, may be regarded as parts of the natural gamut. With a little use we may refer them to the true chord to which they appertain; in remembering that the major

major semi-tone has no place in the chromatic scale, and that its true and only place, even in the modern gamut, is between the sharp 7th and 8th of the key note; and, consequently, in ascending, it may be accompanied by all the chords which include the sharp 7th; as in the key of C: G B D F, C E G B, D F A B, D F G B, F A B D, &c. and by the chords upon which they ought to be resolved; and in descending, by a contrary motion; i. e. in making the resolved chord precede and follow the discord.

"But a general rule is, that every time the semi-tones succeed each other *chromatically*, that is, without being separated by wider intervals, we ought never to suppose them equal; but always gradually, and progressively unequal. If this rule is violated, you will have passages, but never *chromatic* melody, and a harmony which, far from determining the key of the treble, will have no other effect, than to puzzle and mislead the hearer.

"*CHROMATIC transitions* consist in changing the key at each note of the melody; which is supposing all the half notes equal. But this supposition is more favourable to the ignorance of the composer than to the effect of the harmony and melody. The composer regards each sound as 7th and 8th of a key successively, as superfluous 5th and 6th, or indeed as 3d and 5th below the key note, so that one form only of resolution serves him for the most considerable traits in harmony; an harmonic mechanism more likely to degrade the melody than to enforce the effect. In general, it is the ignorance of the key of a *chromatic* melody, and of its true harmony, which drives composers to transitions (modulations). To this there are some exceptions, but they are rare.

"*CHROMATIC graces, or embellishments*, are passages not allowed for in the time, by which piano-forte players, when the right hand is low on the keys, mount up to the point where the melody re-commences. It is, however, a feat which destroys all idea of the key of the piece, if such runs are not very short and rapid, and the performer has not the taste and address to make the principal chords of the key heard; which would require a profound knowledge of harmony, and a very active finger. But good harmonists leave to mediocrity these childish ornaments, which are truly offensive to delicate ears."

For our own parts, the running up and down the keys in semi-tones is now become so common, affected, mechanical, and unpleasant a trick, that we never wish to hear it performed more frequently than once a year.

The nice discriminations of major and minor semi-tones in the abbé Feytaud's ingenious article *Chromatic*, whence we have made such long extracts, are speculations for discussion, and materials for disputation, rather than practice. In composing for our keyed instruments, and in playing on them, both the composer and performer are at the mercy of the tuner, and of his habitual temperament. The composer writes, and the performer plays, as if the instrument were perfect. Our forefathers, knowing where the *wolf* lay in the organ and harpsichord, touched that key and its relatives as seldom as possible. A composition in E \flat or E \sharp , with a sharp 3d, is hardly to be found in music of 200 years old; and we have old organs where E \flat and A \flat seem, by the dust with which they are covered, as if they had never felt the finger since the instrument was erected. But now the bold modulations of Emanuel Bach, Haydn, and Mozart, have provoked another temperament; the tuners have, by degrees, been obliged, much against their will, to try at equal harmony; and composers and performers may now ramble about, without the fear of offending nice ears by one key more than another. There is not time for calculation during the performance of a written piece, much less of a voluntary. If a keyed-instrument is out of tune, the

auditor knows that it is the fault neither of the composer nor player, and accommodates his auricular organ to the evil; but if a vocal performer sings out of tune, or the intonations of a violin player are false, it is never forgotten or forgiven. Imperfection of intervals in singing, however, depends on the chest of the finger, and on the strength of hand in the violin player, more than on the ear of either; the mischief being done before the ear of either is offended. The abbé Feytaud justly calls *chromatic* passages in which the key is so disguised as not to be known, *chromatic graces*; very different things from *chromatic* modulations. See in *Plates of Music* examples of modern *chromatic* to a fundamental base; of *contrappunto d'oppio in genere chromatico*; and of Rousseau's *chromatic successions*.

CHROMATIC, in *Painting*, is sometimes used to signify the colouring. See COLOUR.

CHROMATICS, in *Philosophy*, denote that branch of the science of optics, which states and explains the properties of the colours of light and of natural bodies. See the detail under COLOUR and REFRACTION.

CHROME. Chrome is a metallic substance of a greyish-white colour, extremely brittle, acidifiable with great difficulty by nitric acid, and then capable of combining with caustic potash into a lemon yellow salt. This salt being added to a solution of nitrat of lead occasions a deep orange-red precipitate of chromated lead.

Chrome has hitherto been found only in the acid state combined with lead and with iron.

Sp. 1. Chromat of Lead. Red Lead Spar. of Kirwan. The colour of this mineral is aurora red, passing into hyacinth red. It occurs sometimes disseminated, but most commonly crystallized, either in rectangular prisms, or in six or eight sided prisms. The crystals are of moderate size, adhering laterally to each other, and generally very imperfect and ill defined; they have a brilliant external lustre. The fracture is fine-grained uneven, passing into conchoidal and irregularly lamellar. It breaks into blunt-edged indeterminate fragments. It is translucent, passing into semi-transparent, is brittle, easily frangible, and, when scraped, gives a yellowish orange-coloured powder. Sp. gr. 6.02.

Chromat of lead, when exposed to the blow pipe, crackles a little, and melts into a blackish slag. With borax it is, in part, reduced to the metallic state, and communicates a green colour to the flux. It has been analysed by Vauquelin with the following result:

69.96 Oxyd of lead

36.40 Chromic acid

100.36

This mineral has hitherto been found only in the gold mine of Berezof, to the north of Ekaterinenburg, on the eastern side of the Uralian mountains: it is thinly dispersed in a vein passing through gneiss and micaceous schistus, accompanied by quartz, galena, and auriferous pyrites: none of the crystallized varieties have been found for some years.

Sp. 2. Chromat of iron. The colour of this mineral is greyish, or blackish brown; it occurs in mass; it possesses a slight degree of metallic lustre; its fracture is compact uneven, sometimes imperfectly lamellar; when pulverized, it is of an ash-coloured grey. It is hard enough to scratch glass, is difficultly frangible, opaque, and gives an argillaceous odour when breathed upon. Sp. gr. 4.93.

It is infusible before the blow-pipe without addition, but, with borax, melts into a beautiful green-coloured glass. It contains, according to an analysis by Vauquelin,

5 E 2

42 Chromic

- 43 Chromic acid
 35 Oxyd of iron
 20 Alumine
 2 Silix

100

Chromat of iron is said to have been found in Siberia; it has also been discovered in France near Gossin, in the department of Var, forming nodules and veins in serpentine.

The method of analysing the chromat of lead is very simple: Vauquelin has pointed out two ways, both of which we shall mention.

Take one part of finely pulverized chromat of lead, three parts of perfectly saturated carbonat of potash, and forty parts of water, and boil the mixture for the space of an hour. As soon as the substances begin to act on each other a brisk effervescence will take place, the orange-colour of the lead will change to brick red, and finally, when the effervescence has ceased, there will remain at the bottom of the vessel a powder of a dirty yellow colour, consisting of carbonat and chromat of lead, covered by a liquor of a bright golden yellow, which is chromat of potash. The liquor being poured off, and the powder well washed, some very dilute nitric acid is to be poured on the powder till it ceases to effervesce; the colourless solution, thus obtained, is nitrat of lead, while the undecomposed residue of chromated lead will remain unaltered, and is afterwards to be decomposed by a second digestion with thrice its weight of carbonated potash. The nitric solutions of lead being mixed together are to be decomposed by sulphat of soda, and the lead contained in the ore is to be estimated from the sulphat of lead thus procured. The alkaline solutions of chromated potash are to be mixed with weak nitric acid, as long as any carbonic acid from the undecomposed carbonat of potash is given out, and the liquor, by subsequent evaporation and cooling, deposits crystals of chromat of potash mixed with nitre.

The other method of decomposing this substance is, to digest together, at a moderate temperature, equal parts of chromat of lead very finely pulverized, strong and pure muriatic acid, and water; taking care to stir the mixture from time to time. The chromat of lead will change to a white colour, and will be decomposed, being converted for the most part to muriat of lead. When the acid has ceased to act, the liquor must be poured off, and fresh muriatic acid, (diluted as before with water,) to the amount of about one-fourth of the former quantity, is to be digested with the residue, till no more orange-coloured grains appear among the white muriat. This liquor being added to the former, together with the washings, the whole, after being heated, is to be placed for a few days in a cool place, that the small quantity of muriated lead that it holds may be deposited; when this is removed, some oxyd of silver (precipitated from its solution in nitric acid by pure potash), is to be added very gradually till the last portions acquire a red purple colour; thus the whole of the muriatic acid will be got rid of, and the liquor will contain only chromic acid, which, by slow evaporation, is deposited in small prismatic ruby-red crystals.

The decomposition of chromat of iron is not effected by any means so easily as that of chromated lead. The action of either muriatic or oxymuriatic acids upon it is very slow and imperfect; nor is a boiling solution of either pure or carbonated potash attended with better success. The most effectual way of proceeding is, to fuse in a platina crucible the finely pounded ore, with an equal weight of caustic potash; then to separate by water all that is soluble in this

fluid, and treat the residue with hot muriatic acid. By the alternate use of these menstrua six or seven times each, the whole of the ore will be taken up and dissolved. The muriatic solution being evaporated to dryness, and then left to cool, will become gelatinous, thus announcing the presence of silix, which may be separated by drying the jelly, and then digesting the residue in boiling water, in consequence of which the silix will remain undissolved: the clear liquor being then treated with ammonia, the iron will be obtained in the state of oxyd. The muriatic solution being thus exhausted, the alkaline solution is to be carefully neutralized by nitric acid, by which means the alumine will be precipitated, and nothing will remain in the liquor but chromat of potash and nitre, from which the chromic acid may be obtained pure, by adding nitrat of lead till no further precipitate takes place, and then treating the chromat of lead thus formed with muriatic acid, as mentioned above.

Chromic acid is of an orange-red colour, and a pungent metallic taste; it is very soluble in water, and by gentle evaporation crystallizes in lengthened prisms. Like other acids it combines with the salifiable bases, whence results a genus of compound salts called *chromats*, the chief of which we shall proceed to describe.

Chromat of barytes is formed by mixing together the aqueous solutions of barytes and chromic acid: it appears as a pale lemon-yellow precipitate, is sparingly soluble in water, and has no perceptible taste. When heated, it gives out oxygen gas, and assumes a green colour.

Chromat of lime is prepared, like the preceding, by adding the liquid acid to lime water; an orange yellow precipitate falls down; differing from the chromat of barytes only in being less soluble, and in a somewhat different order of affinities.

The carbonated alkalies are decomposed with effervescence by chromic acid, forming very soluble and crystallizable salts of a lemon yellow colour. Chromat of ammonia is destroyed by a red heat, the alkaline base being decomposed, and deoxygenating the acid, so that only a green oxyd of chrome remains behind. The alkaline chromats are decomposable with abstraction of their acid by barytes, lime, and strontian, and with abstraction of their base by the mineral acids; when added to any of the soluble metallic salts a double decomposition takes place, and the chromated metal is precipitated in the form of a coloured powder; mercury gives a vermilion red precipitate, silver a carmine red, lead an orange yellow, tin a green, &c.

Chromic acid appears to be very easily reducible to the state of oxyd, in which state it is generally of a green colour. Thus, when heated on charcoal before the blowpipe, it first boils, and when the moisture is evaporated, a green pulverulent infusible oxyd remains. By fusion with borax and glass of phosphorus, it affords vitreous globules of a bright emerald green. With tan it forms an insoluble yellowish brown flocculent sediment; and with hydrosulphuret of potash a brownish green one.

Muriatic and chromic acids, when heated together in a retort, occasion a considerable effervescence; part of the muriatic acid is converted into oxymuriatic, which flies off, and the chromic acid is changed into the green oxyd. Ether or alcohol, when heated for a few minutes with this acid, produce on it a similar effect; as does also muriat of tin, and the same metal in the reguline state, also iron, zinc, and most other metallic substances. Even light will decompose chromic acid, for a paper wetted with it, and exposed for a few days to the sun, assumes a permanent green colour.

In order to reduce chromic acid to a regulus, it is sufficient to heat it strongly in a crucible lined with charcoal; the re-

sult will be a brittle, brilliant, greyish white, metallic button, amounting to about 67 *per cent.* of the acid employed. At a high temperature it assumes the form of feathery crystals. A fragment of this metal, when exposed to the blowpipe, first tarnishes, and then acquires a thin coating of greenish oxyd. When finely pulverized, and treated with boiling concentrated nitric acid, it is oxydated, though with extreme difficulty, and gives the acid a light bluish green colour; by repeated abstractions it is at length completely acidified, and then exhibits exactly the same characters as the native acid.

Chrome, on account of its scarcity, and the short time that it has been known, has not yet been applied to any use; it is probably, however, capable of furnishing some fine pigments to the painter and enameller; in particular it will tinge glass with a true *emerald green*; the colouring matter of this beautiful gem having been recently proved to be this very metallic oxyd.

CHROMIS, in *Ichthyology*, the name of a little fish caught frequently in the Mediterranean, the chief colour of which is dusky brown. Linnaeus describes it after Artedi as a *sparus*, with the second ray of the ventral fins setaceous. See *SPARUS chromis*.

CHRONIC *disease*, in *Medicine*, from χρόνος, *time*, is a disease which, from its nature, may be of long duration. The term *chronic* is used in contradistinction to *acute*, which implies a state of violent and febrile action in the constitution, which must necessarily soon terminate, either in recovery or death. See *DISEASE*.

CHRONIC *weakness*, a term employed by some physicians in a vague and somewhat general sense, to denote a variety of modifications of disease, which have often been called *nervous*, and which are accompanied with a general debility of the constitution, and a failure in the performance of certain functions, especially that of digestion. It includes those varieties which Dr. Cullen included in his genus of *dyspepsia*, and Sauvages in that of *asthenia*, as well as *hypochondriasis*, *chlorosis*, and other diseases, where the dybility is symptomatic of some derangement of the stomach and bowels, or of the other viscera. The causes and the means of cure are such as belong to the varieties of *dyspepsia* and *asthenia*. This term is rejected from the more correct medical vocabulary of the present day: Withers on Chronic Weakness. See *DYSPEPSIA* and *ASTHENIA*.

CHRONICLE, CHRONICON, denotes a history digested in order of time; though the term is seldom used but in speaking of our old English histories, as Holinshed's *Chronicle*, Stow's *Chronicle*, &c. See *ANNALS*.

CHRONICLE, *Parian*. See *ARUNDELIAN Marbles*, and *PARIAN Chronicle*.

CHRONICLES, in the *Canon of Scripture*, are two sacred books called by the Greeks *Paralipomena*, Παραλιπομενοι, because they contain many supplemental relations omitted in the other historical books. The Hebrews, says Dupin, (*Complete Hist. of the Canon*, &c. p. 86.), make but one book of them, under the title of "Dibre-Haiamim," the sayings or actions of days or years, i. e. journals or annals; either because the order of time is more exactly observed in them, or else because they were taken out of the records, journals, or annals of history. They are an abridgment of sacred history from its beginning, to the return of the Jews from the Babylonish captivity, taken out of the books which we have, and out of other annals which the author had by him in his time. The design of the author was to represent to the Jews the series of their history, which might have been obliterated from their memory during the captivity, and thus to put them in mind of their original. Accordingly, the

first book traces the genealogies of the Israelites from Adam, relates the death of Saul, and gives a brief account of David's reign. The second traces the progress of the kingdom of Judah, its various revolutions, its period under Zedekiah, and the restoration of the Jews by Cyrus.

It has been generally supposed, that these books were compiled by Ezra; and that they were written after the termination of the Babylonish captivity, and the first year of the reign of Cyrus, who is mentioned in the last chapter of the second book. Some passages seem to have been transcribed *verbatim* from the histories and records that were made at the time when the temple stood, and when the Jews were in possession of Judæa; and others were probably interpolated or added after the time of Ezra. Dr. Kennicott has satisfactorily shewn (*Dissertations*, vol. i. and ii.) that several apparent contradictions between the accounts in Chronicles and in the books of Kings, with regard to numbers, have arisen from the corruption of the Hebrew text; which may be easily accounted for when we consider that numeral letters, used to express numbers, might easily be changed into one another by transcribers. See *CHARACTERS, Hebrew*. Several words are also omitted, e. g. 34 in 1 Chron. xi. 13, preserved in the parallel place in 2 Sam. xxiii.; and others are interpolated, e. g. two whole verses at the end of Chronicles; which interpolation is discovered by means of the beginning of the book of Ezra, which has the same words, fully proving that part, and a very abrupt part, of the decree of Cyrus had been subjoined to Chronicles, through the inadvertence of some transcriber. Thus, the two verses at the end of the book, which are far from being chronologically connected with the preceding, mention, and merely mention, the decree of Cyrus. They begin that memorable decree, but leave it unfinished; breaking off in the very midst of a sentence, in a manner perhaps unparalleled. Those two last verses have, probably, been added improperly. Some transcriber, having finished the book of Chronicles at verse 21, proceeded, without leaving the usual distance between different books, to write the book of Ezra, but, finding his mistake, he broke off abruptly; and so began Ezra at the customary distance, without publishing his error, by erasing or blotting out those lines, which he had carelessly subjoined to Chronicles. Hence we may perceive, that the book of Ezra once followed that of Chronicles.

CHRONOGRAM, a kind of composition, whose numeral letters, joined together, make up some date, or epocha. See *ANAGRAM*.

The word is compounded of χρόνος, *time*, and γράμμα, *letter*. CHRONOLOGICAL, belonging to *CHRONOLOGY*. *Chronological characters*, are characters by which times are distinguished. See *CHARACTERS*. Of these some are *natural*, or *astronomical*; others are *artificial*, or *historical*. *Natural chronological characters* are such as depend on the motions of the stars, as eclipses, solstices, equinoxes, the different aspects of planets, &c. *Artificial chronological characters* are those which men have established, as the solar cycle, the lunar cycle, &c. *Historical chronological characters* are those which are supported by the testimonies of historians, when they fix the dates of certain events to certain periods. We say also chronological tables, abridgments, machines, &c. See *CHRONOMETER*, and *CHRONOLOGICAL Table* at the close of the next article.

CHRONOLOGY, compounded of χρόνος, *time*, and λογος, *discourse*, is the art of measuring time (See *TIME*), distinguishing its several constituent parts, such as centuries or ages, years, months, weeks, days, hours, &c. (which see respectively,) by appropriate marks and characters, and of adjusting

adjusting these parts, in an orderly manner, to past transactions, by means of æras, epochs, cycles, &c. (which see respectively) to the illustration of history. See HISTORY.

Sturmius divides chronology into five distinct branches; viz. *metaphysical, physical, political, historical, and ecclesiastical*; according to the various relations, or habitudes, in which time is considered; viz. as it is in itself; as connected and subjected to the affections, states, and alterations of natural things; as accommodated to civil uses; as matched with events that pass in the world; and particularly as it relates to the celebration of Easter, which see. The importance and utility of chronology, as it comprehends the distribution of time into its subordinate parts, and the arrangement of historical events by means of these several divisions in the order according to which they occurred, so that their respective dates may be accurately fixed, must be universally acknowledged. Chronology has been, therefore, not unaptly denominated "one of the eyes of history;" and it also serves many interesting purposes in theology, and in various other departments of literature and science. As its use is extensive, the difficulty of acquiring it is not inconsiderable. It derives necessary assistance from astronomy and geography, and also from arithmetic, geometry, and trigonometry, both plain and spherical; and likewise from a studious and laboured application to various sources of information, supplied by the observation of eclipses, by the testimonies of credible authors, and by ancient medals, coins, monuments, and inscriptions. Its history, however, is comparatively of modern date, as we shall shew in the sequel of this article.

CHRONOLOGY, Chinese. No nation has boasted more of its antiquity than the Chinese: but though we allow them to trace their origin as far back as the deluge, they have few, if any, authentic records of their history for so long a period as five hundred years before the Christian æra. This, however, may probably be owing to the general destruction of ancient remains by the tyrant Tsin-chi-hoang, in the year 213, or, as some say, 246, before the Christian æra. We learn from a chronological table of the Chinese history, for which we are obliged to an illustrious Tartar, who was viceroy of Canton in the year 1724, and a Latin translation of which was published at Rome in 1730, that the most remote epocha of the Chinese chronology does not surpass the first year of a prince called Guai-lie-wang, who began his reign four hundred and twenty-four years before the vulgar æra. This opinion is confirmed by the testimony of two of the most approved historians of China, who admit nothing into their histories previous to this period. The Chinese in their computation make use of a cycle of sixty years, called *kiatse*, from the denomination given to the first year of it, which serves as the basis of their whole chronology. Every year of this cycle is marked with two letters, which distinguish it from the others; and all the years of the emperors, for above two thousand years, have names in history common to them with the corresponding years of the cycle. Phil. Trans. abr. vol. viii. part iv. p. 13, &c. According to M. Freret, in his Essays, the Chinese date the epocha of Yao, one of their first emperors, about the year 2145, or as others state it, 2057, or according to Du Halde 2357 years before Christ; and reckon their first astronomical observations, and the composition of their famous calendar, to have preceded Yao a hundred and fifty years: and thence it is inferred, that the astronomical observations of the Chinese and Chaldeans coincide. Accordingly Mr. Whiston (Short View of the Chronology of the Old Testament) maintains that the Chinese chronology, when rightly understood, is exactly agreeable to that which he has deduced from the Hebrew text of the Old Testament. Later authors date the rise and

progress of the sciences in China from the grand dynasty of Teheou, about twelve hundred years before the Christian æra, and shew, that all historical relations of events prior to the reign of Yao are fabulous. Mem. de l'Histoire des Sciences, &c. Chinois; a work compiled by the missionaries of Pekin, vol. i. Paris, 1776. See CHINA.

CHRONOLOGY, History, and Newtonian principles of. Many ages must have elapsed before the mode of computing time, or of dating events, was brought into established use. The most ancient philosophers and historians wrote in verse, and were unacquainted with chronology. In the age of Homer, a formal calendar seems to have been unknown; and at that early period time was measured by the seasons, the revolutions of the sun and moon, and the successive returns of labour and rest; but we read of no political distribution of time into such parts, as months, weeks, or hours, serving the purpose of guides to history or as registers of events; nor do we discover any allusions to clocks, dials, or clepsydræ. Several centuries intervened between the Olympic æra, and the first historians; and several more elapsed before the period in which the first chronologers appeared. We find that even after the computation of time commenced, its first measures were very indeterminate. See the sequel of this article.

Sir Isaac Newton has shewn that all nations, before they began to keep exact accounts of time, have been prone to advance their antiquity. Thus Herodotus informs us (lib. ii. c. 43.) that the priests of Egypt reckoned from the reign of Menes to that of Sethon, who put Sennacherib to flight, 341 generations of men, as many priests of Vulcan, and as many kings of Egypt; and as 3 generations were computed to amount to 100 years; the whole interval from Menes to Sethon was estimated at 11340 years. The Chaldeans also boasted of their antiquity; for Callisthenes, the disciple of Aristotle, sent astronomical observations from Babylon to Greece, which were said to have comprehended an interval of 1903 years before the time of Alexander the Great; and they farther boasted, that they had observed the stars 473000 years. There were also others, who made the kingdoms of Assyria, Media, and Damascus, much older than the truth. Some of the Greeks, says sir Isaac, called the times before the reign of Ogyges unknown, because they had no history of them; those between his flood and the beginning of the Olympiads, fabulous, because their history was very much blended with poetical fables; and those after the beginning of the olympiads, historical, because their history was free from such fables. The fabulous ages, however, wanted a good chronology; and so also did the historical, for the first 60 or 70 olympiads. Hence it appears, that the chronology of ancient kingdoms was involved in the greatest uncertainty; and this illustrious philosopher has shewn, that the Europeans in particular had no chronology before the Persian empire, which began 538 years before Christ, when Cyrus conquered Darius the Mede, and that the chronology which they now have of more ancient times has been since framed by reasoning and conjecture. In the beginning of that monarchy, Acusilæus made Phoroneus as old as Ogyges and his flood; and that flood 1020 years older than the first olympiad, or 680 years more ancient than the truth; and in order to warrant this computation, his followers have increased the reigns of kings both in number and duration. The antiquities of the Greeks are full of fables, because their writings were composed only in verse. The ancient philosophers, as Orpheus, Hesiod, Parmenides, Xenophanes, Empedocles, and Thales, anciently delivered their opinions in verse, but this mode was afterwards discontinued. Plutarch farther informs us, (Oper. tom. ii. p. 402.) that

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that Aristarchus, Timocharis, Arifillus, and Hipparchus, described astronomy in prose, without rendering it the more contemptible, after Eudoxus, Hesiod, and Thales had written concerning it in verse. We learn from Pliny (Nat. Hist. l. vii. c. 56.) that Pherecydes Syrius taught to compose discourses in prose in the 59th olympiad, or the reign of Cyrus; and Cadmus Mileſius to write history. In another place (l. v. c. 29.) he says, that Cadmus Mileſius, who flourished at a period somewhat earlier than the Persian monarchy, was the first who wrote in prose. Josephus (Cont. Apion.) informs us, that Cadmus Mileſius and Acufilæus, the oldest historians among the Greeks, flourished a little before the expedition of the Persians against the Greeks; and Suidas says of Acufilæus, not only that he was a most ancient historian, but that he wrote genealogies out of tables of brass, found in a corner of his father's house. Pherecydes, already mentioned, wrote of the antiquities and ancient genealogies of the Athenians, in ten books, and was one of the first and best of the European writers of this kind, whence he obtained the name of "Genealogus;" and Dionysius Halicarnassensis (l. i. c. 13.) esteems him to be second to none of the genealogers. Epimenides, the historian or genealoger, who was a different person from the Cretan philosopher of the same name, wrote of the ancient genealogies; and Hellanicus, who was 12 years older than Herodotus, digested his history by the ages, or successions of the priestesses of Juno Argiva. Others digested theirs by the archons of Athens, or kings of the Lacedæmonians.

Ephorus, the disciple of Iſocrates, digested his records by generations. Accordingly Polybius is of opinion, (lib. v. §. 33.) that this historian of Cumæ was the first who attempted to reduce chronology into a regular science, under the form of an universal history; and we know that he flourished in the time of Philip of Macedon, about 350 years before Christ. He began with the return of the Heraclidæ into Peloponnesus, and ended his chronological history with the siege of Perinthus, in the 20th year of Philip, the father of Alexander the Great, that is, eleven years before the fall of the Persian empire. We may observe, however, that the Arundelian marbles (which see), composed 60 years after the death of Alexander the Great, take no notice of olympiads, and reckon backwards from the then present time by years; and that in the histories of Herodotus and Thucydides, the dates of events are not ascertained by any fixed epochs; nor were the olympiads applied to this purpose at so early a period. Timæus of Sicily, who flourished in the reign of Ptolemy Philadelphus, about the middle of the third century before Christ, or in the 129th olympiad, was the first who attempted to establish an æra, by comparing the dates of the olympiads, the Spartan kings, the archons of Athens, and the priestesses of Juno, and adapting them to one another, according to the best of his judgment. Where he left off Polybius began, and continued the history. Before this time nothing satisfactory on the subject of chronology seems to have appeared; and the true reason is obvious, because before the conquests of Alexander, the Greeks had very scanty materials for such a work; as their knowledge was confined to a very narrow tract of country, and to the annals of a very short period of time. Their travellers could not easily impart the historical memoirs of the countries through which they passed; as they wanted the necessary advantages for this purpose; such were a thorough knowledge of the language of the country, a free access to all their principal records, and a perseverance in such laborious researches for several years. But general wars, notwithstanding the numberless disastrous calamities

that attended them, afforded opportunities for observing the situation, nature, and improvements, of other countries; and thus the progress and circulation both of learning and of other useful arts were the more easily propagated into different countries. Strabo informs us (Geog. lib. i.) that the Greeks derived great advantages, even in their knowledge of geography, from the conquests of Alexander; for by his means they became more perfectly acquainted with the larger tracts of Asia, and all the northern parts of Europe to the river Iſter; and he might have added the whole extent of Egypt; so that, at the same time, they obtained the full possession of Babylon and Egypt, the two great fountains of ancient learning. The Romans, says Strabo, in like manner diffused the same light over the western parts of Europe, up to the river Elbe, which divided Germany into two parts; and they went beyond the Iſter even to the Tyrra; and as for the countries round the lake Mæotis, and the sea coast to Colchis, they were undiscovered till the days of Mithridates surnamed Eupator, king of Pontus; and the Parthian empire made Hyrcania, Bactria, and the Scythians that lived beyond them, to be better known. We may therefore take it for granted that no general history could be properly composed, till the geography of these countries was sufficiently known, in order to describe the strength of each particular kingdom, the number of its inhabitants, the progress of its armies, or the provinces that might be lost or acquired in its quarrels with other kingdoms. But whenever the access to all these countries was laid open by the conquests of Alexander; when so many new kingdoms were established under the Macedonian government, into which the citizens of all the Greek states were freely admitted; when it extended the Greek tongue, as an universal language, over Asia and Egypt; it gave the most favourable opportunity to several eminent men to write the histories of different nations. Berosus compiled the history of Chaldæa, from the records of Babylon; and Manetho that of Egypt, from the records of Memphis and of Thebes; and the Arundelian marbles gave a complete series of the annals of Greece from their earliest times; all of which were composed in that age, by contemporary writers. And when we add to this, that the great library of Alexandria was first formed under Ptolemy Philadelphus, into which the writings of all nations were collected; we may well conclude from this induction of particulars, that it was at this period, and not before, that chronology became a science. Moreover, if we consider the situation of the world at this time, we shall be confirmed in the same opinion. For, till there was a collection of proper materials brought together, such as the manuscripts of all nations must contain, it was impossible to separate the truth of history from the rubbish of fable; because facts are only to be canvassed from a multitude of circumstances, which combine together to give light to each other, while the cotemporary history of one country corresponds to the cotemporary state of another. As a library was necessary to furnish the materials for this purpose, we accordingly find that the first "great father of chronology" was Eratosthenes, appointed by Ptolemy Energetes, the librarian of Alexandria, who flourished about 100 years after the death of Alexander the Great; who had access to that invaluable treasure of learning. The possession of such a multitude of historical memoirs both prompted and enabled him to determine the dates of many remote facts. And we are informed by Dionysius of Halicarnassus (lib. i. §. 46.) that in the execution of this work, he had laid down to himself certain "chronological canons," which that great writer declares he found to be accurate and uncorrupted; having examined them, in a treatise written

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written upon that subject, which, to the regret of the learned world, has been irrecoverably lost. The chronographic canons, or general principles of the chronology of Eratosthenes, are found in the *Stromata* of Clemens Alexandrinus (p. 145); and they are as follow :

	Years.
From the taking of Troy to the return of the Heraclidæ	80
From the return of the Heraclidæ to the settlement of Ionia	60
From the settlement of Ionia to the guardianship of Lycurgus	159
From the guardianship of Lycurgus to the year next preceding the 1st olympiad	108
From that year to the invasion of Xerxes	297
From the invasion of Xerxes to the beginning of the Peloponnesian war	48
From the beginning to the end of that war	27
From the end of the Peloponnesian war to the battle of Leuctra	34
From the battle of Leuctra to the death of Philip	35
From the death of Philip to the death of Alexander	12

These numbers are fortunately confirmed by a passage of Dionysius Halicarnassensis (p. 60); from which we learn, that the 432d year from the taking of Troy was, according to the canons of Eratosthenes, the 1st of the 7th olympiad; which agrees with the Clementine numbers. Eratosthenes was succeeded by Apollodorus, the disciple of Panætiæ, the stoic philosopher, who flourished in the time of Ptolemy Physcon. The following circumstances may lead us to presume, that in his system of chronology, he followed Eratosthenes. They both agreed concerning the interval, that elapsed between the taking of Troy and the return of the Heraclidæ, both making it 80 years. They also agreed concerning the age of Homer, and likewise concerning the age of Lycurgus; and they pursued the same method in determining it. Apollodorus adopted Eratosthenes's list of the kings of Thebais. Eratosthenes and Apollodorus have been followed by all succeeding chronologers. Nevertheless, after all the improvements made in chronological computation by the writers above-mentioned, chronology was still, in a very considerable degree, uncertain; and that it was reputed doubtful by the Greeks of those times is evident from several passages in the beginning of Plutarch's life of Lycurgus, and also in his life of Solon, to which we refer the reader.

As Cambyes destroyed all the records of Egypt, imperfect and dubious as they were, we have no account of its inhabitants, which can be depended upon before their intercourse with the Greeks, from whom we derive all that is known of them, and that was not before the time of Psammetichus, whose reign began in the year 660 B. C. Of this we are informed by Herodotus, who, speaking of those Grecians who had aided in setting Psammetichus on the throne of Egypt, says, that the Ionians and Carians continued for a long time to inhabit those parts which lay near the sea, below the city of Bubastis, on the Pelusiac branch of the Nile, till in succeeding times Annælis, king of Egypt, caused them to abandon their habitations, and settle at Memphis, to defend him against the Egyptians. But from the time of their establishment, he says, they had so constant a communication with the Greeks, that one may justly say we know all things that passed in Egypt from the reign of Psammetichus to our age.

The chronology of the Latins was still more uncertain than that of the Greeks, &c. Plutarch (in *Romulo et Numa*), and Servius (in *Æneid. vii. v. 678.*) represent the

originals of Rome as attended with great uncertainties; nor can we wonder at this, when we consider that the old records of the Latins, or at least a considerable part of them, were burned by the Gauls in the year 390 B. C., or 120 years after the refuge, in 509 B. C., and 64 years before the death of Alexander the Great, in 454 B. C. Quintus Fabius Pictor, the oldest historian of the Latins, lived 100 years later than Alexander, and took almost every thing from Diocles Preparentinus, a Greek. At the time when the Greeks and Latins were forming their technical chronology, there were among them great disputes about the antiquity of Rome. (See *EPOCHÆ* and *ROME*.)

The chronologers of Gallia, Spain, Germany, Scythia, Sweden, Britain, and Ireland, are of a still later date; for Scythia, beyond the Danube, had no letters, till Ulphilas, its bishop, introduced them, about 600 years after the death of Alexander the Great; and Germany had none till it received them from the western empire of the Latins, above 700 years after the death of that king. The Huns had none in the days of Procopius, who flourished 850 years after the death of that king; and Sweden and Norway received them at a still later period. And it must be allowed, that things, said to be done above one or two hundred years before the use of letters, are of little credit.

After a general account of the defects and obscurity of the ancient chronology, sir Isaac observes, that, though many of the ancients computed by generations and successions, yet the Egyptians, Greeks, and Latins, reckoned the reigns of kings equal to generations of men, and three of them to a hundred, and sometimes to a hundred and twenty years; and this was the foundation of their technical chronology. He then proceeds to evince, from the ordinary course of nature, and a detail of historical facts, the difference between *reigns* and *generations*; and that, though the latter, from father to son, may at an average be reckoned about thirty-three years, or three of them equal to a hundred years, yet when they are taken by the eldest sons, three of them cannot be computed at more than about seventy-five or eighty years; and the reigns of kings are still shorter, so that eighteen or twenty years may be allowed a just medium. He then fixes on four remarkable periods, viz. the return of the Heraclidæ into Peloponnesus, the taking of Troy, the Argonautic expedition, and the return of Sesostris into Egypt, after his wars in Thrace; and settles the epocha of each by the true value of a generation. We shall confine ourselves at present to his estimate of that of the Argonautic expedition. Having fixed the return of the Heraclidæ to about the hundred and fifty-ninth year after the death of Solomon, and the destruction of Troy, to about the seventy-sixth year after the same period (see *HERACLIDÆ* and *TROY*), he observes, that Hercules the Argonaut was the father of Hyllus, the father of Cleodius, the father of Aristomachus, the father of Aristodemus, who conducted the Heraclidæ into Peloponnesus; so that their return was four generations, reckoning by the chief of the family, later than the Argonautic expedition, which therefore happened about forty-three years after the death of Solomon. This is farther confirmed by another argument. *Æsculapius* and *Hercules* were Argonauts. *Hippocrates* was the eighteenth inclusively from the former by the father's side, and the nineteenth from the latter by the mother's side; allowing twenty-eight or thirty years to a generation, the seventeen intervals by the father, and the eighteen intervals by the mother, will, at a medium, give five hundred and seven years; and these, reckoning back from the commencement of the Peloponnesian war, or four hundred and thirty-first year before Christ, when *Hippocrates* began to flourish, will place the Argonautic expedition

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tion in the forty-third year after Solomon's death, or nine hundred and thirty seven years before Christ.

If we date the commencement of the Peloponnesian war in the 2d year of the 87th olympiad, and count back 507 years, we shall come to the 162d before the olympiads, which is about the 37th year after the death of Solomon.

Sir Isaac Newton ascertains the Argonautic expedition, and several other principal events in the Grecian history, by such a variety of independent arguments, drawn from the same and different mediums, all so agreeable to the present course of nature, that it seems impossible for a person who pays a sufficient regard to it not to be determined by them. It is surprising, indeed, that the manifest inconsistencies of the commonly received chronology with the course of nature, should not have prevented the establishment of it; and it is absolutely unaccountable, but upon the disposition which all men have discovered, to admit any hypothesis which tends to give dignity to their nations and families, by adding to the antiquity of them. But must it not be a more unaccountable attachment to established hypotheses, which can induce any person of the present age, after these inconsistencies have been so clearly pointed out, still to adhere to a chronology, which, in those turbulent unsettled times, supposes kings to have reigned one with another in some successions 35, in some 38, in some 40, in some 42, in some 44, and in some 46 years a-piece; and which generally allows about 60 years to a generation, and in one instance 85?

With respect to the chronology of the kings of Rome, Mr. Hooke has shewn, by several independent arguments, deduced from the connexion of events in the history of their reigns, that to suppose them to have reigned one with another 19 or 20 years, makes a more consistent series of facts, than to imagine them to have reigned 35 years a-piece, which is the common hypothesis.

The chief inconveniencies attending the old chronology in the Roman history are, that it supposes an interval of 63 years of peace in that restless nation before the accession of Tullus Hostilius. It makes the reign of Servius Tullius so long in proportion to the few censuses, which (according to the most authentic records) were taken in his reign, as would argue a most unaccountable neglect of his own favourite institution. It obliges us to suppose Tarquinius Superbus not to have been the son of Tarquinius Priscus, Dido not to have been contemporary with Æneas, or Numa with Pythagoras, as well as Solon with Cræsus in the Grecian history; all which have the unanimous voice of all tradition in their favour, and what Dionysius Halicarnassensis, Livy, and Plutarch, express their extreme unwillingness to give up, but that they were compelled to it by a regard to a chronology which in their times was unquestioned. Indeed, the congress of Solon and Cræsus Plutarch expresses his determination not to give up, notwithstanding his general attachment to a theory which would not admit of it, and the fallacy of which he did not expect. To this purpose he says, 'The congress of Solon with Cræsus some think they can confute by chronology. But a history so illustrious, verified by so many witnesses, and, which is more, so agreeable to the manners of Solon, and worthy of the greatness of his mind and of his wisdom, I cannot persuade myself to reject because of some chronological canons, as they call them; which 100 authors correcting have not been able to constitute any thing certain, and have not been able to agree among themselves about repugnances.'

If the number of kings that reigned at Alba be joined to those who reigned at Rome, and they be allowed to have reigned 19 or 20 years a-piece, they will place the coming of Æneas into Italy, and the siege of Troy, exactly at the

time in which arguments drawn from generations and successions in Greece, as well as astronomical calculations (as we shall shew in the sequel), place that event, which is a reciprocal confirmation of the just correction both of the Greek and Latin chronology. For from Latinus to Numitor are 16 kings, who reigned at Alba; Romulus was contemporary with Numitor, and after him Dionysius and other historians reckon 6 kings more at Rome to the beginning of the consuls. Now these 22 reigns, at about 18 years to a reign one with another (for many of these kings were slain), took up 396 years, which, counted back from the consulship of J. Brutus and Valerius Poplicola, the two first consuls, place the Trojan war 78 years after the death of Solomon. See TROY.

This computation likewise agrees, as Sir Isaac has shewn, with what Appian, in his History of the Punic Wars, relates, out of the archives of Carthage, which came into the hands of the Romans, viz. that Carthage stood 700 years. This is a round number, but Solinus adds the odd years when he says, "Carthago post annos 737 quam fuerat extructa exciditur," which places Dido, the founder of Carthage, about 76 years after the death of Solomon. See CARTHAGE. It likewise agrees with the Arundelian marbles, which say that Teucer came to Cyprus 7 years after the destruction of Troy, and built Salamis, in the days of Dido. It is indeed an argument very much in favour of Newton's computations, that they agree very nearly with all the most ancient monuments, the most correct traditions of antiquity, and the oldest historians; particularly Herodotus and Thucydides, who wrote before chronology was corrupted by the vanity of their nation, or the absurd systems of later historians. Moreover, it conduces very much to the credibility of the Old Testament history, that the courses of generations and descents which are mentioned in it, parallel to those in the fabulous period of the Grecian history, fall within the same intervals of time with those which have been measured since history has been authentic. Consequently, it is another argument in favour of Newton's correction of the ancient Greek chronology, that it brings the courses of generations and successions in the one to correspond to those in the other. Besides, in several other respects it brings them to a greater harmony than can be attained on any other principles; and, in particular, it places the expedition of Sesostris (probably the same person with Sefac) at the precise time in which it is spoken of in the Scriptures. See SESOSTRIS.

The other kind of reasoning, by which Sir Isaac endeavours to establish the epocha of the Argonautic expedition, is purely astronomical. The sphere was formed by Chiron and Mæseus at the time, and for the use of the Argonautic expedition, as several of the asterisms, mentioned by Aratus, and referring to this event, plainly shew; and at this time (as several ancient writers testify) the cardinal points of the equinoxes and solstices were placed in the middle of the constellations of Aries, Cancer, Chelæ, and Capricorn. Our author establishes this point by a consideration of the ancient Greek calendar, which consisted of 12 lunar months, and each month of 30 days, and which required an intercalary month. Of course this lunifoliar year, with the intercalary month, began sometimes a week or a fortnight before or after the equinox or solstice; and hence the first astronomers were led to the above-mentioned disposition of the equinoxes and solstices; and that this was really the case, is confirmed by the testimonies of Eudoxus, Aratus, and Hipparchus. On these principles, Sir Isaac proceeds to argue in this manner. In the end of the year 1689, the star called the *Prima Arietis* was in γ $28^{\circ} 51'$ with north latitude $7^{\circ} 8' 58''$; and the star called the *Ultima cauda Arietis* was in δ $19^{\circ} 3'$

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42" with north latitude $2^{\circ} 34' 5''$; consequently the equinoctial colure at this time cut the ecliptic in $8^{\circ} 6' 44''$, or by the calculations of bishop Horfley in $8^{\circ} 6' 50' 20''$, and by this reckoning the equinox was then gone back (according to Newton) $36^{\circ} 44'$, and according to his editor Horfley $36^{\circ} 50' 20''$, since the Argonautic expedition. But it recedes $50''$ in a year, or 1° in seventy-two years, and consequently $36^{\circ} 44'$ in 2645 years; which counted backward from the beginning of 1793, will place this expedition about twenty-five years after the death of Solomon. According to Horfley's calculations the equinoctial points recede $36^{\circ} 50'$ in 2642 years. From the end of the year 1689, i. e. of the Julian period 6402, count back 2642, and you come to the year of the Julian period 3760, the 22d from Solomon's death, according to Petavius. But, as there is no necessity for allowing that the *middle* of the constellations, according to the general account of the ancients, should be precisely the middle between the *prima Arietis*, and *ultima Caude*, Sir Isaac Newton proceeds to examine what were those stars, through which Eudoxus made the colures to pass in the primitive sphere, and in this way to fix the position of the cardinal points. From the mean of five places he finds, that the great circle, which in the primitive sphere, described by Eudoxus, or at the time of the Argonautic expedition, was the equinoctial colure, did, in the end of 1689, cut the ecliptic in $8^{\circ} 6' 29' 15''$; or according to the calculations of bishop Horfley, in $8^{\circ} 6' 30' 05''$, and according to Raper's copy of Newton's chronology, $8^{\circ} 6' 30' 17''$, written by his own hand in the margin. He likewise, in the same manner, determines the mean place of the solstitial colure to be $33^{\circ} 6' 28' 46''$, or, as Horfley states it, $33^{\circ} 6' 28' 48''$; and as it is at right angles with the other, concludes that it is rightly drawn. Hence he infers, that the cardinal points, in the interval between that expedition, and the year 1689, have receded from these colures 1 sign 6° and $29'$; which, allowing seventy-two years to a degree, amounts to 2627 years; and these counted backwards, as above, will place the Argonautic expedition forty-three years after the death of Solomon, or about 37 years after this event, as placed by Petavius.

The principles on which the preceding calculation is founded are these: Let $\gamma p c$ (*Plate III Astronomy, fig. 22.*) be an arc of the ecliptic, γ being the equinoctial point at the end of the year 1689. Let the point P be the place of the first star in Aries (γ of Bayer) and C the place of the

last in the tail (τ of Bayer). Imagine a great circle of the sphere drawn through P and O; and bisect the arc PC in H. Then is H the middle point between P and C, through which the equinoctial colure of the primitive sphere passed. Therefore through H draw a great circle HA, which may make an angle of $66^{\circ} 30'$ with the ecliptic, the acute angle looking eastward. Then HA will be the equinoctial colure of the primitive sphere, and A the equinoctial point of that sphere.

To find the distance of A from γ , the equinoctial point of the sphere of 1690; find Π the pole of the ecliptic; and through P, C, and H, draw circles of latitude, ΠP , ΠC , ΠH , meeting the ecliptic in the points p , c , and b ; and from P and H draw arcs of great circles, PB and HD, perpendicular to $\Pi C c$. Now the arcs γp , γc , are given; being the given longitudes of the stars P and C at the end of the year 1689. Therefore $p c$, the difference of these arcs, is given, and the angle $p \Pi c$, which is measured by that given arc $p c$. But the arc ΠP is given, being the complement of the given latitude $P p$. Consequently in the right-angled spherical triangle, $P B \Pi$, the hypotenuse $P \Pi$ is given, and the angle $P \Pi B$. Therefore both the legs, PB, ΠB , will be given by trigonometry. But ΠB being given; since ΠC is also given; being the complement of the given latitude $C c$; their difference, BC, is given. Therefore in the right-angled spherical triangle, $P B C$, the two legs, PB and BC, are given. Consequently the hypotenuse PC, and the angle $P C B$ will be given by trigonometry. But PC being given, its half, HC, will be given. Therefore, in the right-angled spherical triangle, $H D C$, the hypotenuse CH being given with the angle HCD; the legs HD, DC, will be given by trigonometry. But DC being given, since ΠC is also given, their difference, ΠD , is given. And in the right-angled spherical triangle, $\Pi D H$, the two sides ΠD , DH, being given, the angle $D \Pi H$ and the hypotenuse ΠH will be given by trigonometry. But ΠH being given, its complement, $H b$, which is the latitude of the point, H, is given. And in the right-angled spherical triangle $H b A$, the side $H b$ being given with the angle $H A b$; the side $b A$, will be given by trigonometry. But the arc $b c$ is given, being the measure of the given angle $D \Pi H$. Therefore the arc $c A$, the sum of $c b$ and $b A$, is given. But γc is given; consequently γA is given. Q. E. I.

Computation.

$$\begin{array}{lcl} \text{Given } \gamma p = 28^{\circ} 51' 00'' & \} & \text{consequently } p c = 20^{\circ} 12' 42'' \\ \gamma c = 49 \quad 03 \quad 42 & & \\ P p = 7 \quad 8 \quad 58 & & \text{consequently } \Pi p = 82 \quad 51 \quad 02 \\ C c = 2 \quad 34 \quad 5 & & \text{consequently } \Pi c = 87 \quad 25 \quad 55 \end{array}$$

$$\begin{array}{lcl} \text{Hence, in the right-angled triangle } \Pi B P, & \Pi p = 82^{\circ} 51' 02'' & \\ & P \Pi B = 20 \quad 12 \quad 42 & \\ \text{Therefore the legs} & P B = 20 \quad 2 \quad 52 & \\ & \Pi B = 82 \quad 23 \quad 12 & \\ \text{But} & \Pi C = 87 \quad 25 \quad 55 & \\ \text{Therefore} & B C = 5 \quad 02 \quad 43 & \end{array}$$

$$\begin{array}{lcl} \text{Hence, in the right-angled triangle } P B C, & P B = 20^{\circ} 2' 52'' & \\ & B C = 5 \quad 2 \quad 43 & \\ \text{Therefore} & P C B = 76 \quad 27 \quad 00 & \\ \text{And} & P C = 20 \quad 38 \quad 51 & \\ \text{Therefore} & H C = \frac{1}{2} P C = 10 \quad 19 \quad 25\frac{1}{2} & \end{array}$$

Hence,

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Hence, in the right-angled triangle HDC,	HC = 10° 19' 25"
And	HCD = 76 27 00
Therefore	HD = 10 1 59
And	CD = 2 26 37
But	HC = 87 25 55
Therefore	HD = 84 59 18

Hence, in the right-angled triangle PDH,	PD = 84 59 18
And	HD = 10 1 59
Therefore	DPH = 10 4 15 = <i>bc</i>
And	PH = 85 3 55
Therefore	Hb = 4 56 5

Hence, in the right-angled triangle HbA,	Hb = 4 56 5
And	HA b = 66 30 00
Therefore	bA = 2 9 7
But	cb = 10 4 15
Therefore	cA = 12 13 22
But	γc = 49 3 42
Therefore	γA = 36 50 20

It should be observed, says bishop Horsley, that in finding the place of the equinoctial colure of the primitive sphere on the sphere of 1690; the obliquity of the ecliptic, on the primitive sphere, has been supposed to be just $23^{\circ} 30'$, and the complement of the obliquity $66^{\circ} 30'$; and computing from these elements, we have found reason to conclude, that the primitive sphere of the Greeks was 2627 years older than the sphere of 1690. But at that distance of time, before the commencement of the year 1690, Dr. Horsley finds, by Mayer's tables, that the obliquity of the ecliptic was $23^{\circ} 48' 54''$. He therefore assumes $23^{\circ} 48' 30''$ for the obliquity on the primitive sphere, and repeating his calculations, he found the following five places of the primitive equinox on the sphere of 1690:

The primitive equinoctial colure being drawn	
Through ν of Aries	87° 05' 34"
Through the middle point between ν and ξ Ceti	6 56 25
Through ϵ of Cetus	7 23 16
Through τ of Perseus	6 03 00
Through π of Perseus	4 39 39

The mean place of these five is $8^{\circ} 6' 25'' 23''$: and if this be the place of the primitive equinoctial point on the sphere of 1690, the place of the summer solstice should be $\Omega 6^{\circ} 25' 23''$. But by the description of the solstitial colure it should be $\Omega 6^{\circ} 28' 46''$. It may be reasonable, therefore, to take $8^{\circ} 6' 27'$ and $\Omega 6^{\circ} 27'$ for the places of the primitive equinox and solstice on the sphere of 1690; by which reckoning these points will be less advanced by $2'$ than sir Isaac Newton has supposed. But these two minutes will not make a difference of 3 years in the age of the primitive sphere.

Our illustrious author hath, by other methods of a similar nature, established the epocha of the Argonautic expedition, as well as others, and reduced the age of the world about 500 years. What gives great weight to this argument, from the precession of the equinoxes is, that if we reckon from whatever time the position of the equinoctial points hath been mentioned by astronomers whose age is known, this motion, counted backwards, fixes that great event in the same year. It likewise demonstrates, that the observations of the ancients, though coarse enough, as sir Isaac Newton acknowledges, are sufficiently exact for the purpose. This being a remarkable circumstance, the particulars of it are as follow. According to Pliny, and the calculations of Petavius, Thales, who wrote a book of the tropics and equinoxes, fixed the

equinoxes and solstices in the 11th degree of their respective signs; so that they had receded $4^{\circ} 26' 52''$ from their original place at the time of the Argonautic expedition. This answers to 320 years, and calculated backwards from the 41st olympiad, when Thales was a young man, fit to apply to astronomical studies, will place that event 44 years after the death of Solomon.

Petavius, in the calculation above referred to, deriving information from Pliny (l. xviii. c. 25.), who says, that Thales determined the "occasus matutinus" of the Pleiades to be upon the 25th day after the autumnal equinox, thence computes the longitude of the Pleiades in $\gamma 23^{\circ} 53'$, and consequently that the *Lucida Pleiadum* had, since the Argonautic expedition, moved from the equinox $4^{\circ} 26' 52''$, as above stated. From the passage of Pliny, to which we have now referred, an objection has been deduced against the chronological computation of Newton. Pliny's authority, it is said, avails as much to prove, that Hesiod places the morning-setting of the Pleiades on the very day of the equinox, as that Thales placed it 25 days later. And if it be true, that *Lucida Pleiadum* did really set at sun-rise on the day of the autumnal equinox, in the age of Hesiod; this will much more refute sir Isaac's date of the Argonautic expedition than the assumption, that the morning-setting of the same star was 25 days later in the age of Thales, confirms it. For it is agreed, that Hesiod was some time later than the Argonautic expedition; for we have his own testimony, that he lived after the war of Troy. The Argonautic expedition happened, according to sir Isaac Newton, in that age when the longitude of *Lucida Pleiadum* was in the 20th degree of the sign of Aries. But when this star set at sun-rise, on the day of the autumnal equinox, its longitude must have been rather behind the vernal equinox; as any astronomer, who will take the trouble to make the necessary calculations, may easily perceive. So that between the age of Hesiod, as thus defined by the morning setting of the *Lucida Pleiadum*, and that time which sir Isaac Newton assigns to the Argonautic expedition, the stars must have advanced more than 20 degrees in longitude; and a change of 20 degrees, at the rate of 1° in 72 years, requires 1440 years. Consequently, it may be said, his date of the Argonautic expedition cannot be less than 1500 years too late.

To this specious objection Newton might have replied, that Pliny reports the season of the morning-setting of this star, in the age of Hesiod, from a book of astronomy, of

which he says only, that it was extant *under the name of Hesiod*: and that this book could not be Hesiod's. For Hesiod speaks of Arcturus as rising at sun-set 60 days after the winter solstice. And it is impossible that any star of the Pleiades could set at sun-rise, on the day of the autumnal equinox, in the same age when Arcturus rose at sun-rise 60 days after the winter solstice; or that these two circumstances of the sphere should be removed from each other by a less interval of time than the space of 1440 years. This book of astronomy, extant in Pliny's time, under the name of Hesiod, must have been a supposititious work, and probably the imposition of some petty retailers of science in the decline of the Grecian learning. The extravagant antiquity, which it gives to the Greek astronomy, entirely destroys its credit.

According to Columella, Meton, and Euctemon, who published the lunar cycle of 19 years (see CYCLE), and for this purpose observed the summer solstice in the 316th year of Nabonassar, the year before the Peloponnesian war began, placed the summer solstice in the eighth degree of Cancer, which is at least 7° more backwards than at first. This interval answers to 504 years, which counted backwards from the year of observation, makes the Argonautic expedition fall upon the 44th year after the death of Solomon. Lastly, Hipparchus, who first discovered that the equinoxes had a regular motion backwards, made his observations about the 602d year of Nabonassar, and fixed the vernal equinox in the fourth degree of Aries. Consequently, the equinoctial points had receded eleven degrees since the Argonautic expedition, which is equivalent to 792 years, and which counted backwards, places the expedition in the 43d year after the death of Solomon. These coincidences are remarkable, and could not have placed the same event so near the same year, unless all the observations had been sufficiently exact. And when we consider the coincidences of a great many more independent evidences, derived from the course of generation, and the order of succession, with those which are deduced from astronomical principles, nothing seems to be better established than that the Argonautic expedition, an event on which the whole Greek chronology depends, really happened about 43 years after the death of Solomon, and not in the days of Gideon, above 300 years before, as the common opinion has stated it.

The rising and setting of the stars with respect to the rising and setting of the sun depend also upon the precession of the equinoxes. Any writer, therefore, who mentions the rising or setting of any star, at any particular time of the year, with respect to the sun, furnishes us with data sufficient to determine the time in which he wrote. Thus Hesiod tells us, that 60 days after the winter solstice the star Arcturus rose just at sun-set; from which circumstance it is easily calculated that Hesiod flourished about 100 years after the death of Solomon, or in the generation, or age, next after the Trojan war, as Hesiod himself declares; and this affords another independent argument for the date assigned by Newton to that war, and the whole Greek chronology connected with it. Bishop Horsley, in his edition of Newton's works, observes that he cannot deduce sir Isaac Newton's conclusion from his premises. When Arcturus rose at sun-set 60 days after the winter solstice, he finds the longitude of that star to have been $112^{\circ} 13' 28' 38''$, which exceeds its longitude on the primitive sphere by no more than $1^{\circ} 46'$. Taking the longitude and latitude of Arcturus, each such as it was in the primitive sphere, viz. the longitude $112^{\circ} 13' 26' 52''$, the latitude $30^{\circ} 52' 18''$; he finds, that when the star rose at sun-set, the sun's true place must have been $28^{\circ} 00' 59'$; and according to the situation of the aphelion

of the earth's orbit, which obtained in that age of the world, when the equinoxes were in $8^{\circ} 6' 27''$, and $112^{\circ} 6' 27''$ of the sphere of 1690, the sun was in this place 60 days after the winter solstice. So that the conclusion from this passage of Hesiod should rather be that he flourished in that very age when the Greeks first formed their sphere; that is, according to Newton's system, in the age of the Argonautic expedition. The bishop supposes the truth to be, that before the retrograde motion of the equinoctial points was discovered, all writers speak of the risings and settings of the stars, as they were stated by the astronomers who first formed the sphere. This was probably the case with regard to Hesiod in particular, if he lived so near the age of the Argonautic expedition, and the beginning of the Greek sphere, as sir Isaac supposes. No conclusion is therefore to be drawn, concerning the particular age of any writer, much older than Hipparchus, from what he may say of the phenomena of the sphere; unless it be certain, that he was a practical astronomer, and lived at such a distance of time from the commencement of the Greek astronomy, as might produce sensible changes in the seasons of the risings and settings of the stars. Such writers might, indeed, without any knowledge of the motion of the equinoxes, describe the phenomena according to their own observations, and impute the difference, between what they saw and what their masters had delivered, to the coarseness of the first observations. Bishop Horsley, when he speaks of the appearances of the primitive sphere, means the appearances in the latitude of 40° N., at that time when the vernal equinox was in $8^{\circ} 6' 27''$ on the sphere of 1690.

Sir Isaac Newton having, by the concurring aids of Scripture and reason, rectified the chronology of the Greeks, made use of this rectified chronology to adjust the cotemporary affairs of the Egyptians, Assyrians, Babylonians, Medes, and Persians. His elaborate system, however, has not escaped censure. M. Freret and M. Souciet have attacked it on much the same ground: the former hath confounded *reigns* and *generations*, which are carefully distinguished in this system. The astronomical objections of both have been answered by sir Isaac Newton himself, and by Dr. Halley. Phil. Trans. Abr. vol. viii. part iv. p. 4, &c. Newton's Chronology, ch. i.

Mr. Gibert, in a letter published at Amsterdam in 1743, has attempted to reduce the Babylonian, Egyptian, and Chaldean annals to our chronology. He begins with shewing, by the authorities of Macrobius, Eudoxus, Varro, Diodorus Siculus, Pliny, Plutarch, St. Augustin, &c. that by a year the ancients meant the revolution of any planet in the heavens; so that it consisted sometimes only of one day. Thus, according to him, the solar day was the astronomical year of the Chaldeans; and the boasted period of 473,000 years assigned to their observations is reduced to 1297 years, 9 months; the number of years which elapsed, according to Eusebius, from the first discoveries of Atlas in astronomy, in the 384th year of Abraham, to the march of Alexander into Asia in the year 1682 of the same æra; and the seventeen thousand years added by Berofus, to the observations of the Chaldeans, reduced in the same manner, will give forty-six years, and six or seven months, being the exact interval between Alexander's march, and the first year of the 123d olympiad, or the time to which Berofus carried his history. Epigenius attributes 720,000 years to the observations preserved at Babylon; but these, according to M. Gibert's system, amount only to 1971 years, three months, which differ from Calisthenes's period of 1203 years allotted to the same observations, only by 68 years, the period elapsed from the taking of Babylon by Alexander, which terminated the latter

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latter account, and to the time of Ptolemy Philadelphus, to which Epigenius extended his account.

CHRONOLOGY sacred. The systems of sacred chronology have been very various. Nor is this to be wondered at, since our three biblical copies of principal note give a very different account of the first ages of the world. The Hebrew text reckons about 4000 years from Adam to Christ, and to the flood 1656 years; the Samaritan makes this interval longer, and reckons from Adam to the flood only 1307 years; and the version of the Septuagint removes the creation of the world to 6000 years before Christ. The interval between the creation and flood, according to Eusebius and the Septuagint, is 2242 years; according to Josephus and the Septuagint, 2256 years; and according to Julius Africanus, Epiplianius, Petavius, and the Septuagint, it is reckoned at 2262 years. Many attempts have been made to reconcile these differences; but none are quite satisfactory. See **EPOCHÆ, SAMARITAN, &c.**

Walton, and I. Vossius, give the preference to the account of the Septuagint. Walton's *Prolegomena*. Vossii *Chronologia Sacra*. Others have defended the Hebrew text. The reader may find an abstract of the different opinions of learned men on this subject, in Strauchius's *Brev. Chron.* translated by Sault, p. 166, &c. and p. 176.

The more eminent writers on chronology, among the ancients are, Julius Africanus, in the third century; Dionysius Exiguus, Eusebius, and Cyril.

Among the moderns, Bede, Funccius, Mercator, Lilius, Clavius, Scaliger, Vieta, Petavius, Cassini, Munster, Calvinus, Hardouin, Capellus, Uther, Newton, Marsham, Helvicus, I. Vossius, Pagi, Strauchius, Perron, Blair, Playfair, &c.

It will be proper to add to the above account of the history and principles of chronology a few words on the construction and utility of *Chronological Tables*. By means of such tables history is reduced into a short compass, and the reader is aided in the study of it. Thus an entire course of history is easily comprehended, and at the same time a proper distinction may be observed between its several parts. If such tables consist of nothing more than an enumeration of the capital events in history, thrown together promiscuously, without any distinction of kingdoms, regard being only had to the order of time in which the events happened, they have their use. We thus see, at almost one view, the principal things which history records, and from the dates annexed to each article, we form an idea of the interval of time between one and another of them; such tables are often compiled for single histories; of this kind is the "short Chronicle" prefixed to "Newton's Chronology." But in a more complex and extended history, it will be useful to keep

the separate parts distinct, and, for this purpose, to arrange them in different columns. By such means we obtain a distinct idea of the course of any single history; and at the same time a clear comparative view of the cotemporary state of any other history which was parallel with it. The neglect of this method has introduced confusion into the chronological tables published with the "Universal History," and the advantage resulting from it may be perceived in those of Marshall, Tallents, &c. Besides a distinct view of the succession of events in different histories, it is an advantage to have, in separate columns, an account of the "great men," in arts or in arms, which each age has produced. This has been exhibited by the last-mentioned authors and others. For this purpose two columns are quite sufficient; one for statesmen and warriors, and the other for men of learning and science. Another improvement in chronological tables has been to annex a variety of dates, in distinct columns, to every event, to save the reader the trouble of reducing the different methods of computation to one another. But many chronologers have multiplied these different epochas far beyond any real use, so as greatly to encumber their page, and leave little room for more valuable matter. Helvicus furnishes an example of this kind. Four æras are abundantly sufficient, viz. the year before and after Christ, and the Julian period to run through the whole extent of the work; the olympiads for the course of the Grecian history; and the year of the city for the Roman. These are used by Blair. The last, and capital improvement in chronological tables, which has been effected in some measure by Tallents and Marshall, more perfectly in Helvicus, but most completely by Blair, is to dispose the events in such a manner, as that the distance at which they are placed, without attending to the date in the margin, shall give a just idea of the real interval of time between them. This is done by having a single line, or any fit interval appropriated to any certain period of time, or number of years. In the chronological tables engraved by Sturt, we see a great deal of matter, by a singular method, and the help of arbitrary and symbolical characters, crowded into a short compass; so that we see the state of the several kingdoms of Europe for any century since the Christian æra in a single page. This author has also annexed an alphabetical index to his work, in which, by the help of symbols, he has expressed the character of every prince mentioned in his tables, and the principal events of his life. This small work is valuable for its conciseness, but is not so much recommended by its distinctness. Genealogical tables are of very considerable use in subordination to those of a chronological kind; for an account of which, see **GENEALOGY**. Priestley's *Lectures on History*, &c. 1788.

A

CHRONOLOGICAL TABLE.

OF

Remarkable Events, Discoveries, and Inventions, from the Creation to the Year 1807.

B. C.
4004.—Creation of the world, at the autumnal equinox, on Sunday, October 23, according to archbishop Usher and the Hebrew text.
Julian 5872, according to the LXX.
period. 4700, according to the Samaritan.
Creation of Adam and Eve, on Friday, Oct. 28.

B. C.
4003.—The Birth of Cain, the first who was born of a woman.
3875.—Abel murdered by Cain.
3874.—The birth of Seth.
3017.—Enoch translated to heaven for his piety, at the age of 365.
3317.—Birth of Methusalem, who died at the age of 969.

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B. C.

- 2948.—Birth of Noah, who died at the age of 950.
 2446.—Birth of Shem, who died at the age of 600.
 2349.—Noah entered the ark on Sunday, Nov. 30th, and on Sunday, Dec. 7, it began to rain.
 2348.—The deluge.—On Wednesday, May 6, the ark rested on mount Ararat.—On Friday, Dec. 18, Noah left the ark, built an altar, and offered sacrifice to God for his deliverance.
 2247.—The tower of Babel is built about this time by Noah's posterity in the valley of Shinar, upon which God miraculously confounded their language, and thus dispersed them into different nations.
 2234.—Celestial observations begun at Babylon, a register of which was sent by Callisthenes to Aristotle for 1903 years to the capture of that city by Alexander in the year 331 B. C.
 2221.—The Chaldean monarchy founded by Nimrod.
 2207.—The Chinese monarchy founded, according to some historians.
 2188.—The kingdom of Egypt commences under Misraim, the son of Ham, which lasted for 1663 years, to the conquest of Cambyfes, in the year 525 B. C.
 2089.—The kingdom of Sicily established.
 2059.—The kingdom of Assyria begins.
 1996.—Abram born, who died 1821, æt. 175.
 1921.—The covenant made by God with Abram, when the 430 years of sojourning commenced.
 1897.—The covenant renewed with Abram, his name changed to Abraham.—Circumcision instituted.—The cities of Sodom, &c. destroyed.
 1896.—The birth of Isaac.
 1871.—Trial of Abraham's faith by the command to offer his son Isaac.
 1856.—The kingdom of Argos begins.—Isaac marries Rebekah.
 1827.—The 17th dynasty of the six shepherd kings in Egypt begins, and continues 103 years.
 1822.—Memnon, the Egyptian, invents the letters.
 1796.—The reign of Ogyges begins 1020 years before the first olympiad.
 1764.—The deluge of Ogyges, which laid waste Attica for more than 200 years, till the coming of Cecrops.
 1759.—Jacob, blessed by his father, goes to Haran, and marries the two daughters of his uncle Laban.
 1728.—Joseph sold into Egypt.
 1715.—Joseph interprets Pharaoh's dreams, and is promoted.—The 7 years of plenty begin.
 1708.—The 7 years of famine begin.
 1706.—Joseph discovers himself to his brethren.
 1702.—All the lands in Egypt, sold to Joseph, who let them out with a perpetual tax of a fifth part of their produce.
 1689.—Jacob predicts the advent of the Messiah, and dies æt. 147.
 1635.—Joseph foretels the egress of the Israelites from Egypt, and dies æt. 110, having been præfect of Egypt for 80 years. His death terminates the book of Genesis, containing a period of 2369 years.
 1615.—The Ethiopians, coming from the Indus, settle in the neighbourhood of Egypt.
 1582.—The chronology of the Arundelian marbles begins, at which time Cecrops is supposed to have come into Attica.
 1574.—Aaron born, and in the following year Pharaoh pub-

B. C.

- lishes an edict for drowning all the children of the Israelites.
 1571.—Moses born.
 1556.—Cecrops brings a colony of Saites from Egypt into Attica, and founds the kingdom of Athens, 780 years before the 1st olympiad.
 1546.—About this period Scamander comes from Crete into Phrygia, and begins the kingdom of Troy.
 1531.—Moses visits the Israelites; flies into Midian, and continues there 40 years.
 1503.—The deluge of Deucalion in Thessaly.
 1497.—The council of Amphictyons established.
 1493.—Cadmus carried the Phœnician letters into Greece and built the citadel of Thebes.
 1491.—God appears to Moses in a burning bush, and sends him into Egypt, where he performed many miracles, and inflicted on Pharaoh 10 successive plagues, till he allowed the Israelites to depart, in number amounting to 600,000 besides children, on Tuesday the 5th of May, which completed the 430 years of sojourning. On Monday, May the 11th, Moses opened a passage for the Israelites through the Red Sea into the desert of Etham, when Pharaoh's host attempting to follow them, were drowned; about the 22d of June they arrive in the desert of Sinai, near mount Horeb, where they remain near a year, during which Moses receives from God and delivers to the people the 10 commandments, with other laws, and sets up the tabernacle, containing the ark of the covenant.
 1490.—Sparta built by Lacedæmon.
 1485.—The first ship that appeared in Greece, brought from Egypt by Danaus surnamed Armais.
 1480.—Troy supposed to have been built by Dardanus.
 1453.—The first Olympic games celebrated at Elis by the Idæi Dactyli.
 1452.—The 5 books of Moses written in the land of Moab, where Moses died in the following year, æt. 110.
 1451.—The Israelites, under Joshua, pass Jordan and enter Canaan, on Friday, April 30.
 1445.—Joshua divides the land of Canaan, and rests from his conquests upon the sabbatical year, which begins from the autumnal equinox.
 1426.—Joshua dies at Timnath-Serah, æt. 110.
 1413.—The Israelites, sunk into idolatry, continued in slavery under Cushan, king of Mesopotamia, for 8 years.
 1406.—Minos gives laws to the Cretans, and acquires a great maritime power.—Iron is found by the Idæi Dactyli from the accidental burning of the woods of mount Ida in Crete.
 1405.—Othniel, the first judge of Israel, defeats Cushan, and gives rest to Israel, in the 40th year after that given them by Joshua.
 1390.—Benjamin almost totally destroyed by the other 11 tribes, Phineas being high-priest.
 1383.—Ceres came to Athens, and taught them to sow corn.
 1356.—The Eleusinian mysteries first introduced at Athens.
 1344.—The kingdom of Mycenæ begins about this time, when the kingdom of Argos was divided; Mycenæ forming the most considerable part.
 1343.—The Israelites, relapsing into idolatry, enslaved by Eglon, king of Moab, for 18 years.
 1326.—The Isthmian games first instituted.

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B. C.

- 1325.—Ehud, the 2d judge of the Israelites, kills Eglon, and rescues them from their 2d bondage; the great Egyptian canon year began on Saturday, July 20, and consisted of 1460 years.
- 1307.—The Olympic games instituted by Pelops.
- 1305.—The 3d servitude of the Israelites under Jabin, king of Canaan, which continued 40 years.
- 1300.—The Lupercalia instituted.
- 1285.—Deborah the prophetess defeats the Canaanites under Sisera, and Israel had rest in the 40th year after that given by Ehud.
- 1284.—The Siculi pass out of Italy into Sicily, about 3 generations before the Trojan war. Others say the first colony arrived in 1294, and a second in 1264.
- 1263.—The Argonautic expedition, 79 years before the taking of Troy. According to others, in 1225. About this time the first Pythian games were celebrated by Adrastus.
- 1252.—The 4th servitude of the Israelites under the Midianites, which continued for 7 years.—The city of Tyre was built.
- 1245.—Gideon routs the Midianites, and Israel had rest in the 40th year after that given by Deborah.
- 1243.—A colony of Arcadians, conducted by Evander into Italy.
- 1234.—Theseus settles a democracy in Attica, and renews the Isthmian games; others say in 1231.
- 1233.—Carthage founded by the Tyrians.
- 1225.—The Theban war of the 7 heroes.
- 1222.—The celebration of the Olympic games by Hercules.
- 1213.—The rape of Helen by Theseus.
- 1206.—The 5th servitude of the Israelites under the Philistines and Ammonites, which continued 18 years.
- 1198.—The rape of Helen by Paris; others say in 1204.
- 1194.—The Trojan war begins, and continues 10 years.
- 1188.—Jephtha, the 7th judge of Israel for 6 years, his rash vow with respect to his daughter.
- 1184.—Troy is taken and burned by the Greeks, in the night, between the 11th and 12th of June, 408 years before the 1st olympiad.—Æneas set sail in the beginning of autumn for Thrace.
- 1182.—The kingdom of the Latins begins under Æneas, who builds Lavinium.
- 1179.—The maritime power of the Mediterranean acquired by the Lydians.
- 1176.—Salamis in Cyprus built by Teucer.
- 1157.—Eli the high priest, 11th judge of Israel for 40 years.
- 1156.—The 6th servitude of the Israelites under the Philistines, which continued 40 years.
- 1152.—The city of Alba-Longa built by Ascanius, 2d king of the Latins.
- 1141.—The Amazons burned the temple of Ephesus.
- 1136.—Samson kills 3000 Philistines.
- 1124.—The migration of the Æolian colonies 80 years before that of the Ionians.—Thebes built by the Bœotians.
- 1122.—The 3d dynasty of China, called Tcheou, begins.
- 1117.—Samson betrayed to the Philistines.—Eli dies.
- 1116.—Samuel the 12th and last judge of Israel for 21 years.
- 1115.—The mariner's compass said to be known in China.
- 1104.—The return of the Heraclidæ into Peloponnesus; they divide it.—The kingdom of Lacedæmon begins.—That of Mycenæ ends.—Others say that the kingdom of Lacedæmon, or Sparta, commenced in 1102.

B. C.

- 1095.—The Israelites obtain a king, and Saul anointed by Samuel.
- 1093.—Saul rejected, and David anointed king.
- 1088.—The kingdom of Sicyon ends; others say in 1130.
- 1070.—The kingdom of Athens ends in Codrus, and governed by archons.
- 1058.—The Pelasgians, the 2d people who acquire the maritime power of the Mediterranean.
- 1055.—Saul consults the witch of Endor, and kills himself on mount Gilboa.
- 1048.—Jerusalem taken by David from the Jebusites, and made the seat of his kingdom.
- 1044.—The migration of the Ionian colonies from Greece, 60 years after the return of the Heraclidæ, and their settlement.
- 1034.—David reproved by Nathan, and repents.
- 1023.—Absalom rebels, and is killed by Joab.
- 1012.—Solomon begins to build the temple, 480 years after the exodus from Egypt: others say in 1016.
- 1004.—The temple dedicated on Friday, October 30th, 1000 years before Christ: others say in 1008.
- 1000.—The Thracians acquire the maritime power of the Mediterranean, about this time, and hold it for 19 years.
- 996.—Solomon's fleet prepared in the Red Sea, and sent to Ophir.
- 992.—Solomon's palace finished, which with the temple employed him 20 years.
- 986.—Samos, in the island of the same name, and Utica, built about this time.
- 975.—The division of the kingdoms of Judah and Israel; others say in 979.
- 971 or 974.—Sefac, king of Egypt, takes Jerusalem, and plunders the temple and palace.
- 926.—Lycurgus, the Spartan lawgiver, is born, 150 years before the 1st olympiad.
- 916.—The Rhodians are the 4th who acquire the maritime power of the Mediterranean, and hold it for 23 years.
- 907.—Homer wrote his poems and flourished.
- 900.—The kingdom of Assyria ends.
- 896.—Elijah the prophet is taken up into Heaven.
- 893.—The Phrygians are the 5th people who acquire the maritime power of the Mediterranean.
- 884.—Lycurgus, after travelling 10 years, establishes his laws in Lacedæmon.—Iphitus, Lycurgus, and Cleothenes, restore the Olympic games at Elis, 108 years before the vulgar æra of the 1st olympiad.
- 872.—The art of sculpture in marble said to be found out.
- 869.—Phidon, king of Argos, invented scales and measures, and coined silver at Ægina.—The city of Carthage is built by queen Dido about this time; others say it was enlarged by this queen in 864.
- 868.—The Cyprians are the 6th who acquire the maritime power of the Mediterranean.
- 839.—The army of Hazael, king of Syria, desolates a great part of the kingdom of Judah.
- 826.—The Phœnicians are the 7th who acquire the maritime power of the Mediterranean.
- 820.—Niniveh is taken by Arbaces, and Belshazzar, which finishes the kingdom of Assyria.—Sardanapalus burns himself to death.—The kingdom is subdivided.
- 814.—The kingdom of Macedon begins, and continues 646 years, till the battle of Pydna.

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- B. C.
- 801.—Capua, in Campania, built.
- 797.—The kingdom of Lydia begins.
- 790.—Amos the prophet flourished, and began his prophecies in 787.
- 787.—The Egyptians are the 8th who acquire the maritime power of the Mediterranean.
- 786.—The Corinthians invented ships called *Tiremes*.
- 779.—The race of kings ended at Corinth, and was succeeded by annual magistrates, called *Prytanes*.
- 776.—Coræbus conquers in the 28th olympiad from their institution by Iphitus, though vulgarly called the *first olympiad*, which, according to Scaliger, was celebrated on the 23d of July.
- 770.—Phul invades the kingdom of Israel, and is bribed to depart with 1000 talents.
- 760.—The Ephori established at Lacedæmon by Theopompus.
- 757.—Isaiah begins to prophesy, and continues his prophecies for above 60 years; was sawn asunder by order of Manasses in 696.
- 754.—The decennial archons begin at Athens.—Micah the prophet.—The Milesians are the 9th who acquire the maritime power of the Mediterranean.
- 753.—Rome is built, according to Varro, April the 20th, or the 12th of the calends of May.
- 750.—The rape of the Sabines.
- 747.—The Romans and Sabines unite.—The æra of Nabonassar begins.
- 743.—The first war between the Messenians and Lacedæmonians begins, and continues 19 years.
- 734.—The Carians about this time have the command of the Mediterranean.
- 732.—Syracuse built by a colony of Corinthians under Archias; others say in 758.
- 731.—Habbakuk the prophet.
- 724.—The 1st Messenian war ended by the capture of Ithome, which rendered them vassals to the Lacedæmonians.
- 722.—The Chinese empire divided into principalities.
- 721.—Samaria, after 3 years siege, taken.—The kingdom of Israel finished by Salmanaser, king of Assyria, who carried the ten tribes into captivity.—The 1st eclipse of the moon on record, according to Ptolemy, March 19th, 3 hours 20' before midnight.
- 720.—The 2d and 3d eclipse of the moon on record; the 2d on March 5th, 50' before midnight; and the 3d on September 1st, 4 hours 20' before midnight, according to the meridian of Alexandria.
- 717.—Ineffectual siege of Tyre for about 5 years by Salmanaser, king of Assyria.
- 713.—Gela in Sicily founded.—Senacherib's army destroyed in one night by an angel, to the amount of 185,000 men.
- 709.—The *Salii*, an order of priests, instituted by Numa.
- 708.—Ecbatana built by Dejoces.
- 707.—Tarentum built by the Lacedæmonian bastards, called *Parthenians*, on being expelled Sparta.
- 703.—Corcyra built by the Corinthians.
- 690.—Holofernes besieged Bethulia, and killed by Judith.
- 686.—Archilochus the poet flourished, and invented the *Iambic verse*.
- 685.—The second Messenian war begins, and continues 14 years.
- 684.—Athens begins to be governed by annual archons.—*Tyrtæus* the poet flourished.
- 683.—The Lacedæmonians defeated by Aristomenes.
- B. C.
- 680.—Assaradinus, or Esarhaddon, king of Assyria, takes possession of Babylon—the chariot race instituted at the Olympic games.
- 678.—Dejoces extends the Median empire to the river *Halys*.
- 677.—Manasseh king of Judah is taken prisoner, and carried in chains to Babylon.
- 676.—The Lesbians about this time acquire the command of the Mediterranean, and retain it about sixty-nine years.
- 675.—The festivals of *Carnia* instituted at Sparta, annual in August, and continued nine days—*Terpander* the poet the first victor.
- 673.—*Terpander* added about this time 3 strings to the lyre.—*Thaletas* of Gortynius, in Crete, the musician.
- 671.—The second Messenian war finished after a siege of eleven years, and the Messenians expelled the Peloponnesus.
- 670.—*Alcman* of Sardis, the lyric poet.
- 667.—The combat between the three *Horatii* and the three *Curiatii*.
- 665.—The city of Alba destroyed—the Messenians settled in Italy—war between the Romans and the *Fidenates*.
- 659.—*Cypselus* usurps the government of Corinth, and retained it for 30 years.
- 658.—Byzantium built by a colony of Argives, or, according to some, of Athenians and others—others say, it was built in 670, 17 years later than *Chalcedon*.
- 651.—A five years' war between the Romans and Sabines begins.—*Cyrene* in Africa founded.
- 648.—The *Thoth* of the year of Nabonassar was on February 1st, having shifted 25 days in 100 years.
- 641.—Amon, king of Judah, treacherously put to death by his domestic servants.
- 636.—The Tartars defeated the Chinese with great slaughter.
- 631.—War between the Romans, and the *Fidenates* and Sabines, which continues, at intervals, for fifty years.
- 630.—*Cyrene* built by Battus, who begins that kingdom.
- 629.—The government of Corinth usurped by *Periander*.
- 627.—*Jeremiah* the prophet.
- 626.—*Zephaniah* the prophet.
- 625.—The *Pentateuch* found by *Hilkiah*.
- 624.—The Scythians invade Media, Lydia, &c. and keep possession of several provinces for 28 years.—*Draco* the lawgiver, archon at Athens.
- 623.—*Draco* establishes his laws at Athens.
- 621.—A war between the Lydians and Milesians, which continues eleven years. The fourth eclipse on record, which was of the moon, on Saturday April 22d, three hours after midnight, according to the meridian of Alexandria.
- 610.—*Necho* about this time began the canal between the Nile and the Red Sea; but did not finish it.
- 608.—*Josiah*, king of Judah, slain at Megiddo by Pharaoh *Necho*, king of Egypt.
- 607.—*Alcæus* the poet flourished.
- 606.—*Nineveh* taken and destroyed by the joint armies of *Cyaxares* and *Nabopolassar*.
- 605.—The first captivity of the Jews, dated by others in 606.
- 604.—By *Necho's* order some Phœnicians about this time failed

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- failed from the Red Sea round Africa, and returned by the Mediterranean.
- 600.—Sappho the Lyric poetess.
- 597.—Jehoiachin, king of Judah, carried captive to Babylon by Nebuchadnezzar.
- 596.—The Scythians expelled upper Asia by Cyaxares, after 28 years possession.—Epimenides of Crete, the first builder of temples in Greece.
- 594.—Solon, archon and lawgiver of Athens.—Thales of Miletus.
- 593.—Ezekiel the prophet.
- 592.—Anacharsis the Scythian.
- 591.—The Pythian games first celebrated at Delphi.
- 590.—The Lydian war begins, and continues 6 years.
- 587.—The city of Jerusalem taken by Nebuchadnezzar after a siege of 18 months, June the 19th.
- 586.—The temple of Jerusalem burned on the seventh day of the fifth month.
- 585.—A battle upon the river Halys between Cyaxares and Halyattes, interrupted by an eclipse of the moon, May the 28th, which was predicted by Thales—this brought the Lydian war to a conclusion.—Æsop the mythologist flourished.
- 582.—The Isthmian games restored.
- 580.—Money first coined in Rome.
- 579.—The Megarensian war.—Stesichorus the poet flourished.
- 572.—Tyre taken by Nebuchadnezzar after a siege of 13 years.
- 571.—Apries, king of Egypt, dethroned by Nebuchadnezzar.
- 569.—Daniel interpreted Nebuchadnezzar's dreams, according to Josephus.
- 568.—The Nemæan games restored.—Anaximander of Miletus flourished.—Phalaris tyrant of Agrigentum lived.
- 566.—The first census at Rome—84,700 citizens.
- 562.—The first comedy at Athens, acted upon a scaffold by Sufarion and Dolon, the inventors of comedy.
- 560.—Pisistratus first usurped the tyranny of Athens, which he recovered after expulsion in 557, and from which he was again expelled in 556.
- 549.—Daniel the prophet delivered his predictions.—Cyrus ascended the throne of Persia.
- 556.—Anaximenes of Miletus flourished.
- 550.—Cyrus king both of Media and Persia.—The kingdom of Lydia ended, after a subsistence of 249 years.
- 549.—Theognis the poet flourished.—The Pisistratidæ burned the temple of Apollo at Delphos.
- 548.—Cræsus having crossed the Halys by an artificial bridge contrived by Thales, is defeated by Cyrus.
- 539.—The Phœceans, leaving their native country, settle in Gaul, and build Marseilles.—Pythagoras flourished.
- 538.—Cyrus takes Babylon, and terminates the kingdom of Babylon.
- 537.—Simonides of Cea, the poet, flourished.
- 536.—Cyrus issues an edict for the return of the Jews, and rebuilding the temple, the foundations of which were laid in the second month of the second year after their return.—Theſpis the inventor of tragedy lived.
- 535.—The first tragedy acted about this time at Athens, by Theſpis in a waggon.—According to the Arundelian marbles in the preceding year.

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B. C.

- 532.—Anacreon the poet flourished.
- 530.—Cyrus marched against the Scythians.
- 529.—Daniel's vision, ch. xi.
- 528.—Haggai prophesied.
- 527.—Zachariah prophesied.
- 526.—Learning encouraged at Athens.—A public library first founded.—War between the Romans and Sabines.
- 525.—Cambyſes conquered Egypt.—A comet appeared in China, near Antares, and extended to the milky way.
- 523.—The 5th lunar eclipse observed at Babylon, on Wednesday, July 16th, one hour before midnight, and more than 6 digits eclipsed on the northern disk.
- 520.—Confucius lived.—The second edict to rebuild Jerusalem.
- 519.—A great earthquake in China.
- 515.—The temple of Jerusalem finished March 10.—The passover celebrated, April 18.
- 512.—Babylon revolts from Darius, but is recovered two years after.
- 510.—The tyranny of the Pisistratidæ abolished at Athens by aid of the Lacedæmonians.
- 509.—The consular government begins at Rome, on the expulsion of Tarquin and his family, Feb. 26. being the *Regifugium* of the calendar.
- 508.—The first alliance between the Romans and Carthaginians.
- 507.—The second census in Rome—130,000 citizens.
- 506.—Heraclitus the philosopher lived.—Megabyſus subdued Thrace and Macedonia.—Porſenna king of Etruria made war against the Romans.—War between the Romans and Sabines.
- 505.—Parmenides of Elea, the philosopher, lived.
- 504.—Sardis taken and burned by the Athenians, which occasioned the Persian invasion of Greece.
- 503.—The lesser triumph, called *Ovation*, begins at Rome by Posthumius, who entered the city with a myrtle crown.
- 502.—The sixth lunar eclipse observed at Babylon on Monday, Nov. 19, 24' before midnight—3 digits eclipsed on the south part of the disk.
- 498.—The first dictator, Lartius, created at Rome.—The Ionians, after a revolt, subdued by the Persians, and Miletus taken.
- 497.—The Saturnalia instituted at Rome—150,700 citizens.
- 495.—Tarquin the proud dies at Cuma.
- 494.—War between the Romans and Sabines.
- 493.—The populace of Rome retire discontented to the Mons Sacer.—Tribunes created at Rome, or as some say in 488.—The Athenians built the port of Piræus.
- 491.—The kingdom of Syracuse usurped by Gelo.—Coriolanus banished from Rome.—The 7th lunar eclipse observed at Babylon, on Wednesday, April 25—2 digits eclipsed to the south.
- 490.—The battle of Marathon, Sept. 28th, in which the Persians were defeated by Miltiades.
- 488.—Coriolanus, by the intreaty of his mother, &c. withdraws the army of the Volsci from Rome.
- 487.—Egypt revolts from the Persians.
- 486.—Æschylus first gains the prize of tragedy, at the age of 39 years.—The Agrarian law first proposed at Rome, by Cassius.

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485.

CHRONOLOGY.

- B. C.
- 485.—Cassius punished for usurping the sovereignty.—The Volsci and Æqui subdued.
- 484.—Aristides banished from Athens.—Xerxes recovers Egypt, and commits the government to his brother Artabanus.
- 483.—Quæstors first created at Rome.—An eruption of mount Ætna.
- 481.—Xerxes begins his expedition against Greece.
- 480.—The affair of Thermopylæ finished, Aug. 7th.—The Persians defeated at Salamis in a sea-fight, Oct. 20th.—Pindar the lyric poet flourished, ob. 435, æt. 86.
- 479.—The Persians, under Mardonius, defeated at Platæa, Sept. 22d—on which day occurred the battle of Mycale.—War between the Romans and Hetrurians.—Charon of Lampascus, the historian, lived.
- 477.—The 300 Romans, of the name of Fabius, killed by the Veientes near Cremona, July 17.
- 476.—Valerius triumphed over the Veientes and Sabines, 103,000 citizens in Rome.—A great eruption of mount Ætna.
- 471.—Themistocles, accused of conspiring against the liberty of Greece, retires to Xerxes in Asia.
- 470.—Cimon defeats the Persian fleet at Cyprus, and the army near the river Eurymedon in Pamphylia.—An eruption of mount Ætna.—Anaxagoras of Clazomenæ, the philosopher, ob. 423, æt. 72.
- 469.—The first solemn contest between the tragic poets, when Sophocles, at 28 years of age, was declared victor over Æschylus.—An earthquake at Sparta.—Capua founded by the Tuscans.
- 466.—The Syracusans recover their liberty, and maintain it for 61 years.
- 463.—Egypt revolts from the Persians, under Inarus, but obtains the assistance of the Athenians.—A great pestilence in Rome.—Sophocles, the tragic poet, ob. 406, æt. 91.
- 462.—The Persians defeated by the Athenians, in a naval engagement, in Egypt.
- 461.—Earthquakes and numerous prodigies in Rome.
- 460.—The 3d Messenian war with the Lacedæmonians begins, and continues 10 years.—The tribunes contend with the consuls about making laws.
- 459.—The Athenians begin to exercise tyranny over the other Grecian states.
- 458.—Ezra sent from Babylon to Jerusalem with the captive Jews, and vessels of gold and silver, &c. by Artaxerxes, in the 7th year of his reign, being 70 weeks of years, or 490 years, before the crucifixion of our Saviour.—Cinna appointed dictator.—War between the Corinthians and Megareans.
- 456.—The Athenians, deserted by the Egyptians, retire out of Egypt by capitulation with the Persians.—Nehemiah the prophet.—The ludi seculares celebrated for the first time at Rome.—The tribunes assert their right of convoking the senate.
- 454.—The Romans send deputies to Athens for a copy of Solon's laws.—An eruption of Ætna.
- 453.—Aristarchus the tragic poet.
- 451.—The decemvirs created at Rome, and the laws of the 12 tables compiled and ratified.
- 450.—Cimon triumphed over the Persians by sea and land.—Zalencus the lawgiver of Locri.
- 449.—The decemvirs banished.—The Persians make an ignominious peace with the Greeks.
- B. C.
- 448.—The 1st sacred war about the temple of Delphi.—Hellanius the historian, ob. 411, æt. 85.
- 447.—The Athenians defeated by the Boeotians at Chæronea.
- 446.—A 30 years' truce between the Athenians and Lacedæmonians.—Charondas the lawgiver of Thurium.—Thucydides, the Athenian general, banished by ostracism.
- 445.—Herodotus reads his history in the council at Athens, and receives public marks of honour, at the age of 39 years.—Military tribunes with consular power created at Rome.—Nehemiah returned to rebuild the walls of Jerusalem.
- 444.—The Athenians send a colony to Thurium in Italy, of which number were Herodotus, Thucydides, and Lysias.—Empedocles, of Agrigentum, the philosopher, flourished.
- 443.—Censors first created at Rome.—Herodicus called the gymnastic physician.
- 442.—Profound and universal peace.—Euripides first gained the prize of tragedy at Athens, at the age of 43 years, ob. 407, æt. 78.
- 441.—Artemones of Clazomenæ invented the battering-ram, the testudo, and other military instruments.—Pericles subdued Samos.—A great famine at Rome.
- 440.—Comedies prohibited at Athens, which continued for 3 years.—Phidias the sculptor flourished, ob. 432.
- 439.—War between Corinth and Corcyra.—Acron the physician called the empiric.
- 437.—Cratinus, the comic poet, ob. 431.
- 436.—Malachi, the last of the prophets, delivered his predictions.
- 435.—Fidenæ taken by the Romans.—The Corinthians defeated by the Corcyreans.—Eupolis the comic poet lived, ob. post 415.
- 434.—Aristophanes, the comic poet, ob. post 389.
- 433.—The temple of Apollo consecrated.—A comet appeared in China.
- 432.—The Metonic cycle begins. See CYCLE. Meton ob. post 415.
- 431.—The Peloponnesian war begins May 7, and continues near 27 years.—Euctemon the astronomer.
- 430.—The history of the Old Testament finishes about this time.—A plague at Athens for 5 years, which was of great extent.
- 429.—Socrates the philosopher flourished, ob. 400, æt. 70.
- 428.—Democritus of Abdera, the philosopher, ob. 361, æt. 109.
- 427.—Gorgias of Leontium, the orator, ob. 400, æt. 108.
- 426.—The plague broke out at Athens a second time.—Thucydides, the historian, flourished; ob. about 391, æt. about 80.—An eruption of Ætna.
- 425.—Hippocrates of Cos, the physician, ob. 361, æt. 99.
- 424.—Aristophanes' first comedy of the Clouds first acted against Socrates.
- 423.—A truce between the Lacedæmonians and Athenians, which lasted from about the 3d of October to the 12th of April following.
- 421.—A peace of 50 years, concluded April 10th, between the Lacedæmonians and Athenians, kept for 6 years and 10 months.
- 420.—Alcibiades, the Athenian general, ob. 404, æt. 46.
- 419.—Protagoras of Abdera, the sophist.
- 418.—A signal victory gained by the Lacedæmonians over the Argives and Mantineans.

CHRONOLOGY.

B. C.

- 416.—The Agrarian law moved at Rome.
- 415.—Parrhasius, of Ephesus, the painter.—Alcibiades accused at Athens.
- 414.—Egypt revolts from the Persians.—The 2d part of the Peloponnesian war called the *Decelean* begins; the scene of it Sicily.
- 413.—A lunar eclipse, August 27, by which Nicias was so terrified, that he lost the Athenian army in Sicily.
- 412.—The Athenians, on account of their misconduct in Sicily, are deserted by their allies.—Lysias the orator, ob. 378, æt. 81.—400 persons elected to the government of Athens.
- 410.—The Lacedæmonians defeated at Cyzicum by the Athenians.—Three quaestors elected for the first time at Rome.—The history of Thucydides ended, and that of Xenophon begun.—The Carthaginians attacked Sicily.
- 408.—The Romans defeated the Volsci.—The Athenians become masters of the Hellespont.—The Medes, after a revolt from the Persians, obliged to submit.
- 407.—The Carthaginians renew their attack on Sicily.
- 406.—Agathon the comic poet.
- 405.—The Athenian fleet of 180 ships totally defeated at Ægospotamos by Lyfander.—Syracuse usurped by Dionysius.—Cebes the philosopher.
- 404.—Atans taken by Lyfander, which finishes the Peloponnesian war.—Athens governed by 30 tyrants.—Euclid of Megara, the philosopher.
- 402.—Telestes the dithyrambic poet.
- 401.—Cyrus killed in an expedition against his brother, Artaxerxes.—The retreat of 10,000 Greeks from Babylon under Xenophon.—The 30 tyrants expelled Athens by Thrasybulus, and the democratic government established.
- 400.—Socrates put to death by the Athenians.—Xenophon, the philosopher, called the Attic muse, ob. 359, æt. about 90.
- 399.—The feast called *Leclisfernum* instituted at Rome.
- 398.—Military catapultæ invented about this time by Dionysius.—Ctesias, the physician and historian, ob. after 384.—Many prodigies at Rome.
- 397.—War against the Carthaginians by Dionysius of Syracuse, continues five years.—Zeuxis of Heraclea, the painter.
- 396.—Antisthenes, called the Cynic philosopher.
- 395.—An alliance of the Athenians, Thebans, Corinthians, and Argives, against the Lacedæmonians.
- 394.—A sea-fight at Cnidus, between the Persians and Lacedæmonians.—Contests at Rome about the Agrarian law.—The Corinthian war begins.—The history of Theopompus ended.—Archytas of Tarentum, the Pythagorean philosopher and mathematician, ob. after 360.
- 393.—Argives become masters of Corinth.
- 390.—The battle of Allia, in which the Romans were defeated by the Gauls, who marched to Rome, which was taken and burned.
- 389.—Plato's first voyage into Sicily, ob. 348. æt. 81.
- 388.—Rhegium taken by Dionysius.—Philoxenus, the dithyrambic poet.
- 387.—The peace of Antalcidas between the Lacedæmonians and Persians.—152,583 effective men in Rome.—Damon and Pythias, the Pythagorean philosophers and friends.
- 385.—The war of Cyprus finished, after a duration of two years, and given up by the Persians.

B. C.

- 380.—Isæus of Chalcis, the Athenian orator, ob. about 360.
- 378.—Isocrates the rhetorician, ob. 388. æt. 99.
- 377.—The Lacedæmonians defeated in the sea-fight at Naxos, Sept. 20th.—Arete of Cyrene, the female philosopher.
- 376.—Artaxerxes concludes a peace with the Greeks.—The Licinian law proposed in Rome.
- 374.—The unsuccessful expedition of the Persians under Artaxerxes in Egypt.—Philolaus, the Pythagorean philosopher.
- 373.—A great earthquake in Peloponnesus.—A comet appeared in Greece, &c.
- 372.—Diogenes, the Cynic philosopher, ob. 324. æt. 90.
- 371.—The battle of Leuctra, July 8th, in which the Lacedæmonians were defeated by the Thebans under Epaminondas.
- 370.—The Messenians return to Peloponnesus, after a banishment of about 300 years.
- 368.—Eudoxus about this time brought the celestial sphere from Egypt, and carried it into Greece, ob. about 352. æt. 53.
- 367.—The populace at Rome obtain the privilege of having one of the consuls a Plebeian.—The Gauls, who invaded the Roman territories, were defeated by Camillus.—The Licinian law passed.
- 365.—The Romans renew the custom of fixing the chronological nail in the temple of Jupiter, on the 13th of September.—Livy places it in the next year.
- 363.—The battle of Mantinea, in which Epaminondas was killed.—Aristippus jun. the Cyrenaic philosopher.
- 362.—Revolt of several Persian governors in Lesser Asia against Artaxerxes.
- 360.—Philip's first battle, gained at Methon, over the Athenians.—Plato's second voyage into Sicily.
- 359.—Philip's second battle gained over the Illyrians.—The obliquity of the elliptic $23^{\circ} 49' 10''$.
- 357.—The second sacred war begins.—Dionysius jun. expelled Syracuse by Dion.—Aristotle observed the moon's transit over Mars, April 4th.
- 354.—Dion put to death.—Theopompus of Chios, the orator and historian.
- 353.—The Phocæans defeated in Thessaly by Philip.
- 352.—Ephorus of Cumæ, the historian.
- 351.—The Sidonians besieged by the Persian army; burn their city; and put themselves to death.—The monument of Mausolus erected.
- 350.—Egypt conquered by Ochus.
- 348.—Philip of Macedon, having taken all the cities of the Phocæans, concludes the sacred war.—Speusippus, the academic philosopher, ob. 339.—A comet appeared in Greece.
- 347.—Dionysius recovers Syracuse.
- 345.—Aristotle the philosopher flourished, ob. 322. æt. 63.
- 343.—War between the Romans and Samnites begins, and lasts 71 years.—Timoleon recovers the liberty of Syracuse; banishes Dionysius, and settles a democracy.—Protogenes of Rhodes, the painter, ob. about 320.—The Syracusan æra commenced.—Philip makes Thrace tributary.—A pestilence at Rome.
- 341.—A comet appeared, near the equator, in Greece.
- 340.—The Carthaginians defeated by Timoleon near Agrigentum, July 13th.
- 339.—Xenocrates, the academic philosopher, ob. 314. æt. 82.

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B.C.

- 338.—Philip defeated the Athenians, &c. in the battle of Chæronea, Aug. 2d.
- 336.—Philip killed by Pausanias.—A Plebeian admitted to the prætorship at Rome.—A comet appeared in Greece.—Stilpo of Megara, the philosopher, ob. after 294.
- 335.—Alexander enters Greece.—Destroys the city of Thebes, but preserves the house of Pindar.—A temple was built on mount Gerizim.—Demades, the Athenian orator, ob. 322.
- 334.—Alexander defeated the Persians on the river Granicus, May 22d.—Apelles of Cos, the painter.
- 333.—Alexander gains a second battle at Issus, in October.—Callisthenes, the philosopher, ob. 328.
- 332.—Alexander takes Tyre August 20th, gains possession of Egypt, and builds Alexandria.—Dinocrates the mathematician.
- 331.—The battle of Arbela, in which Alexander defeats Darius, Oct. 2d, 11 days after a total eclipse of the moon.
- 330.—The cycle of Calippus commences from Darius's death, July 1st.—Ælchines the orator banished.—A trial for witchcraft at Rome.
- 329.—Hyperides the Athenian orator, ob. 322.
- 328.—Philetas of Cos, the poet and grammarian, ob. about 280.—Alexander passed the mountain of Caucasus.
- 327.—Alexander's expedition into India against Porus.
- 326.—Lyfippus, the statuary.
- 325.—Menedemus of Eretria, the philosopher, ob. about 301, æt. 74.—Demosthenes the orator banished from Athens, recalled in 323, and died in 322, æt. 60.
- 324.—Crates of Thebes, the Cynic philosopher, ob. after 287.
- 323.—Alexander dies April 21st, and his empire divided.—Praxiteles, the statuary, ob. after 288.
- 322.—The principal Athenian orators, viz. Demosthenes, Hyperides, and Demades, are put to death by Antipater.—Theophrastus, the Peripatetic philosopher, ob. about 288, æt. 85.
- 321.—The Romans, defeated by the Samnites, pass under the yoke.
- 320.—General liberty proclaimed to all the Greek cities by Polyfperchon.—Ptolemy carried 100,000 Jews captives into Egypt.—Menander, the inventor of the new comedy, ob. 293, æt. 52.
- 319.—The Samnites subdued by the Romans.
- 318.—Phocion unjustly put to death by the Athenians.—Cassander becomes master of Athens.
- 317.—The government of Syracuse and of Sicily usurped by Agathocles.—Demetrius Phalereus governs Athens for 10 years, banished from Athens in 307, ob. about 284.
- 315.—Cassander rebuilt Thebes, and founded Cassandria.—Rhodes almost destroyed by an inundation.
- 314.—The cities of Peloponnesus recover their liberties.—Dinarchus, the Athenian orator, banished in 307.
- 313.—Polenion, the Academic philosopher, ob. 270.
- 312.—Seleucus takes Babylon, from which begins the æra of the Selencidæ.—Zeno of Cittium in Cyprus, the first of the Stoic philosophers, ob. 264, æt. 98.
- 310.—Agathocles defeated by the Carthaginians July 22d, carries the war into Africa; during his passage the sun was eclipsed Aug. 15th, 11 digits 10'.—A comet appeared in China.—Crantor, the Academic philosopher, ob. before 270.

B.C.

- 308.—Fabius defeats the Samnites, Marsi, and Peligni.—Philemon, the comic poet, and rival of Menander, ob. about 274.
- 307.—The oligarchy of Athens changed into a democracy by Demetrius Poliorcetes.
- 306.—The successors of Alexander assume the title of kings.
- 305.—Megasthenes, the historian.
- 304.—Seleucus founded Antioch, Edessa, Laodicea, &c.—Pyrrho, the 1st of the Sceptic philosophers, ob. æt. 90.
- 301.—The battle of Ipsus, in which Antigonus is defeated.
- 300.—Euclid of Alexandria, the mathematician.
- 298.—Arcefilaus the philosopher; founder of the 2d or middle Academy, ob. about 241, æt. 73.
- 296.—Athens taken by Demetrius Poliorcetes.—Epicurus, the philosopher, ob. 270, æt. 72.
- 294.—Timocharis of Alexandria observed, March 9th, 4 hours before midnight, a conjunction of the moon with the *Spica Virginis*, 8° according to him W. from the equinoctial point; ob. after 272.—270,000 effective men in Rome.
- 293.—The first sun-dial erected at Rome by Papirius Curfor, and their time divided into hours.—Erasistratus, the physician, ob. about 257.
- 292.—Aristyllus of Alexandria, the astronomer.
- 291.—Seleucus has built about 40 new cities in Asia, which he peopled with different nations.
- 290.—The Samnite war terminated.—Painting brought to Rome by Fabius.—Bion Borysthenites, the philosopher, ob. 241.
- 288.—Strato, the Peripatetic philosopher, ob. about 270.
- 287.—The Athenians revolt from Demetrius Poliorcetes.—Zenodotus of Ephesus, the first librarian of Alexandria, ob. about 245.
- 286.—Macedon taken possession of by Lyfimachus, and Pyrrhus expelled.
- 285.—Dionysius, the astronomer of Alexandria, began his æra on Monday June 26th, being the first who found the exact solar year to consist of 365^d 5^h 49'—ob. 241.
- 284.—The Septuagint translation of the Old Testament supposed to have been made about this time.—The pharos of Alexandria built.—The foundation of the Achæan republic laid.—A great earthquake in the Hellespont and Chersonese.—The Gauls attacked the Romans and defeated.
- 283.—Sostratus of Cnidus, the architect.—The college and library of Alexandria founded.
- 282.—Timocharis observed, Nov. 9th, 3½ hours after midnight, a second conjunction of the moon with the *Spica Virginis*.—Theocritus of Syracuse, the pastoral poet.
- 280.—Pyrrhus assists the Tarentines in Italy.—Aristarchus of Samos, the astronomer.
- 279.—Dionysius Heracleotes, the philosopher.—A new census at Rome—278,222 citizens.
- 278.—A large army of Gauls under Brennus cut to pieces near the temple of Delphi.—Philo, the dialectic philosopher, ob. about 260.
- 277.—Aratus of Tarsus, the astronomical poet.
- 276.—The first regular body of grammarians or critics began at this time.—Lycophron of Chalcis, the poet.
- 275.—Pyrrhus defeated by the Romans, retires to Epirus.—Perfæus, the Stoic philosopher.
- 272.—The Samnites and Tarentines defeated by the Romans.

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B.C.

- mans.—On Jan. 17, a conjunction of Mars with the N. star, in the side of the front of Scorpio.
—Lycon, the Peripatetic philosopher, ob. 226, æt. 74.
259.—Silver first coined at Rome.—Crates, the Academic philosopher, ob. about 250.
268.—Athens taken by Antigonos Gonatas, who retains the government 12 years.—Berofus, the Chaldæan historian.
267.—Hermachus of Mitylene, the Epicurean.—Ptolemy made a canal from the Nile to the Red Sea.
265.—A census at Rome—292,226 citizens.
264.—The first Punic war.—The chronicle of Paros, or the Arundelian marbles, composed.—Cleanthes, the Stoic philosopher, ob. about 240, æt. 80.
263.—Homer, jun. the tragic poet.
262.—The battle of Sardis.—Timæus of Sicily, the historian, ob. æt. 96.—The transit of Mercury over the bull's horn, April 26, Mercury being in 23° Taurus, and the sun in 29° 30' ♉.
261.—The Romans first concerned themselves in naval affairs.—Manetho, the Egyptian historian.
260.—The Carthaginians defeated at sea by the Romans.—Callimachus of Cyrene, the poet, ob. about 244.
259.—Zoilus the critic, called Homero-Mastix.
258.—Duris of Samos, the historian.
257.—Neanthes of Cyzicum, the orator and historian.
256.—Regulus defeated and taken prisoner.—Athens restored to its liberty by Antigonos.—Ctesibius, the historian, ob. æt. 104.
255.—Sofibius of Lacedæmon, the critic.
254.—Hieronymus of Rhodes, the Peripatetic philosopher.
252.—A census at Rome—297,897 effective men.—The Carthaginians masters of the sea.
251.—Aratus with his fellow citizens join the Achæan league.
250.—The Parthians revolt from the Macedonians.
249.—The sea-fight of Drepanum, in which the Romans are totally defeated by the Carthaginians.
248.—Antigonos Carystius, the historian.
247.—Jesus the son of Sirach.—A census at Rome—251,212 citizens.
246.—All the records, &c. in China destroyed.—Ptolemy kills Laodice, queen of Antiochus, and overruns great part of Syria.—Cænon of Samos, the astronomer, ob. after 223.
245.—Eratosthenes of Cyrene, librarian of Alexandria.—ob. 194, æt. 82.
243.—The citadel of Corinth taken by Aratus.—Sphærus, the Stoic philosopher and historian.
242.—The Carthaginians defeated.—The first Punic war terminated.—Apollonius of Perga, called the great geometrician.
241.—Agis king of Sparta, attempting to settle an Agrarian law, is put to death.—Lacydes, the philosopher, of the second Academy, ob. after 215.—September the 3d, Jupiter observed in 7° 33' ♉, and in conjunction with the S. star of the Aselli.
240.—The first plays acted at Rome, being those of Livius Andronicus, the first Roman dramatic poet.
239.—Chrysippus of Cilicia, the Stoic philosopher, ob. 207, æt. 73.
238.—The Carthaginians finish the Libyan war.—Polystratus, the Epicurean philosopher.

B.C.

- 237.—Hamilcar leads a Carthaginian army into Spain, with his son Hannibal.—Euphoriion of Chalcis, the poet, ob. about 220. æt. 56.
236.—The Tartars expelled from China.—Archimedes of Syracuse, the mathematician, ob. 212.
235.—The temple of Janus shut the first time after Numa and universal peace.—M. V. Messala, the Roman painter, ob. after 226.
234.—The Sardinian war begins.—C. Nævius, the comic poet, ob. 203.
232.—The Agrarian law revived.—The Gauls revolt.
231.—The first divorce at Rome.—Sardinia and Corsica subdued by the Romans.
230.—Apollonius the Rhodian, the poet and third librarian of Alexandria.—Eratosthenes observed the obliquity of the ecliptic to be 23° 51' 20".
229.—The Romans declare war against the Illyrians.
228.—The Roman ambassadors first appear at Athens, Corinth, &c.—Philochorus of Athens, the historian, ob. 222.
226.—Aristo Cæus, the Peripatetic philosopher, ob. about 183.
225.—Cleomenes kills the Ephori, and restores the Agrarian laws of Sparta.—The Gauls enter Italy and are defeated.—Fabius Pictor, the first Roman historian.
224.—The Romans for the first time crossed the Po.—The Colossus of Rhodes thrown down by an earthquake.
221.—Phylarchus, the historian.
220.—A census at Rome—270,213 citizens.—The social war in Greece begins, and continues three years.—Plautus of Umbria, the comic poet, ob. 184.
219.—Saguntum taken and destroyed by Hannibal.—Archagathus, the 1st physician at Rome.—The art of surgery introduced into Rome.
218.—The second Punic war begins with Hannibal's passing the Alps, and continues 17 years.
217.—The Romans defeated at Thrasyfene.
216.—The Romans totally defeated in the battle of Cannæ.
215.—Evander, the philosopher of the second Academy.
212.—Syracuse, after a siege of three years, taken by Marcellus.
210.—Hermippus of Smyrna, the Peripatetic philosopher, and grammarian.
207.—Asdrubal defeated and killed by Claudius Nero.—Zeno of Tarsus, the Stoic philosopher.
205.—Ennius of Calabria, the poet, brought to Rome by Cato the quaestor, and first gave harmony to the Roman poetry.—Sotion of Alexandria, the grammarian.
204.—Scipio besieged Utica.
203.—Scipio in one day took the two camps of Asdrubal and Syphax.—Hannibal recalled.
202.—Scipio defeated Hannibal at Zama, Oct. 19.
201.—Peace obtained on very ignominious terms, by the Carthaginians, and the close of the second Punic war.
200.—The first Macedonian war begins, and continues near 4 years.—Aristophanes of Byzantium, the grammarian, ob. æt. 80.
198.—Sidon taken by Antiochus, after the battle of Panias.—Asclepiades Myrlianus, the grammarian.
197.—The Romans send two prætors into Spain.—Defeat Philip Cynocephalus.—Licinius Tegula, the comic poet.

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B. C.

- 196.—Caius Lælius, the Roman orator.—The Roman senators first sat in the orchestra at the scenic shews.
- 195.—Aristonymus, the fourth librarian of Alexandria, ob. æt. 77.
- 194.—Sparta and Hither Spain subdued by the Romans.
- 193.—Hyginus of Pergamus, philosopher of the second Academy.
- 192.—The war of Antiochus the Great with the Romans begins, and continues 3 years.—A census at Rome—243,704 effective men.
- 191.—Earthquakes at Rome, 38 days.
- 190.—The Romans under Scipio defeat Antiochus in the battle of Magnesia.
- 189.—The Romans make peace with Antiochus.—Asiatic luxury first brought to Rome by the spoils of Antiochus.
- 188.—Philopœmen obliges the Lacedæmonians to renounce the laws of Lyncurgus.
- 187.—Antiochus defeated and killed in Media, after plundering the temple of Jupiter Belus in Elymais.—Scipio Africanus banished from Rome.
- 185.—Diogenes of Babylon, the Stoic philosopher.
- 183.—Philopœmen defeated and killed by Dinocrates, tyrant of the Messenians.—Crotolans Phafelites, the Peripatetic philosopher, ob. about 140.—The Transalpine Gauls march into Italy.
- 182.—The stars appeared in China in the day time.
- 181.—Pestilence at Rome.
- 180.—Demetrius, accused by his brother Perseus, is put to death by his father Philip.—Statius Cæcilius, the comic poet, ob. after 166.
- 179.—A census at Rome—273,244 effective men.—Some books of Numa found at Rome in a stone coffin, supposed by Livy to be forged—and burned.
- 177.—Agarthacides of Cnidus, the historian.
- 176.—Heraclides, called Lembus, the historian.
- 175.—A great earthquake in China.—Pestilence at Rome.
- 173.—Ennius finishes the 12th book of his annals.—Attalus of Rhodes, the astronomer and grammarian.
- 172.—A comet appeared in China, in the east.—Antiochus's first expedition in Egypt.
- 171.—The 2d Macedonian war begins.—Antiochus defeats Ptolemy's generals.
- 170.—Paper invented in China.—Antiochus takes Jerusalem, and plunders the temple.—An irruption of the Tartars into China.—Metrodorus, the philosopher and painter of Athens, afterwards carried to Rome by Æmilius.
- 169.—A census at Rome—212,805 citizens.
- 168.—Perseus defeated in the battle of Pydna.—An eclipse of the moon happened the preceding night, foretold by Gallus.—C. Sulpicius Gallus, the tribune, and 1st Roman astronomer.
- 167.—The 1st library erected at Rome, consisting of books brought from Macedon.
- 166.—Terence of Carthage, the comic poet, ob. 159, æt. 35. His first play, *Andria*, acted at Rome.—Apollonius killed by Judas Maccabæus.
- 165.—Judas purified the temple of Jerusalem.—An eruption of Ætna.—Crates Mallotes of Pergamus, called the critic.
- 164.—A census at Rome—327,032 citizens.—Polybius of Megalopolis, the historian, ob. 124, æt. 82.
- 163.—The government of Judea under the Maccabees begins, and continues 126 years.—M. Pacuvius, the tragic poet, ob. about 131, æt. 90.

B. C.

- 162.—Hipparchus begins his astronomical observations at Rhodes, and continues them for 34 years.—Demetrius takes possession of Syria.
- 161.—The philosophers and rhetoricians banished from Rome.
- 160.—Terence's last play, *Adelphi*, acted at the funeral of P. Æmilius.—Carneades of Cyrene, the philosopher, and author of the 3d or new Academy, ob. 128, æt. 90.
- 159.—Time measured at Rome by water, invented by Scipio Nalica.
- 158.—An irruption of the Tartars into China.—Hipparchus observed the autumnal equinox on Sunday, September 27, about mid-day.
- 157.—A comet appeared in China, in the 9th month.
- 156.—Several temples of Pergamus plundered by Prusias, king of Bithynia.—Aristarchus of Alexandria, the great grammarian, ob. æt. 72.
- 152.—Andronicus, personating the son of Perseus, assumes the tyranny of Macedon.
- 150.—Demetrius, king of Syria, killed by A. Balas.—Aristobulus of Alexandria, the Jew and Peripatetic philosopher, ob. after 124.
- 149.—The 3d Punic war commenced, and continued 3 years.—Prusias put to death.
- 148.—Jonathan Maccabæus defeats Apollonius in the battle of Azotus, and takes that city and Ascalon.—A comet appeared in the N. part of China, in the 4th month.—Satyrus, the Peripatetic philosopher and historian.
- 147.—A census at Rome—322,000 citizens.—The Romans make war against the Achæans.
- 146.—Carthage destroyed by P. Scipio, and Corinth by L. Mummius, who brought to Rome from thence the first fine paintings; of which the two principal were Bacchus by Arsitides, and Hercules in torture.—Hipparchus observed the vernal equinox March 24, at mid-day.—Blair refers this observation to 135.—A remarkable comet appeared in Greece.
- 145.—The Romans desolated Greece.
- 144.—Tryphon murdered Jonathan and his brethren.—Antipater of Tarsus, called Calamoboas, the Stoic philosopher.
- 143.—Hipparchus observes the autumnal equinox on Wednesday, September 26th, about sun-set; from the new moon of Sept. 28th he began his new cycle of the moon. See CYCLE.—A great earthquake in China.
- 142.—Simon, the high priest, takes the castle of Jerusalem; repaired it, and rescued Judæa from Syrian servitude.
- 141.—The Numantian war begins, and continues 8 years.—An eclipse of the moon observed at Alexandria, on Tuesday, Jan. 17, 2 hours before midnight.—Mnaseas Patrensis, the grammarian.
- 140.—Diodorus, the Peripatetic philosopher.
- 139.—Lucius Accius, the tragic poet.
- 138.—Panaetius of Rhodes, the Stoic philosopher.
- 137.—Ptolemy Physcon began a new restoration of learning at Alexandria by inducing ingenious foreigners to settle there.—Nicander of Colophon, the physician and poet.
- 136.—Scipio Africanus, &c. made an embassy into Egypt, Syria, and Greece.—Ctesibius of Alexandria, the mathematician and inventor of hydraulic instruments.

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- 135.—The history of the Apocrypha ends.—A comet appeared in the N.E. part of China in autumn.—The Servile war begins in Sicily.
- 133.—Numantia in Spain destroyed by Scipio.—The kingdom of Pergamus annexed to the Roman empire.—Tiberius Gracchus put to death for attempting an Agrarian law.
- 130.—Antiochus, king of Syria, defeated and killed.—A comet in Asia.—The revival of learning in China.
- 129.—The temple on Gerizim destroyed by Hyrcanus.
- 128.—Hipparchus observes the vernal equinox to be on Thursday, March 23d, about sun-set, and afterwards the star *Cor Leonis* was $29^{\circ} 50'$, from the summer solstitial colure.—Clitomachus of Carthage, philosopher of the third Academy, ob. about 100.
- 127.—Hipparchus, on May 2d, about sun-rise, observed the sun in $7^{\circ} 35' 8''$, the moon in $21^{\circ} 40' 8''$, and their mean distance to be $312^{\circ} 32'$ —he observed *Spica Virginis* 6° W. of the autumnal equinoctial point.
- 124.—Apollonius of Nysa, the Stoic philosopher.
- 123.—Carthage is rebuilt by order of the Roman senate.—Herodicus called Cratiteus, the grammarian.
- 121.—A great eruption of *Ætna*.—Caius Gracchus killed for attempting an Agrarian law.—L. Cælius Antipater, the Roman historian.
- 120.—A comet appeared in the E. part of China.—Castor of Rhodes, the chronologer and historian.
- 119.—Menecrates of Nysa, the grammarian.—Two comets appeared in China—one in the N.E. in spring, and another in the N.W. in summer.
- 118.—A colony settled at Narbonne by the Romans—who defeated the Gauls near the Alps.—Dalmatia conquered by Metellus.
- 116.—Cleopatra assumes the government of Egypt.—Lucilius, the first Roman satyrist, ob. 103, æt. 46.
- 115.—Apollodorus of Athens, the chronologer and grammarian.
- 113.—Marcus Antonius, sen. the Roman orator, ob. 87, æt. 56.
- 111.—The Jugurthine war begins, and continues five years.
- 110.—A comet appeared in China, in the autumn.—The sumptuary law, called *lex licinia*, made at Rome.—Lucius Crassus, the Roman orator, ob. 91, æt. 49.
- 109.—Hyrcanus took Samaria.—The Teutones and Cimbri attack the Roman empire.
- 108.—Athenion, the Peripatetic philosopher, ob. about 95.—The Romans defeated by the Cimbri.
- 107.—Cicero is born.
- 106.—Ptolemy dethroned by Cleopatra.—Jugurtha delivered up to Marius.
- 105.—The Cimbri and Teutones defeated the Romans, 80,000 of whom were killed on the banks of the Rhene.
- 104.—Aristobulus, the first high-priest who wore a crown.—Artemidorus of Ephesus, the geographer.
- 103.—The Roman people obtained the power of electing the prætors.
- 102.—The Teutones defeated by Marius—200,000 killed, and 70,000 taken prisoners.
- 101.—The Cimbri defeated by Marius and Catullus—120,000 killed, and 60,000 taken prisoners.
- 100.—The Agrarian law revived by Saturninus.—Julius Cæsar is born.—Philo, the philosopher of the 3d Academy.

B.C.

- 99.—Lusitania conquered by the Romans under Dolabella.
- 97.—Ptolemy Appion dies and bequeaths his kingdom to the Romans.—Mesopotamia occupied by the Romans.
- 96.—The king of Parthia sends ambassadors to China.
- 95.—Charmidas, the philosopher of the 3d Academy.
- 94.—Hortensius begins to plead at 19 years of age.
- 93.—Apellicon Teius, the proprietor of a famous library at Athens, ob. about 86.
- 91.—The Social or Marfic war begins, lasts three years, and is finished by Sylla.—L. Sisenna, the Roman historian.
- 90.—Asclepiades of Prusias, the physician, and author of a new sect in physic, ob. after 63.
- 89.—The Mithridatic war commenced and continued 26 years—in 94 Playfair.
- 88.—The civil war between Marius and Sylla begins and continues 6 years.—Alexander, called Polyhistor, the grammarian and historian.
- 87.—Photius Gallus, the first Latin rhetorician.—A comet appeared in the N.W. of China in the spring.
- 86.—Sylla takes Athens—defeats Archeiaus—sends Apellicon's library to Rome, in which was the original MS. of Aristotle's works.
- 85.—Diotimus, the Stoic philosopher, ob. after 83.—A census at Rome—464,000 citizens.
- 84.—Q. Valerius Antias, the Roman historian.—A comet appeared in the N.W. of China in the spring.—Peace between Mithridates and Sylla.
- 83.—Zeno of Sidon, the Epicurean philosopher.—Sylla destroyed the Capitol.
- 82.—Sylla plundered the temple of Delphos—defeated Marius—committed the greatest cruelties at Rome—was created dictator.—Quintus Hortensius, the Roman orator, ob. 50, æt. 63.
- 81.—Cicero begins to plead at the 26th year of his age.—A. Licinius Archias, the poet.
- 80.—Antipater of Sidon, the poet.
- 79.—Sylla resigns the dictatorship.—Alexandra governs Judæa.—Posidonius of Apamea, the Stoic philosopher and astronomer, ob. after 51, æt. 84.
- 77.—Geminus of Rhodes, the astronomer and mathematician.
- 76.—Apollonius of Rhodes, the rhetorician.
- 75.—Nicomedes, king of Bithynia, dies and bequeaths his kingdom to the Romans.—Theodosius of Tripoli, the mathematician.
- 73.—The Servile war begins.
- 71.—The Servile war ends.—Tyrannio, the grammarian and Peripatetic philosopher, ob. after 56.
- 70.—The censorship revived at Rome.—M. Terentius Varro, called the most learned of the Romans, ob. 28, æt. 88.
- 69.—The Roman Capitol rebuilt.—A census at Rome.—450,000 citizens.—Lucullus defeats Mithridates and Tigranes.—A comet appeared in the west of China in the spring.
- 68.—Aristodemus of Crete, the grammarian.
- 67.—The war of the Pirates.
- 66.—Crete reduced to a Roman province.
- 65.—The reign of the Seleucidæ ends.—And Syria reduced to a Roman province.—T. Lucretius Carus, the poet, ob. 54, æt. 44.
- 64.—Dionysius, the Thracian, the grammarian.
- 63.—Catiline's conspiracy.—Detected by Cicero.—Defeated by Antony.—Mithridates killed himself.—Jerusalem taken by Pompey.

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- 62.—Antiochus, the philosopher of the third Academy.
- 61.—L. Taruntius Spurina, the mathematician, ob. after 44.
- 60.—The first triumvirate between Pompey, Cæsar, and Crassus.—Q. V. Catullus, the lyric poet, ob. about 40, æt. 46.
- 59.—Andronicus of Rhodes, the Peripatetic philosopher, and restorer of Aristotle's works.
- 58.—Cicero banished Rome by the instigation of Clodius.
- 57.—Cicero recalled from exile.—C. Crispus Sallustius, the historian, expelled the senate in 50, ob. 35, æt. 51.
- 55.—Cæsar passes the Rhine, and defeats the Germans.—Makes his first expedition into Britain.—Ptolemy king of Egypt restored to his kingdom.—Pompey built a stone theatre for public sports.
- 54.—Cæsar's second invasion of Britain.—Timagenes of Alexandria, the historian and rhetorician.
- 53.—Crassus killed.—His army defeated by the Parthians.—Cratippus, the Peripatetic philosopher.
- 52.—Clodius murdered by Milo.
- 51.—Gaul becomes a Roman province.
- 50.—The civil war begins, Oct. 22d.—A census at Rome.—320,000 citizens.
- 49.—Cæsar proclaimed dictator.—A comet appeared in China.—Cornelius Nepos, ob. about 25.
- 48.—The battle of Pharsalia.—Antipater, procurator of Judæa.—P. T. Varro, called Atacinus, the poet.
- 47.—Alexandria retaken by Julius Cæsar.—The library destroyed.
- 46.—The war of Africa—Cato kills himself at Utica.—This year, called the *year of confusion*, being corrected by Sosigenes, of Alexandria, the mathematician, and consisting of 15 months, and 445 days.
- 44.—Cæsar killed in the senate-house, æt. 56.—A comet appeared in China, and at Rome after Cæsar's death.—Diodorus Siculus, the historian.
- 43.—The second triumvirate between Octavius, Antony, and Lepidus.—Cicero put to death, Dec. 7th.
- 42.—The battles of Philippi.—Cassius and Brutus defeated.
- 41.—A great famine at Rome.—An earthquake in China. Trogus Pompeius, the historian.
- 40.—Jerusalem occupied by Antigonus, assisted by the Parthians.—Hyrcanus expelled.—Herod receives the kingdom of Judæa from the Romans.—Didymus, the scholiast.
- 39.—The Romans recover Syria and Palestine.
- 38.—The senate made 67 prætors.—The Spanish æra commenced.
- 37.—Pompey gained the empire of the sea.—Sofius took Jerusalem and Herod.—Antigonus put to death.—The Asmonæan family terminates 126 years after Judas Maccabæus.
- 36.—Sextus Pompeius defeated in Sicily.—Lepidus degraded from the triumvirate, and banished.—Virgilus Maro, ob. 19, æt. 51.
- 34.—Antony seizes the kingdom of Armenia.—Marcus Manilius, the astronomical poet.
- 33.—Dioscorides, physician to Antony and Cleopatra.
- 32.—A comet appeared in China.
- 31.—The battle of Actium, Sept. 2d.—Antony and Cleopatra defeated.—The *Roman emperors* properly begin.—An earthquake in Judæa.—The sects of the Scribes and Pharisees commence.—Asinius Pollio, the orator and historian, ob. A. D. 4, æt. 80.

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- 30.—Alexandria taken by Octavius.—Antony and Cleopatra put themselves to death.—Egypt reduced to a Roman province.—Strabo, the geographer, ob. A. D. 25.
- 29.—Octavius dissuaded by Mæcenas from divesting himself of the empire.—Horatius Flaccus, ob. 8, æt. 57.—Cæsar triumphed three days in Rome.—The temple of Janus shut.—A census at Rome—4,101,017 citizens.
- 28.—Æmilius Macer, of Verona, the poet, ob. 16.
- 27.—The title of Augustus conferred upon Octavius, by a decree of the senate, Jan. 13th.—The power of emperor for ten years; next the censorship; then the tribuneship; and, at last, an absolute exemption from the laws.—The Pantheon at Rome built.—A great famine in Palestine.—S. Aurelius Propertius, the elegiac poet.
- 25.—The Egyptians adopt the Julian year, and fix their month to begin always on Aug. 29th.—Titus Livius, ob. A. D. 17, æt. 76.
- 24.—The senate, by a solemn oath, Jan. 1st, confirm to Augustus the tribuneship and exemption from the laws.
- 23.—Antonius Musa, the physician, whose great remedy was the cold bath.
- 22.—A great pestilence in Italy.
- 21.—Augustus goes to Greece and Asia; recalls Agrippa; gives him Julia in marriage, and the government during his absence.—Made Syracuse a colony.—Tibullus, the elegiac poet, ob. about 19, æt. 24.
- 20.—Tiberius recovers the Roman ensigns from the Parthians.—Porus, king of India, solicits an alliance with Augustus.—Ovidius Naso banished to Tomi, A. D. 9, ob. 17, æt. 59.
- 19.—Rome at the meridian of its glory.—Herod rebuilt the temple of Jerusalem.—Agrippa constructed the magnificent aqueducts at Rome.
- 18.—Augustus reduces the senate to 300; afterwards limits them to 600.—Celibacy is discouraged.—Pylades and Bathyllus, two famous Roman actors.
- 17.—The Secular games revived.—Varius and Tucca, critics and editors of the *Æneid*.
- 16.—Agrippa goes to Syria, and thence to Judæa.
- 15.—Drusus defeats the Rhetians.—M. Vitruvius Pollio, the architect.
- 14.—A great conflagration at Rome.
- 13.—Augustus assumes the office of Pontifex Maximus; burns about 2000 pontifical books; reserving those of the Sibylline oracles.
- 12.—Tiberius conquers the Pannonians.—Many prodigies in China, and a comet.—Nicholas Damascenus, the Peripatetic philosopher and historian.
- 11.—Drusus conquers several German nations.
- 10.—Herod built the city of Cæsarea.
- 9.—Drusus's expedition into Germany, where he dies, July 20th.—C. Julius Hyginus, the grammarian and poet.
- 8.—Augustus corrects the calendar.—The month Sextilis named Augustus by a decree of the senate.—A census at Rome.—4,233,000 citizens.—Verrius Flaccus, the grammarian, and tutor to the two grandsons of Augustus, and supposed author of the Capitoline marbles.
- 6.—Tiberius retires to Rhodes.
- 5.—Q. Varus appointed governor of Syria.—A comet appeared in China.—OUR SAVIOUR JESUS CHRIST

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born, on Monday, Dec. 25th, or Sept. four years before the common æra.—Cyrenius appointed governor of Judæa.—Dionysius of Halicarnassus, the historian.

- 4.—An eclipse of the moon observed at Jerusalem, March 13th, middle 2 hours 45' after midnight.—Herod king November 25.—A comet appears in China.
- 2.—Julia banished by Augustus.—Dionysius the geographer.
- 1.—An interview between Caius Cæsar and Tiberius.

The FIRST CENTURY of the Vulgar Christian Æra.

A. D.

- 1.—C. Cæsar made peace with the Parthians.
- 2.—Tiberius returns to Rome.—L. Cæsar dies.
- 3.—C. Cæsar dies.—Cinna's conspiracy detected.
- 4.—Leap year corrected, having been formerly every third year.—Phædrus.
- 6.—A great famine at Rome.
- 7.—Germanicus sent against the Pannonians.
- 8.—JESUS CHRIST, at the age of 12 years, disputes with the Jewish doctors in the temple, in April, when the passover was ended.—Asinius Gallus, ob. 33.—Germanicus, ob. 19, æt. 34.
- 9.—Dalmatia subdued by the Romans.
- 10.—Arminius, a German general, defeated the Romans.
- 13.—A comet appeared in China.
- 14.—A census at Rome—4,037,000 citizens.—Augustus dies at Nola Aug. 19th, æt. 76.
- 15.—Velleius Paterculus, ob. 31.
- 16.—Mathematicians and magicians expelled Rome.
- 17.—Cappadocia reduced to the form of a province.—An earthquake in Asia destroyed 12 cities.—Cornelius Celsus.
- 18.—Herod built Tiberias.
- 19.—Caiaphas high-priest of the Jews.—Jews banished from Rome.
- 21.—Theatre of Pompey consumed by fire.—A comet appeared in China.
- 23.—Valerius Maximus.
- 26.—Tiberius goes to the island Capræa.—John the Baptist begins his ministry.
- 27.—A conflagration at Rome.—Pilate made governor of Judæa, kills himself 39.—Jesus baptized by John.
- 32.—Columella.
- 33.—Our SAVIOUR JESUS CHRIST crucified on Friday, April 3d, at 3 o'clock P. M. resurrection on Sunday, April 5th.—Ascension, Thursday, May 14th.—Apion of Alexandria, the grammarian, called "the trumpet of the world."
- 36.—St. Paul converted.
- 37.—Tiberius dies.
- 39.—A conjunction of Saturn, Jupiter, and Mars.—St. Matthew, according to Blair, writes his gospel.—Philo Judæus.
- 40.—The name of CHRISTIANS given at Antioch, (Blair).—Petronius appointed governor of Syria.
- 41.—Caligula put to death.—St. Peter, ob. 67.
- 43.—Claudius's expedition into Britain.—St. Paul, ob. 67.
- 44.—Peter imprisoned.—James put to death.—St. Mark, according to Blair, wrote his gospel.
- 45.—Vespasian's successful war in Britain.—Pomponius Mela, the geographer.
- 47.—A new island appeared in the Ægean sea.—The secular games celebrated at Rome.—Caractacus the British king.

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- 50.—London built by the Romans about this time.
- 51.—Caractacus carried in chains to Rome.—St. John, ob. 99, æt. 92.
- 52.—The council of the apostles at Jerusalem.—Astrologers expelled Italy.—Paul preaches at Athens.—Seneca, ob. 65, æt. 53.
- 54.—Claudius dies.—Nero succeeds.
- 55.—Cæsar landed in Britain.—Aug. 26, a comet appeared in China.—Paul preached at Ephesus.
- 56.—Rotterdam built about this time.
- 57.—Perfius, ob. 62, æt. 30.
- 59.—Nero caused his mother Agrippina to be put to death.—Paul's defence before Felix.
- 60.—The Christian religion published in Britain.—A comet appeared at Rome, and in China.—Paul's defence before Festus.
- 61.—Boadicea, the British queen, defeats the Romans, but soon after is conquered by Suetonius.—Petronius Arbiter, ob. about 66.
- 62.—St. Paul sent in bonds to Rome.—Lucan, ob. 65, æt. 26.
- 63.—A great earthquake in Asia.
- 64.—A conflagration in Rome.—The first persecution of the Christians.—Quintus Curtius.
- 65.—Many prodigies seen at Jerusalem.—Seneca, Lucan, and others put to death.
- 66.—Nero goes into Greece, and has public trials of skill with tragedians, musicians, and charioteers.—The Jewish war begins in May.—Pliny the historian, ob. 79.
- 67.—St. Peter and St. Paul put to death about June 29th.—Vespasian defeats the Jews and takes Josephus prisoner.
- 68.—Nero dies.
- 69.—Galba put to death.—Otho kills himself.
- 70.—Titus takes and destroys Jerusalem, Saturday, Sept. 8th; puts an end to the war.—The lands of Judæa sold by the Romans.
- 71.—Josephus, ob. 93, æt. 56.
- 73.—The philosophers expelled Rome by Vespasian.—Frontinus.
- 74.—The states of Achaia, Lycia, Samos, Thrace, &c. formed into distinct provinces.—Silius Italicus, ob. æt. 75.
- 75.—Vespasian dedicated a temple to Peace.—A comet appeared in China.
- 76.—Asconius Pedianus, ob. æt. 85.
- 77.—A comet appeared in China.—A great plague at Rome.—The Parthians revolt.
- 79.—Vespasian dies.—Herculaneum and Pompeii are buried by an eruption of mount Vesuvius, Nov. 1st.
- 80.—The Capitol, Pantheon, &c. of Rome consumed by fire.—Titus builds the hot baths and amphitheatre.
- 81.—Titus dies.—Martial, ob. 104, æt. 75.
- 82.—Agricola reduced South Britain to the form of a Roman province.—Apollonius Tyanæus, ob. 97.—All the philosophers banished from Rome by Domitian.
- 84.—Valerius Flaccus.
- 85.—Britain discovered to be an island.
- 86.—The Capitoline games instituted by Domitian, and celebrated every 4th year.—Solinus.
- 88.—The secular games celebrated.—The Dacian war begins.—Epictetus, the Stoic philosopher, ob. about 161.
- 89.—Quintilian, ob. about 95.

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- 90.—Agrippa of Bithynia, the mathematician.
- 91.—Statius of Naples, the poet, ob. 96.—St. Clement I.
- 92.—A vestal buried alive for prostitution.—Agrippa, being in Bithynia, observes a conjunction of the moon with the Pleiades, Nov. 29th, 5^h before midnight.—St. Ignatius, ob. 108.
- 93.—The empire of the Huns, in Tartary, destroyed by the Chinese.—Tacitus the historian, ob. after 99.—John banished to Patmos.
- 95.—The 2d persecution of the Christians, under Domitian, begins about November.—Juvenal. ob. 128.
- 96.—Domitian put to death.
- 97.—The evangelist John returned from banishment.
- 98.—Nerva dies.—Menelaus, the mathematician, observed at Rome a transit of the moon over Spica Virginis Jan. 11th, 5^h after midnight.
- 99.—Julius Severus, governor of Britain.

The SECOND CENTURY of the Vulgar Christian Æra.

- 102.—Pliny, pro-consul in Bithynia, sends Trajan his account of the Christians.
- 103.—Dacia reduced to the form of a Roman province.—Pliny junior.
- 105.—A great earthquake in Asia and Greece.—Dion Præfæus.
- 106.—Trajan's expedition against the Parthians, &c.—Philo-Byblius, ob. 133, æt. 80.
- 107.—The 3d persecution of the Christians under Trajan.
- 109.—A comet appeared in China.—Plutarch, ob. 119.
- 111.—Suetonius, the historian, ob. after 117.
- 114.—Trajan erects his column at Rome.—Armenia becomes a province of the Roman empire.—A great earthquake in China.—Ælian, ob. about 140, æt. 40.
- 115.—An insurrection of the Jews of Cyrene.—Trajan subdued Assyria.—An earthquake at Antioch.
- 116.—The Jews make an incursion into Egypt.—L. Annæus Florus.
- 117.—Adrian's expedition into Britain.—Trajan dies.—Theon, senior, the astronomer of Smyrna.
- 118.—The 4th persecution against the Christians, under Adrian.
- 120.—Nicomedia and other cities swallowed up by an earthquake.
- 121.—Adrian builds a wall between Carlisle and Newcastle.
- 122.—Phlegon Trallian.
- 126.—Adrian goes into Asia and Egypt for 7 years.
- 127.—Aristides.
- 128.—Cæsarea and Nicopolis destroyed by an earthquake.—Aquila, the interpreter, translated the Old Testament into Greek.
- 130.—Adrian rebuilds Jerusalem, and erects a temple to Jupiter.—At Alexandria, Ptolemy observed Mars in opposition, Dec. 14, 3^h P. M.
- 131.—The Jews commence a 2d war.—St. Polycarp, ob. 167.
- 132.—Salvius Julianus compiles the perpetual edict, or body of laws for the prætors at Alexandria.—Ptolemy observed the autumnal equinox, Sept. 25th, 2^h P. M.
- 133.—An eclipse of the moon observed by Ptolemy at Alexandria, on Tuesday, May 6th, 11^h. 45'. P. M.—He observed Jupiter in 13° 15' 8", May 17, 11^h P. M. and Saturn in 9° 40' 4", June 4, 4^h P. M.—Cl. Ptolemy, the mathematician, ob. 161.
- 134.—Urbicus's wall was built between Edinburgh and Dumbarton Frith.—Marcion, the heretic.—Pto-

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- lemy observed Venus in 11° 5' 13", Feb. 16th, morning: and Mercury in 20° 12' 12", Oct. 3, morning.
- 135.—The Jewish war ends, and almost all the Jews banished from Judæa.
- 136.—The second great canicular year of the Egyptians begins, July 20th.—Arrian, the historian and philosopher.
- 138.—Adrian dies at Baizæ.—Ptolemy observed Cor Leonis, in 2° 30' of this sign, and 32° 40' from the summer solstice.
- 139.—Justin Martyr writes his first Apology for the Christians, ob. 163.
- 140.—Ptolemy observed Venus in 18° 30' 11", and 47° 15', from the mean place of the sun, July 18th.—Observed the vernal equinox at Alexandria, March 22d, about 1 o'clock afternoon.
- 141.—A number of heresies appear about this time, as those of the Ophites, Cainites, Sethians, &c.—A comet appeared in China.
- 144.—Appian, the historian.
- 145.—Antoninus defeats the Moors, Germans, and Dacians.—Polyænus.
- 146.—The worship of Serapis is introduced at Rome by the emperor, and his mysteries celebrated May 6th.—Artemidorus.
- 147.—Apuleius.
- 148.—Justin, the historian.
- 149.—A comet appeared in China.—Aulus Gellius, the grammarian.
- 151.—Maximus Tiriüs, ob. about 180.
- 152.—An earthquake at Rhodes.—An inundation of the Tiber, &c.—Antoninus stops the persecution against the Christians.
- 153.—Pausanias, ob. after 173.
- 156.—Attilius Titianus is put to death for usurping the empire.—Diophantus, ob. æt. 84.
- 158.—Lucian, ob. about 180, æt. 90.
- 159.—The Bactrians and Indians submit to Antoninus.
- 161.—Antoninus Pius dies, æt. 75.—Hermogenes became an ideot, æt. 24.
- 162.—War with the Parthians, continues 3 years.
- 163.—The persecution of the Christians, under Marc. Aurel. Antoninus, called by some the 4th.—Galen, ob. 193, æt. 70.
- 166.—The Romans sent ambassadors to China.
- 168.—A plague over the known world.—Athenagoras, ob. 177.
- 169.—The war with the Marcomanni begins.
- 171.—Montanus propagated his heresy.—Tatian.
- 172.—Athenæus Naucr^a, ob. about 194.
- 174.—War with the Marcomanni, Vandals, &c. finished.
- 177.—Another war with the Marcomanni, which lasts three years.
- 178.—A comet appeared in China.—Diogenes Laertius, ob. about 222.
- 180.—Marcus Aurelius dies, æt. 59.—A comet appeared in China.
- 181.—Commodus makes peace with the Germans.
- 182.—A comet appeared in China.—St. Irenæus, ob. 202.
- 183.—A violent war in Britain finished by Marcellus.—Theodotion, the interpreter.
- 186.—Julius Pollux, ob. æt. 58.
- 188.—The Capitol, &c. of Rome destroyed by lightning.—A comet appeared in China.
- 189.—A plague at Rome.—The Romans defeated by the Saracens.

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- 191.—A great part of Rome destroyed by fire.
- 192.—Commodus is put to death, æt. 31.
- 193.—Pertinax is killed, and different persons assume the empire.
- 194.—Byzantium besieged by Severus.
- 195.—Disputes first commence about Easter.
- 198.—Albinus defeated by Severus in Gaul, and killed at Lyons.
- 200.—Severus goes into the East, and defeats the Parthians.—A comet appeared in China.

The THIRD CENTURY of the Vulgar Christian Æra.

- 201.—Symmachus published a version of the Bible.—Papinianus, ob. 212.
- 202.—The 5th persecution of the Christians, under Sept. Severus.—A comet appeared at Rome.—An eruption of Vesuvius.
- 204.—The secular games celebrated at Rome.—A comet appeared in China.
- 205.—An earthquake in Wales.
- 206.—A comet appeared in China, near the polar star.—Clemens Alexandrinus.
- 207.—Severus goes into Britain—50,000 of his troops die of the pestilence.—Minutius Felix.
- 209.—Severus builds his wall across Britain, from the Frith of Forth.
- 210.—Philostratus, ob. about 244.
- 211.—Severus dies at York, æt. 66.
- 212.—A comet appeared in China.—The Christian faith introduced into Scotland.—A distinction made between municipal and free citizens in Rome.—Caracalla kills his brother Geta, and many others.
- 213.—Oppian, ob. æt. 30.
- 216.—War between the Romans and Parthians.
- 217.—Caracalla is killed by Maximus, æt. 43.—The Septuagint is found in a cask.
- 218.—Maximus is put to death by the soldiers.—A comet appeared in China.—Two comets seen at Rome.
- 220.—Julius Africanus, the chronologer.
- 222.—The Romans agree to pay an annual tribute to the Goths.—Aug. 29th, a conjunction of the heavenly luminaries observed at Alexandria.
- 225.—Mathematicians are allowed to teach publicly at Rome.
- 226.—Parthia becomes tributary to Persia.
- 229.—The Arsacides terminate in Persia.—Dion Cassius, the historian.
- 231.—Origen, ob. 254, æt. 69.
- 232.—Ammonius, the Christian and Platonic philosopher, begins a school of Platonic philosophers at Alexandria, ob. after 243.
- 233.—The Romans defeat the Persians, with great slaughter, at Tadmor.
- 235.—The 6th persecution against the Christians.
- 236.—Two comets appeared in China.
- 237.—The two Gordians killed in Africa.
- 238.—Cenforinus.
- 241.—The Franks first mentioned in history.—Gregory Thaumaturgus, ob. 266.
- 242.—Gordian makes a successful expedition against the Persians.
- 244.—Gordian is put to death.
- 245.—Peace between the Romans and Persians.
- 247.—The secular games celebrated at Rome.—Herodian, the historian.
- 249.—The two Philips are killed; one at Verona, the other at Rome.

A.D.

- 250.—The 7th persecution of the Christians, under Decius.
- 251.—The Romans are defeated by the Goths at Mæsia.—The Novatian heresy propagated.—St. Cyprian, ob. 258.
- 252.—The Romans become tributary to the Goths.—The Scythians and Persians invade Asia.—A dreadful pestilence over the Roman empire.
- 254.—Plotinus, ob. 270, æt. 66.—A great eruption of Ætna.
- 257.—The 8th persecution against the Christians, under Valerian.
- 258.—The Roman empire is harassed by 30 tyrants.
- 260.—Valerian is taken prisoner by Sapor, king of Persia, and slayed alive.—The temple of Diana consumed by fire.—The Scythians ravaged the Roman empire.
- 261.—A great plague raged in the Roman empire.—Longinus, ob. 273.
- 262.—Earthquakes in Europe, Asia, and Africa; and 3 days of darkness.—Paulus Samosatenus, bishop of Antioch, deposed in 270.
- 264.—Odenatus, king of Palmyra, governs the eastern empire.
- 267.—The Scythians and Goths defeated by the Romans.
- 268.—Gallienus is killed at Milan, æt. 50.
- 269.—Claudius gains a great victory over the Goths—300,000 of them killed.—Zenobia takes possession of Egypt.
- 272.—The 9th persecution against the Christians, under Aurelian.
- 273.—Zenobia, queen of Palmyra, defeated by Aurelian, and Palmyra taken.
- 274.—The temple of the Sun is built at Rome.—Dacia given up by Aurelian to the Barbarians.
- 275.—Aurelian is killed near Byzantium.
- 276.—Wines first made in Britain.—Tacitus dies at Tarsus.—Porphyry, ob. about 304, æt. 71.
- 277.—Probus's expedition into Gaul.—The Franks settled in Gaul.—A comet appeared in China.
- 280.—Probus defeats the Persians.
- 282.—Probus is put to death at Sirmium.
- 284.—The æra of Dioclesian begins Aug. 19th, according to the fixed Egyptian year, though he did not enter upon his reign till Sept. 17th.—The Romans send ambassadors to China.
- 285.—Arnobius.
- 286.—The empire attacked by northern nations, and several provinces are usurped by tyrants.
- 287.—Carausius proclaimed emperor in Britain.
- 289.—A great comet visible for 20 days, in Mesopotamia.—Gregory and Hermogenes, lawyers.
- 290.—The Gregorian and Hermogenian codexes published.
- 291.—The two emperors and the two Cæsars march to defend the four quarters of the empire.—Ælius Spartianus, the historian.
- 293.—Carausius is killed by Allectus.—The Franks expelled from Batavia.
- 296.—Britain recovered to the emperors after a ten years usurpation.—Alexandria besieged and taken by Dioclesian.

The FOURTH CENTURY of the Vulgar Christian Æra.

- 301.—War between the Persians and Romans.—Julius Capitolinus, ierodes.

CHRONOLOGY.

- A.D.
- 303.—The 10th persecution against the Christians, under Dioclesian.—Flavius Vopiscus.
- 304.—Dioclesian and Maximianus resign the empire, and live retired.
- 305.—A comet appeared in China.—Trebellius Pollio.
- 306.—Constantius carries on war against the Britons; dies July 25th.
- 307.—A considerable part of Rome destroyed by fire.—Ælius Lampridius.
- 308.—Four emperors reigned at the same time.
- 309.—The Christians persecuted in the East.
- 310.—Constantine divides Britain into four governments.
- 311.—Lactantius.
- 312.—Maxentius killed in battle.—The *Indictions* begin.—Pestilence over the East.
- 313.—The 10th persecution terminated by an edict of Constantine and Licinius.
- 314.—A civil war between Constantine and Licinius.
- 315.—The punishment of the cross abolished.
- 319.—Constantine begins to favour the Christians.
- 321.—Sunday appointed to be observed.
- 323.—Constantine becomes master of the empire; gives full liberty to Christians.
- 324.—Licinius defeated and banished.
- 325.—The 1st general Council of Nice, from June 19th to Aug. 25th, consists of 318 bishops.—Arius, ob. 336.
- 326.—Crispus, falsely accused, is put to death.—The Christians persecuted by the Parthians.—Eusebius Pamphilus, ob. 342.
- 328.—The seat of empire transferred from Rome to Constantinople.
- 330.—Constantinople solemnly dedicated.—A dreadful persecution in Persia, which lasted 40 years.
- 331.—The heathen temples demolished by order of the emperor.—St. Athanasius, ob. 371.
- 333.—A great famine and pestilence in Syria.
- 334.—300,000 Sarmatians revolt from their masters, and are dispersed through the empire.
- 336.—A comet appeared in China.
- 337.—Constantine the Great dies May 22d, æt. 66.
- 340.—Constantine, junior, killed at Aquileia.—An earthquake in the East.—A comet appeared in China.
- 341.—The gospel propagated in Ethiopia by Frumentius.—St. Hilary, ob. 367, æt. 80.
- 342.—Jamblichus, ob. about 363.
- 344.—Neocæsarea destroyed by an earthquake.
- 350.—Constantius killed in Spain.
- 351.—The heathens first called Pagans.
- 353.—Ælius Donatus, the grammarian.
- 354.—Gallus put to death by Constantius.
- 356.—Eutropius, the historian and sophist.
- 357.—Julian defeated six German kings at Strasburg.
- 358.—An earthquake ruins 150 cities in Greece and Asia.—Libanius, the sophist.
- 359.—Ammianus Marcellinus, ob. about 380.
- 361.—Constantius dies at Tarsus, æt. 45.—Gregory Nazianzen, ob. 389.
- 362.—Themistius, the sophist, ob. about 386.
- 363.—Julian in vain endeavours to rebuild the temple of Jerusalem; and dies in an expedition into Persia.—Aurelius Victor.
- 364.—The Roman emperors enacted laws against magicians.—Britain harassed by the Picts, Scots, and Saxons.—The Roman empire divided into two parts, called the Eastern and Western empire.
- A.D.
- 370.—Valens marched against the Persians.—St. Basil, ob. 379, æt. 51.
- 372.—Eunapius.
- 373.—The Bible translated into the Gothic tongue.—A comet appeared in China.
- 377.—St. Ambrose made bishop of Milan, ob. 397.
- 376.—The Goths, expelled by the Huns, settle in Thrace.
- 378.—Valens defeated by the Goths.—The prerogatives of the Roman see much enlarged.
- 379.—The Lombards first leave Scandinavia, and defeat the Vandals.—Ausonius, ob. about 394.
- 381.—The second general council of Constantinople.—Macedonius, the heretic.
- 383.—The emperor Gratian defeated and killed.—The Huns ravaged Mesopotamia.—Pappus of Alexandria, the mathematician.
- 385.—Theon, jun. of Alexandria, the mathematician.
- 387.—The quinquennales celebrated by Arcadius.—St. Jerome, ob. 420, æt. 78.
- 388.—The tyrant Maximus defeated and killed by Theodosius.
- 389.—The first kings of the Lombards elected in Pannonia.
- 390.—A fiery column seen in the air for 30 days.
- 392.—Prudentius.
- 394.—Theodosius defeats Eugenius and Arbogastes.—St. Augustine, ob. 430, æt. 76.—A great earthquake felt in many parts of Europe.
- 395.—Theodosius the Great dies, æt. 60.
- 396.—St. Chrysostom, ob. 407, æt. 53.
- 397.—Claudian.
- 398.—Heliodorus.
- 400.—A comet appeared in China.
- The FIFTH CENTURY of the Vulgar Christian Æra.
- 401.—Alaric, king of the Goths, over-runs Europe.—Sulpicius Severus, the Ecclesiastical historian, ob. 420.
- 402.—The Avari, having defeated the Huns, become masters of Great Tartary.—Anianus of Alexandria, the monk and chronologer.
- 403.—Alaric defeated by Stilicho.—Macrobius, ob. about 415.
- 404.—An irruption of the Goths.—Panodorus of Alexandria, the monk and chronologer.
- 405.—The Pelagian heresy published.—John Stobæus.—Stilicho defeats 200,000 Goths in the mountains of Fesulæ.
- 406.—The Vandals, Alani and Suevi, spread into France by a concession of Honorius.—Pelagius, ob. about 430.
- 408.—The Christian religion propagated in Persia.—Hypatia, the mathematician, and daughter of Theon, ob. 415.
- 410.—Rome taken and plundered by Alaric.—Servius, the commentator on Virgil.
- 411.—Synesius, bishop of Cyrene, and Platonic philosopher.
- 412.—The Vandals begin their kingdom in Spain.—Armenia divided between the Persians and Romans.—St. Cyril, bishop of Alexandria, ob. 444.
- 413.—The kingdom of the Burgundians begins in Alsace.
- 414.—The Visigoths found the kingdom of Toulouse.
- 415.—The Christians persecuted in Persia.
- 416.—A great stone fell from the sky in Constantinople.—Orosius, the historian.
- 417.—The Alans extirpated by the Goths.

CHRONOLOGY.

A.D.

- 419.—An earthquake destroys many cities in Palestine.—Socrates, the Ecclesiastical historian, denominated the Scholastic.
- 420.—The kingdom of the French begins on the Lower Rhine.—China is divided into two empires.
- 421.—The Salic law promulged.—The Christians severely persecuted in Persia.
- 422.—The Huns ravage Thrace.
- 423.—The western empire usurped by John, called the Notary.
- 425.—The restoration of learning attempted by Theodosius, who establishes public schools at Constantinople.
- 426.—The Romans leave Britain, never to return.
- 427.—Pannonia is recovered by the Romans.—Zosimus, the historian.
- 428.—Pelagianism propagated in Ireland.—The French defeated Ætius the Roman general.
- 431.—The *third general council* of Ephesus.—Nestorius, the heretic bishop of Constantinople.
- 432.—The Roman provinces in Africa submit to the Vandals.
- 433.—A great part of Constantinople consumed by fire.—Attila, king of the Huns, begins his reign.
- 435.—Nestorianism prevails in the East.—The Theodosian code published.
- 437.—The Goths defeated by Ætius.—Cyril's cycle of 95 years begins.—The first persecution of the Christians by the Vandals.—Theodoret, bishop of Cyrus, ob. about 460.
- 439.—Genserich becomes master of Carthage; and commences the kingdom of the Vandals in Africa.—Sozomen, the Ecclesiastical historian, ob. 450.
- 441.—The Huns, Persians, Saracens, &c. invade the Roman territories.
- 443.—The Manichæan books burned at Rome.—Olympiodorus, the Ecclesiastical historian.
- 446.—Fire, famine, pestilence, and sedition, at Constantinople.—The Britons make their fruitless complaint to Ætius and the Romans, against the incursions of the Scots and Picts.
- 447.—Attila, with his Huns, ravages Europe.
- 449.—The Saxons first come into Britain, at the invitation of Vortigern, and land in the isle of Thanet.—Heptarchy established in England.—A great famine in Italy.
- 450.—Theodosius II. dies, æt. 49.
- 451.—The *fourth general council* of Chalcedon.—Attila defeated by Ætius.—The Christians persecuted in Britain.—Eutyches.
- 452.—The city of Venice takes its rise about this time.
- 454.—The Britons in vain attempt to expel the Saxons.—The Vandals become masters of Sicily.
- 455.—Rome taken by Genserich.—The kingdom of Kent begins.
- 456.—The Suevi defeated by Theodoric.—Prosper, ob. 460.
- 457.—Vortimer defeated by Hengist in the battle of Crayford, Kent.
- 458.—A great earthquake at Antioch.—The Chinese fail to the north of California.
- 461.—A fire in Constantinople.—Peace between the emperor Leo and the Goths.
- 463.—Victorius, of Aquitain, invents the paschal cycle of 532 years.
- 464.—The Vandals expelled from Sicily.
- 466.—The Goths defeated by the Romans.—Rogation-day instituted.

A.D.

- 467.—The Vandals defeated by the Romans.
 - 468.—The Visigoths drive the Romans out of Spain.
 - 469.—Sidonius Apollinaris, ob. 482, æt. 52.
 - 472.—A great eruption of mount Vesuvius.—Gennadius, ob. 492.
 - 474.—Leo I. and Leo II. die.
 - 475.—Hengist treacherously massacres 300 British nobles.—The Saxons defeated by the Romans.—Geladius, of Cyzicum.
 - 476.—The kingdom of Italy begins.—The western empire ended.—A dreadful fire in Constantinople.
 - 479.—Peter, surnamed the Fuller, ob. 486.
 - 480.—Great part of Constantinople destroyed by an earthquake, which lasts 40 days.
 - 482.—Zeno publishes the decree of union between parties in the church.
 - 484.—Huneric, king of the Vandals, persecutes the Christians.
 - 485.—Clovis defeats the Romans at Soissons.
 - 487.—The Britons, under Ambrosius and prince Arthur, defeat the Saxons.
 - 490.—Theodoric defeats Odoacer.
 - 491.—Ella founds the 2d Saxon kingdom of Suffex, including one county and Surry.
 - 493.—The kingdom of Italy passes from the Heruli to the Ostro-goths, by the capture of Ravenna.—Malchus, the sophist.
 - 494.—The Roman pontiff asserts his supremacy.
 - 495.—Timotheus Gazæus.
 - 496.—Clovis baptized, and Christianity received in France.—The Slavonians seize on Poland and Bohemia.
 - 497.—The Isauric war closes.
 - 499.—The Bulgarians ravage Thrace.—Fulgentius, ob. 529.
 - 500.—The Saracens ravage Syria and Phœnicia.
- The SIXTH CENTURY of the Vulgar Christian Æra.
- 501.—Anastasius makes peace with the Saracens.—Acadius, counsellor to Gondebaud.—Gondebaud publishes his laws of the Burgundians, called "La loy Gombette."
 - 503.—Anastasius's army cut to pieces by Cabades, king of Persia.—The pope resists the legal magistrate.
 - 504.—The Christians persecuted by the Vandals.—The pandects published.—Magi prevail at Rome.
 - 505.—The Persian war ends.
 - 506.—Arien, chancellor of Alaric, reforms the Theodosian code, and publishes it.
 - 507.—Alaric defeated and killed by Clovis, near Poitiers.
 - 509.—A great fire at Constantinople.—The Saracens invade Arabia and Palestine.—Alcimus Avitus, ob. 523.
 - 510.—Paris becomes the capital of the French dominions.
 - 511.—A great insurrection at Constantinople.—Prince Arthur defeats the Saxons in the battle of Badonhill or Bath.
 - 512.—An eruption of Vesuvius.
 - 513.—The Persian and Saracen kings embrace the Christian religion.—Boetius, the philosopher, ob. 524.
 - 514.—Constantinople besieged by Vitalianus, whose fleet is burned by a brafs speculum of Proclus.—Cassiodorus, secretary to Theodoric, ob. 562, æt. about 100.
 - 516.—The Getæ ravage Macedonia, Thessaly, &c.—The computation of time by the Christian æra introduced by Dionysius the monk, called the Little, ob. 540.

CHRONOLOGY.

A.D.

- 517.—Five years of drougt and pestilence in Palestine.
- 519.—Prince Arthur defeated at Charford by Cerdic, which begins the 3d Saxon kingdom of Wessex.
- 520.—The Britons defeat the Anglo-Saxons at Bath.
- 521.—An earthquake at Corinth.—Hefychius of Miletus.
- 522.—Thrafastomond, king of the Vandals, defeated and killed by the Moors.
- 524.—An earthquake in Cilicia.
- 525.—Antioch consumed by fire.—Priscian, the grammarian.
- 526.—An earthquake at Antioch.—Dionysius the Less composed his cycle.
- 527.—Ercheawin founds the 4th Saxon kingdom of Essex.
- 528.—Belisarius marches with an army against the Persians.
- 529.—The code of Justinian is published, April 16th.—The order of Benedictine monks is instituted.—Tribonianus, the famous lawyer.
- 532.—A conspiracy and sedition at Constantinople.—A great pestilence in Ethiopia.—The kingdom of Burgundy conquered by Childebert and Clotaire.
- 533.—The digest of Justinian is published, Dec. 30th.—Belisarius sent against the Vandals in Africa.
- 534.—The kingdom of the Vandals finished by Belisarius, who took Carthage.—Procopius, the historian, and secretary to Belisarius.
- 535.—Belisarius gains Sicily.
- 536.—Belisarius takes Naples.—The inhabitants of Constantinople taught by two Indian monks to fabricate silk.
- 537.—Rome surrendered to Belisarius.—French coin begins to be current through the Roman empire.—Count Marcellinus, the chronologer.
- 539.—Italy distressed with war, famine, and pestilence.—The Goths take and raze the city of Milan.—The camps of the Romans and Goths taken by Theodebert, king of Metz.
- 540.—Vitiges taken prisoner by Belisarius in Ravenna.—The Moors defeat the Romans in Africa.—Antioch destroyed by the king of Persia.
- 541.—Jornandes, the Gothic historian, ob. 552.
- 542.—The consulship of Basilus is the last at Rome.—Prince Arthur murdered in Cornwall.—Antioch rebuilt.—The Romans defeated by the Goths on the Po.
- 543.—A great plague desolates Asia and Europe.—An earthquake of wide extent, Sept. 6th.—Totila, king of the Goths, seizes Tuscany, Campania, Puteoli, Naples, &c.
- 544.—The Romans defeated by the Persians.—Paul, first named the Silentiary.
- 546.—Rome taken by Totila, and barbarously pillaged.—Simplicius, the Peripatetic philosopher.
- 547.—Ida founds the fifth Saxon kingdom of Northumberland.
- 549.—Totila fortifies Rome.
- 550.—An earthquake in Palestine, Syria, &c.—The state of Poland formed by Leck.
- 551.—The manufacture of silk introduced into Europe from India.
- 552.—The empire of the Avars in Great Tartary ends.—An earthquake in Greece, and a great commotion in the sea.—A great earthquake at Constantinople.—The *fifth general council*, or second of Constantinople.

A.D.

- 553.—Narfes defeats Totila, and kills him.
- 554.—Narfes defeats and kills Teia, king of the Goths, and thus finishes the Ostrogoth monarchy in Italy.
- 556.—A sedition of the Jews in Palestine.—Civil wars in France.—Gildas, called the Wise, the British historian, ob. 570.
- 557.—A great earthquake at Rome, Constantinople, &c.
- 558.—A terrible plague over Europe, Asia, and Africa, which continues near 50 years.
- 559.—The heptarchy began in England.
- 561.—A conspiracy against Justinian.—Belisarius is disgraced; but restored the next year.
- 563.—Constantinople almost destroyed by fire.
- 565.—Pestilence in Italy, France, and Germany.—The kingdom of France divided into four parts.—Columbus propagates Christianity among the Piets.—Justinian dies, æt. 83.—Agathias, the historian.
- 567.—The kingdom of the Visigoths founded in Spain.
- 568.—The Lombards, invited from Pannonia by Narfes, found a kingdom in Italy.
- 569.—The Turks first mentioned in history.—Exarchs are sent to Ravenna by the eastern emperors against the Lombards.
- 572.—The Persians declare war against Justin.—Gregory of Tours, called the father of the French history, ob. 595.
- 573.—The Avari ravage part of Germany.
- 574.—The Persians invade and plunder Syria.
- 575.—Civil wars in France.—The first monastery founded in Bavaria.—Uffa founds the sixth Saxon kingdom of East Anglia.
- 576.—Chosroes the Great defeated by the emperor Justin's army.
- 578.—Justin II. dies.
- 580.—Chosroes again defeated, and dies of grief.—The city of Antioch destroyed by an earthquake.
- 581.—Latin ceased about this time to be spoken in Italy.
- 582.—Crida founds the kingdom of Mercia, being the seventh Saxon kingdom in Britain.
- 583.—The Suevi in Spain conquered by the Visigoths, which finishes the kingdom.
- 584.—The origin of siefs in France.
- 587.—An earthquake at Antioch.
- 588.—The city of Paris consumed by fire.
- 589.—The Tiber overflowed Rome.—The several provinces of China united.—Philippicus defeated the Persians.
- 590.—Pestilence in Italy and France.—The Romans defeated by the Avari.
- 592.—Ceaulin defeated and dethroned in the battle of Wanborough in Wilts by Ceolric.
- 593.—The Avari expelled from Thrace.—The Gascons about this time established themselves in the country called by their name.
- 594.—Evagrius, the Ecclesiastical historian.
- 595.—The Slavonians penetrate into Ithria, Bohemia, and Poland.—The Lombards besiege Rome, and ravage Italy.
- 596.—John, of Constantinople, assumes the title of universal bishop.
- 597.—Augustin, the monk, comes into England, attended by 40 monks.
- 598.—A truce between the Romans and Lombards.
- 599.—A dreadful pestilence in Africa.—A comet appears in France.
- 600.—The Slavonians and Avari ravage Italy.

The

CHRONOLOGY.

The SEVENTH CENTURY of the Vulgar Christian Æra.

- A.D.
 602.—Mauricius, emperor of the East, put to death by Phocas.—The Lombards defeat the Romans.
 603.—War between the Persians and Greeks.—Secundus, historian of the Lombards, ob. 615.
 604.—Chosroes defeats the Roman army.—St. Paul's church in London founded by Ethelbert, king of Kent.
 605.—The use of bells introduced into churches about this time.—The power of the popes now begins by the concessions of Phocas.
 606.—The court of chancery instituted in England.
 607.—The Pantheon of Rome converted into a church.
 609.—The Jews in Antioch revolt, and massacre the Christians.—Isidorus Hispalensis, ob. 636.
 610.—Heraclius takes Constantinople, and puts Phocas to death.
 611.—The church and abbey of Westminster founded by Sibert, king of the East Saxons.
 612.—The Saracens ravage Syria.—Mahomet begins to publish his Koran.—Theophylactus Simocatta, the historian..
 613.—Clotaire reigns over all France.—The *maîtres du palais* introduced into France.
 614.—The Persians take Jerusalem, kill 90,000, and carry off the cross of Christ.
 615.—The Persians over-run Africa, and take Alexandria.
 616.—The Persians take and plunder Carthage.—The Jews banished out of Spain and France.
 617.—Edwin kills Ethelfrid in the battle of Retford.—Chosroes refuses peace to Heraclius, unless he renounces Christianity, and worships the sun.—John of Alexandria, called Philoponus, the grammarian, and commentator on Aristotle.
 618.—The Avari take and plunder Constantinople.
 622.—Heraclius defeats the Persians in a great battle.—Mahomet fled from Mecca to Medina, and the Hegira begins on Friday, July 16th.—Mahomet, ob. 632, æt. 63.
 628.—An academy founded at Canterbury.—Chosroes put to death by his son.
 632.—The æra of Jeddéirid commences, June 16th.
 633.—Edwin, king of Northumberland, killed in battle by Penda, king of Mercia.
 634.—The Saracens take Damascus.—Geo. Pisides, the poet and historian, ob. after 641.
 635.—The Saracens invade Egypt and Palestine.
 636.—The Christian religion introduced into China.
 637.—The Saracens take Jerusalem.
 640.—The Saracens take Alexandria, and burn the library.
 641.—Heraclius dies.
 644.—Omar, caliph of the Saracens, killed in the temple of Jerusalem, which he had converted into a mosque.—The university of Cambridge founded by Sigebert, king of East Anglia.—The laws of the Lombards formed into a system, and published Nov. 22.
 645.—Penda, king of Mercia, defeats Cenowalh, and keeps possession of Wexsex for three years.
 647.—The Saracens make themselves masters of Africa.
 648.—The Saracens take Cyprus.
 652.—Persia becomes a part of the empire of the caliphs.
 653.—The Saracens take Rhodes, and destroy the Colossus—ravage Armenia—defeat the Greeks at sea.—The Danes invade England.
 659.—The Saracens obtain peace of Constans, on condition of paying him 100,000 crowns yearly.

A.D.

- 660.—Organs first used in churches.
 663.—The kingdom of Lombardy taken possession of by Grimoald, duke of Beneventum.—Glaifs invented by a bishop, and brought into England by a Benedictine monk.
 668.—Constans murdered in a bath.—And the eastern empire usurped by Metius, the Armenian.
 669.—The Saracens ravage Sicily.
 671.—The Saracens invade Syria, besiege Constantinople, &c.
 673.—The Saracens defeated by the Greeks, and their fleet dispersed.—Callinicus, the mathematician.
 675.—The Saracens attempt to land in Spain, but defeated by Wamba.
 676.—The Saracens make a peace with Constantine, on paying an annual tribute.—A comet appeared at Rome.
 680.—The *sixth general council* of Constantinople called "in Trullo."
 681.—Pestilence in Saxony, and next year in Syria.
 684.—Egfrid, king of Northumberland, invades Ireland, but is defeated.—A comet appeared at Rome in January.—An eruption of Vesuvius.
 685.—Constantine V. dies.—The Britons totally subdued by the Saxons.
 686.—Suffex subdued by Ceadwalla, and united to the kingdom of Wexsex.
 688.—Kent wasted by the West Saxons remains feeble during the remainder of the heptarchy.
 690.—Pepin engrosses the power of the French monarchy.
 694.—A conspiracy of the Jews in Spain.—Justinian II. banished with the iris of his nose.
 695.—Money first coined by the Arabians.
 697.—The gospel propagated in the eastern parts of France.—Leontius deposed, and his nose cut off.
 698.—The Saracens take Carthage, and expel the Romans from Africa.—The Picts in Britain embrace the Christian religion.—Christianity introduced into Friesland about this time.—The first prince of Poland elected, and Cracow built.

The EIGHTH CENTURY of the Vulgar Christian Æra.

- 701.—81 battles fought by the Saracens.
 703.—Justinian seized on Thrace and marched to Constantinople.
 704.—The Lombards reduced by intestine wars; the first province given to the pope.
 706.—Justinian defeats the Bulgarians.
 707.—The Saracens invade the Roman territories.
 709.—Ina published the laws of the Saxons about this time.
 711.—Justinian is put to death by Philippicus.
 713.—The Saracens conquer Spain.—The Bulgarians ravage Thrace.
 714.—Charles Martel governs all France.
 717.—The Saracens unsuccessfully besiege Constantinople.—Charles Martel defeats king Chilperic.
 718.—The kingdom of Asturias in Spain founded by Pelagio.
 719.—Boniface, an Anglo-Saxon, propagates the Christian religion in Germany.
 726.—Two edicts for demolishing images in churches.
 727.—Ina, king of Wexsex, began the tax of Peter's-pence, for the support of a college.
 729.—Two comets appear this year, one before sun-rise, the other after sun-set.

CHRONOLOGY.

- A.D.**
730.—Pope Gregory excommunicated the emperor.
732.—The Saracens defeated by Ch. Martel, near Tours.
735.—Ch. Martel becomes master of Aquitaine.—The pope's nuncio instituted about this time.
736.—Leo destroys all the images in his empire, and persecutes the monks.
737.—Joannes Damascenus, ob. 760.
740.—The Lombards seize the duchy of Spoletto, and the pope recovers it.—An earthquake at Constantinople, &c.
743.—Fredegaire, the French historian.
744.—The monastery of Fulda in Germany founded.
746.—A dreadful pestilence over Europe and Asia for three years.
748.—The computation of years from the birth of Christ begins to be used in histories from this time.
749.—The race of Abbas become caliphs of the Saracens, and encourage learning; the empire of the Saracens is divided into 3 parts.—Many cities in Syria are destroyed by an earthquake.
750.—The Merovingian race ends in France.
751.—The 2d race of the French kings begins.
752.—The Exarchs of Ravenna are conquered by the Lombards.—The defenders of images are persecuted.—The 1st consecration of the kings of France.—The exarchate ends by the capture of Ravenna.
753.—The king of the Lombards declared war against the pope.
754.—Pepin assists the pope with a numerous army.—The kingdom of Cordova, in Spain, founded.
755.—The temporal dominion of the pope commences.
757.—The first organ sent by Constantine to France.—Pepin reduces the Saxons.
761.—Constantine persecuted the worshippers of images.—A comet appeared at Rome, its course from E. to W.
762.—Bagdad built by Almanzor, and made the capital for the caliphs of the house of Abbas.—Burials permitted in towns; which used to be in the high-ways.
762.—A violent frost begins Oct. 1st, and continues about 150 days.
766.—The Turks ravage Armenia and Asia.
770.—Constantine dissolves the monasteries in the East, obliging the monks and nuns to marry.
772.—Charlemagne makes war against the Saxons.
774.—The kingdom of the Lombards terminates by Charlemagne's capture of Pavia, after a duration of 266 years.
775.—Alcuinus, ob. 804.
776.—Charlemagne reduced the Saxons.
778.—Charlemagne restored learning in France.
780.—The worship of images re-established.
781.—Paulus Winifridus, surnamed Diaconus, the historian, ob. 801.
784.—Charlemagne defeats Wittikind and the Saxons, so that they submit.
787.—The Danes, for the first time, arrive in England.—The *seventh general council*, or second of Nice, begins.
788.—Pleadings in courts of judicature are instituted.
790.—An earthquake at Constantinople.
791.—Charlemagne defeats the Avari in Pannonia.—The Moors defeated by the Spaniards with great slaughter.
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792.—An Academy founded in Paris.—Ethelbert, king of East Anglia, treacherously murdered by Offa, king of Mercia, who thus takes possession of East Anglia.—Georgius, surnamed Syncellus and the monk, the chronologer.
794.—Charlemagne extirpated the Huns.—Offa, by way of atonement for his villany to Ethelbert, begins the tax, called Peter-pence, in Mercia.
796.—The pope sent legates to Charlemagne to request him to confirm his election.
797.—17 days of unusual darkness.—Alphonso defeats the Moors.—Constantine dethroned and put to death by his mother Irené.
799.—Constantine took Majorca and Minorca.
800.—The temporal power of the popes abridged.—Charlemagne proclaimed at Rome emperor of the West; and thus the emperors of the West, or of Germany, begin Dec. 25.
- The NINTH CENTURY of the Vulgar Christian Æra.**
- 801.—A great earthquake in France, Germany, and Italy.
802.—The empress Irené deposed and banished.—Joannes Damascenus, surnamed Mesuc, the Arabian, a Christian, and physician to the caliph Raschid, ob. about 846.
807.—Jan. 31. 3^h after midnight, Jupiter was eclipsed by the moon, both being in 2° 27' of Libra.—March 17, a large spot was seen on the sun for eight days.
808.—The first descent of the Normans into France.
810.—A civil war among the Saracens.
811.—Nicephorus killed by the king of the Bulgarians.—Eginhard, the historian, ob. 842.
814.—Leo ordered the images in churches to be demolished.
815.—An insurrection against the pope in Rome.
816.—Learning encouraged among the Saracens by Almanon, who found the sun's greatest declination to be 23° 34'.
817.—Ecclesiastics exempted from military service.—Lewis divides his kingdom among his children.
819.—Almammon ordered his astronomers to measure a degree of latitude on the plains of Sinjar near Babylon, who found it to be 56½ Arabian miles.
820.—Leo V. killed in the temple at Constantinople by Michael.
822.—Constantinople besieged by the Saracens under Thomas the Slave; but the siege is raised by the Bulgarians.
823.—The Saracens of Spain take possession of Crete, and call it Candia.
825.—Benimula observed the obliquity of the ecliptic to be 23° 35'.
826.—Harold, king of Denmark, embraces the Christian religion, and is dethroned by his subjects.
827.—The *Almagest* of Ptolemy translated into Arabic by order of Almamon.—The Saracens took possession of Sicily, Calabria, &c.
828.—The several kingdoms of England united under Egbert.—Rabanus Maurus, ob. 856.—The kingdoms of Navarre and Arragon founded.
829.—Missionaries sent from France to Sweden.—St. Mark's at Venice is built.
830.—Theophilus published an edict against images.
832.—Painters banished from the eastern empire by Theophilus, on account of his hatred of images.

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- 835.—The feast of All-Saints instituted.
- 837.—A comet appeared in China.—Also, in Europe, which moved in 25 days through π , ϖ , δ , and disappeared in 8.
- 838.—The Picts defeated, and their nation extirpated by Kenneth, king of Scotland.
- 840.—Lewis le Debonnaire dies, æt. 64.
- 841.—The battle of Fontenai, where Lotharius is defeated.—Albumafar, the Arabian astronomer.
- 841.—Theophilus dies.—The worship of images restored.—Germany separated from the empire of the Franks.
- 843.—A new partition of the French dominion in an assembly of the peers at Thionville among the three brothers.—Godescalcus, the heretic, ob. 870.
- 844.—The king of Spain defeated the king of Corduba.—The king of Germany defeated the Vandals.
- 845.—The Normans penetrate into Germany.—Hincmarus, archbishop of Rheims, ob. 882.
- 846.—The Saracens besiege Rome.
- 847.—A great earthquake in Italy.
- 848.—The Venetian fleet totally defeated by the Saracens in the bay of Crotona.
- 849.—The Saracen fleet defeated by the pope's allies.
- 850.—About this time the gospel was preached by Ansharius, bishop of Hamburg, &c. in Denmark and Sweden.
- 851.—The Normans invade England.—The Moors defeat the Spaniards.—The Saracens ravage Sardinia and Corsica.
- 852.—The English defeat the Danes at Okley.—The Moors persecute the Christians in Spain.
- 853.—The Normans get possession of some cities in France.
- 855.—The emperor Lotharius, sick of the world, retires to a monastery and dies.
- 856.—The Normans plunder the coasts of Holland.—An earthquake over a great part of the known world.—Odo, the historian, ob. 874.
- 857.—The Scots defeated by the Britons.
- 859.—A severe winter and frost; carriages used on the Adriatic.—Photius, patriarch of Constantinople, deposed in 886.
- 860.—The schism of the Greeks begins.
- 861.—Ruric, the first prince of Russia, begins to reign.
- 862.—Missionaries sent to convert the Slavonians.—John Scotus, called Erigena, ob. 883.
- 865.—Civil war among the Saracens in the east.—They ravage Italy.
- 866.—Anastasius, the librarian, ob. about 886.
- 867.—The Danes under Jvar, being brought into England, conquer Northumberland.—The Christian religion propagated in Bulgaria.
- 868.—The government of Egypt becomes independent of the Saracen caliphs of Bagdad under Ahmed.
- 870.—The Danes successfully ravage England.
- 871.—Ethelred fought nine pitched battles with the Danes in one year.
- 872.—Clocks first brought to Constantinople from Venice.—The Danes defeat Alfred near Wilton.—The Greeks successful against the Saracens.—Charlemagne makes war against the Saxons.
- 873.—The dynasty of Soffarides begins to reign in Khorasan.—France is laid waste by locusts and pestilence.
- 874.—The Danes invade Scotland.
- 875.—A bearded comet appeared in France.
- 878.—Alfred concealed himself in the isle of Athelney;

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- but soon after defeats the Danes, and causes them to leave England.
 - 879.—The Normans invade Germany.—The kingdom of Arles begins.—Alfraganus, the Arabian astronomer, called Logifta.
 - 880.—The Normans ravage France.—Sept. 19th, A. M. 11h. 45' Albategni observes the obliquity of the ecliptic to be $23^{\circ} 35'$.—The French monarchy divided between Lewis and Carloman.
 - 881.—Lewis defeats the Normans in a great battle.
 - 882.—Albategni, the mathematician, surnamed Mahomet of Aractus, observes the autumnal equinox at Aractus, on Sept. 19th, 1^h 15' after midnight, ob. about 888.
 - 883.—Albategni observed the sun's apogee in $\pi 22^{\circ} 27'$.—The first star of Aries distant from the equinoctial point $18^{\circ} 2'$.
 - 884.—Reginon, the historian, ob. 908.
 - 885.—The Normans besiege Paris.
 - 886.—The university of Oxford founded by Alfred about this time.—The Scythians become masters of Croatia.—Charles made a dishonourable peace with the Normans.
 - 888.—The dominions of Charles le Gros, who possessed all those of Charlemagne, are divided into five kingdoms.
 - 889.—The Bulgarians ravage Greece.—The Hungarians settle about the Danube.
 - 890.—The Normans ravage France and the Low Countries.—Alfred divides England into counties, and composes his body of laws about this time.
 - 891.—The Danes again invade England.—Arnolph of Germany defeats the Normans between the Meuse and the Rhine.—The first land-tax in England.—A comet appeared in China.
 - 895.—The monastery of Cluny is founded.
 - 896.—Arnolph takes Rome.
 - 897.—War between the Greeks and Bulgarians.—A great famine in Germany.—John Asler, the historian, ob. 909.
 - 899.—The Hungarians ravage Lombardy.
- The TENTH CENTURY of the Vulgar Christian Æra.
- 901.—Civil wars in France and Germany.
 - 902.—The Saracens defeated by Himerius at sea.—A comet appeared with its tail to the east.
 - 903.—The Normans ravage France.
 - 904.—The Hungarians ravage Italy.—A frost of 120 days begins at the close of the year.
 - 905.—Haron, caliph of Egypt, conquered and killed by Mahomet, the Saracenian general.—A very remarkable comet appeared in China.
 - 910.—War begins in England against the Danes, and continues 12 years.
 - 911.—Thebit observes the obliquity of the ecliptic to be $23^{\circ} 33' 30''$.—Leo VI., who wrote several treatises in the age of ignorance, dies.
 - 912.—The Normans establish themselves in France under Rollo.—The Carlovingian race of emperors ends in Lewis III.—The empire of Germany becomes elective.
 - 913.—The Danes seize on the crown of England.
 - 914.—The Hungarians defeated by Conrad.—The Saracens defeated by Constantine's generals.
 - 915.—The Hungarians ravage Saxony.—The university of Cambridge founded.

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- 916.—Ordonno II. defeats the Saracens in Spain, kills 70,000, a few days after an eclipse of the sun on April 5.
- 917.—The Bulgarians besiege Constantinople.
- 919.—Phocas raises a sedition at Constantinople, is killed by Romanus, who is advanced to the empire.
- 920.—The Moors defeat the Christians in Spain.
- 922.—The Hungarians pillage Germany.—Rodolph defeats Berenger in the battle of Placentia.
- 923.—The Moors defeated in Spain.—Fiefs established in France.—A comet appeared in China.
- 924.—The Hungarians ravage Italy.
- 925.—Sigifrid elected first marquis of Brandenburg.
- 926.—Arles united to Burgundy.
- 928.—The marquise of Misnie established.
- 929.—Eudes de Cluni, ob. 942.
- 930.—Henry subjects the Danes to the payment of tribute.
- 932.—Arnolph of Bavaria defeated by Hugh, king of Italy.
- 933.—The Hungarians defeated in Germany.—A frost of 120 days begins at the end of the year.
- 934.—Azophi, the Arabian astronomer.
- 936.—The Saracen empire divided, by usurpation, into 7 kingdoms.
- 937.—Iuitprand, the historian, ob. 970.
- 939.—Ramus, king of Spain, defeats the Saracens at Simanca.
- 941.—Arithmetic brought into Europe.
- 942.—The eastern emperors take possession of the kingdom of Naples.
- 945.—The Turks ravage Thrace, and the Danes invade France.—Berenger agrees with Hugh for the reversion of Italy.
- 947.—Alfarabius, the Arabian astronomer.
- 950.—Otho made Bohemia tributary.
- 951.—Otho drives Berenger out of Italy.
- 953.—Otho overcomes the Hungarians in Bavaria.
- 957.—Otho defeats the Slavonians in Saxony.
- 958.—War between the Normans and Saracens in Italy.
- 959.—Berenger plunders Italy.—The power of the monks very great in England.—Rhazes, the Arabian physician, ob. 1010, æt. about 90.
- 960.—Otho's expedition against the Vandals.
- 961.—Phocas recovers Candia from the Saracens.
- 964.—Italy conquered by Otho, and united to the German empire.
- 965.—Geber, the Arabian astronomer.
- 966.—The Russians invade Bulgaria.
- 967.—Antioch recovered by Nicephorus from the Saracens.
- 968.—A famine in Germany.—The Normans ravage Spain.—An eclipse of the sun observed at Constantinople, Dec. 22, about 10 o'clock A. M.
- 969.—Otho, jun. defeats Nicephorus, and drives the Saracens out of Italy.—The race of Abbas extinguished by the Fatimites, who build Grand Cairo.
- 971.—The Russians, Bulgarians, &c. defeated by Bardas in Bulgaria, to the number of 300,000 persons.
- 975.—A comet appeared in August.
- 976.—Bardas usurps the Eastern Empire for 10 years.
- 977.—Otho defeats and subdues the Bohemians.
- 978.—Abbo, the monk and astronomer, ob. 1003.
- 979.—War between Otho and Lothaire.
- 980.—The two emperors of Constantinople recover Apulia and Calabria.
- 982.—Albiranius, the Arabian geographer.—The Vandals and Bohemians ravage Saxony, &c.—A civil war in Spain.

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- 983.—Violent commotions and dissensions in Venice.
- 985.—The Danes invade England and Scotland under Sueno.
- 986.—An earthquake in Greece.—Aimoin, the historian, ob. 1008.
- 987.—The Carolingian race ends, and the 3d race of kings in France begins.
- 988.—Pestilence in Germany.
- 990.—England invaded by the Normans.
- 991.—The figures in arithmetic brought into Europe, by the Saracens from Arabia.—Gerbert, afterwards pope Silvester II., ob. about 1003.
- 993.—A great eruption of Vesuvius.
- 994.—The king of Denmark and Norway invade England with a great army.
- 995.—Almanzor defeats the Christians.
- 996.—The empire of Germany declared elective by Otho III.
- 998.—The Christians defeat Almanzor.
- 999.—Aboul Waf, and Abu Hamed observed the obliquity of the ecliptic to be $23^{\circ} 35'$.
- 1000.—Basilus defeats the Bulgarians, and drives them out of Thessaly.

The ELEVENTH CENTURY of the Vulgar Christian Æra.

- 1001.—An insurrection in Rome against Otho.
- 1002.—The emperor Henry assumes the title of king of the Romans.—A general massacre of the Danes in England, on Sunday, Nov. 13.—Avicenna of Bochara, the Arabian physician, ob. 1050. æt. 80.
- 1004.—Sueno invades England.
- 1005.—All the old churches are rebuilt about this time in a new style of architecture.
- 1006.—A pestilence over Europe for 3 years.
- 1007.—A great eruption of Vesuvius.—Mesué, of Maridin, called Jacobite, physician to Hakem, caliph of Egypt.
- 1009.—The Saracens besiege Jerusalem; a civil war among them in Spain, which continues till 1091, when they become tributary to the Saracens of Africa.
- 1011.—An earthquake at Constantinople.
- 1012.—Ethelred grants an annual tribute to the Danes.
- 1013.—The Danes under Sueno get possession of England.
- 1014.—A violent storm Sept. 18th, which inundated Flanders.
- 1015.—The king of Poland agrees to pay a yearly tribute to the emperor of Germany.
- 1016.—Edmund Ironside fought 6 battles in England, with Canute II. king of Denmark, most of which he lost by the treachery of Edric.
- 1018.—The Normans first enter Italy in a body.
- 1019.—Bulgaria reduced to the form of a Roman province.
- 1020.—A dreadful plague in Saxony.
- 1021.—Guy d'Arezzo, in Italy, or Aretin, the monk.
- 1022.—A new species of music under 6 notes introduced by Aretin.
- 1023.—The caliph of Egypt ravages Palestine, and plunders the temple of Jerusalem.
- 1028.—Canute conquers Norway.—Constantin, emperor of the East, dies æt. 70, and is succeeded by Romanus.
- 1030.—Campanus of Novarro, the astronomer.—Romanus defeated in Syria by the Saracens.
- 1031.—Romanus drives the Saracens out of Syria, and begins to build the temple at Jerusalem.—The Normans conquer Apulia.

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- 1032.—The kingdom of Arles or Burgundy bequeathed to the emperor Conrad by Rodolph.
- 1033.—A great eclipse of the sun observed June 29th, about mid-day, in France.—Glaber, the historian, ob. after 1035.—The Peace of God published.
- 1035.—Capua taken from the pope by the king of Sicily.—The kingdoms of Castile and Arragon begin.—The Vandals ravage Saxony.
- 1036.—The kingdom of Norway begins.
- 1038.—An earthquake and famine at Constantinople.—The dynasty of Omniades ends in Spain, after a duration of 308 years.
- 1040.—Smyrna destroyed by an earthquake.—The Saracens of Africa invade Italy.—The Greeks ravage Bohemia.
- 1041.—Hermannus, called Contractus, the monk and mathematician.
- 1042.—A comet appeared Oct. 6; moving from E. to W.
- 1043.—The Russians come from Scythia, and land in Thrace.—The Turks become masters of Persia.
- 1046.—Three usurping popes deposed by a council convened at Sutrium by the emperor Henry III.
- 1047.—Franco, the mathematician.
- 1050.—The Greek church separated from the Latin.
- 1052.—Peter Damiani, ob. 1072.
- 1053.—Pope Leo IX. taken prisoner in Naples by the Normans.—Michael Cerularius, ob. 1058.
- 1055.—The Turks take Bagdad, and overturn the empire of the Caliphs.
- 1057.—Geo. Cedrenus, the historian.
- 1058.—Guiscard drives the Saracens out of Sicily.
- 1059.—Berenger, ob. 1088, æt. 90.
- 1060.—A severe famine in Germany.
- 1061.—Sirnames appointed to be taken in Scotland, by a parliament at Forfar.
- 1062.—Seventy thousand persons and more undertook a voyage to Palestine, and were killed or made prisoners.—Michael Psellus of Constantinople, the Peripatetic philosopher and historian.
- 1063.—The massacre of Goslar.
- 1065.—Jerusalem taken by the Turks from the Saracens.
- 1066.—A comet appeared in May, moving in the same course with the sun.—The conquest of England by William duke of Normandy in the battle of Hastings on Sat. Oct. 14.
- 1069.—The Danes land in England, Sept. 11.
- 1070.—The feudal law introduced into England.—Arzachel of Toledo observed the declination of the sun to be 29° 34'—he left 402 observations on the apogee of the sun.
- 1071.—The Turks defeated Romanus, and took him prisoner.
- 1072.—Roger took possession of Sicily.—Sirnames were first used in England about this time.
- 1073.—Marinnus Scotus, ob. 1086.
- 1074.—The king of Bohemia obliged to pay a tribute to the Holy See.
- 1075.—The king of Germany defeats the Saxons in Thuringia.—The famous wars of the Saxons against Henry begin about this time.
- 1076.—The emperor Henry IV. and the pope quarrel about the nomination of the German bishops.—An earthquake in England.—Asia Minor, having been subdued by Solyman two years ago, was, from this time, called Turkey.—Arzachel found the sun's apogee in Π 17° 50'.

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- 1077.—The emperor goes barefooted to the pope at Canusio, about the end of January.
 - 1079.—Arzachel, the Spanish mathematician.—Avicenna observed the vernal equinox, March 14, P. M. 2^h 9'.—The Persian year reformed.
 - 1080.—Domesday book begins to be compiled from a survey of all the estates in England, and was finished in 1086.
 - 1081.—Henry lays siege to Rome.—William of Spire, the mathematician.
 - 1083.—Henry takes possession of Rome on Friday, June the 2d.
 - 1085.—Toledo taken from the Saracens, and made the capital of Castile.
 - 1086.—The order of Carthusians founded by Bruno.
 - 1087.—An expedition of the Christians against the Saracens in Africa.—William the Conqueror ravages France.—Suidas, author of the Greek lexicon.
 - 1089.—Rosalinus of Compiegne, the scholastic head of the sect of Nominalists.
 - 1090.—The dynasty of Assassins began in Irak, and subsisted 117 years.
 - 1091.—The Saracens in Spain call in Joseph, king of Morocco, who thus gains possession of all their dominions in that kingdom.
 - 1092.—Peter, surnamed the Hermit.
 - 1094.—Margaret conquers Sweden, and annexes it to Denmark.
 - 1095.—Ullstan, bishop of Worcester, is deprived of his bishopric for not understanding the French language.—Sigebert, the historian, ob. 1113.
 - 1096.—The 1st crusade into the Holy Land.—A comet appeared.—The emperor took Naples and Sicily.
 - 1097.—Godfrey of Boulogne takes Nicæa.—The Christians defeat the Saracens.
 - 1098.—The crusaders take Antioch.—The order of St. Benedict instituted.
 - 1099.—The crusaders take Jerusalem.—Godfrey elected king of Jerusalem, and the order of knights of St. John instituted.
 - 1100.—An earthquake in Sicily.
- The TWELFTH CENTURY of the Vulgar Christian Æra.
- 1102.—Baldwin defeats the Saracens near Joppa.—William, duke of Aquitaine, undertakes a voyage to Palestine, with a numerous army.
 - 1103.—William's army massacred at Constantinople.
 - 1104.—Baldwin defeats the Saracens, and takes Ptolemais.
 - 1105.—Henry, king of England, invades Normandy.
 - 1108.—Hungary rescued from servitude to Germany.
 - 1109.—Joseph, king of Morocco, defeats the Spaniards in the famous battle of the seven counts near Badajos.—The crusaders take Tripoli.
 - 1110.—Learning revived at the university of Cambridge.—Writing on paper made of cotton became common.
 - 1113.—War between France and England begins.
 - 1114.—Peter Abelard, ob. 1143, æt. 63.
 - 1117.—An earthquake in Lombardy.—Ann Comnena, the historian.
 - 1118.—The order of Knights Templars instituted.
 - 1119.—Baldwin defeats the Turks at Antioch.—Bohemia erected into a kingdom.
 - 1120.—Prince William, with a number of English lords, drowned in their return to England from Barfleur, Nov. 26.

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- 1121.—The order of Premontre instituted.
- 1122.—The Scythians, &c. who had passed the Ister, defeated by John Comnenus.
- 1125.—Baldwin overcomes the Saracens near Antioch.—Germany afflicted with the plague.
- 1127.—The pope declares war against Roger, duke of Sicily, who is proclaimed king in the year 1130.
- 1130.—Athelard, monk of Bath, the mathematician.
- 1132.—The kingdom of Portugal begins.—The Cistercians exempted from tithes.—St. Bernard, ob. 1153.
- 1135.—Roger, king of Sicily, takes Beneventum, Capua, &c. from the pope.
- 1136.—Averroes of Corduba, called the Commentator, ob. 1206.
- 1137.—The pandect of Justinian found in the ruins of Amalfi.
- 1138.—The Scots invade England, and are defeated.—A comet appeared in China.
- 1139.—A civil war in England.—Alphonso, having defeated the Moors, July 25th, is proclaimed king of Portugal.
- 1140.—King Stephen defeated, and taken prisoner at Lincoln, Feb. 2d.—The doctrine of Abelard condemned.—The canon law introduced into England.—William of Malmesbury, the historian.
- 1141.—Stephen exchanged; begins to recover his kingdom.—The factions of the Guelphs and Gibellines prevail.—Peter Lombard, bishop of Paris, called the Master of the Sentences, ob. 1164.
- 1143.—The Koran translated into Latin.
- 1144.—Otho Frisingensis introduces the Peripatetic philosophy into Germany, ob. 1158.—The primacy of the church of Toledo confirmed.
- 1146.—The empress Matilda retires out of England.
- 1147.—A quarrel between Stephen, and Theobald, archbishop of Canterbury.—The second crusade into the Holy Land by the preaching of St. Bernard.
- 1148.—The Christians besiege Damascus, without success.—Conrad and Louis arrive at Jerusalem.—Humenus, the Egyptian astronomer.
- 1149.—Henry of Anjou arrives in England to assert his family claim to the crown.—Roger VI. of Sicily, invades and ravages Greece.
- 1150.—The civil law revived at Bologna by Wernerus, who was the first restorer after Justinian, and died in 1190.
- 1151.—The canon law composed by Gratian, after 24 years labour.
- 1152.—Jeffrey of Monmouth.
- 1153.—Treaty of Winchester between Stephen and Henry, by which Stephen grants the reversion of his kingdom to Henry.
- 1154.—Nouradin took Damascus.—Christianity introduced into Finland.—Al Edrisius, the Arabian geographer.
- 1156.—The city of Moscow founded.
- 1157.—An earthquake in Spain.—Baldwin defeats Nouradin near Genneseareth.
- 1158.—Frederic received the title of king of Bohemia at the diet of Ratibon.
- 1159.—Insurrections in Scotland.—War between England and France.—The emperor excommunicated by the pope.—John Tzetzes, the critic and historian, ob. about 1176.
- 1160.—The order of Carmelites instituted.

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- 1161.—Eustathius, the commentator on Homer.
- 1162.—The affairs of the Crusaders on the decline in Palestine.—The emperor Frederic destroys Milan, leaving only the churches.
- 1163.—Nouradin defeats Raymond II.—John of Salisbury, ob. 1187.
- 1164.—The first king of Sardinia created by Frederic.—A contest between Henry of England and Becket.—The council of Clarendon against him.—The Teutonic order begins.
- 1165.—Two comets appear in Scotland.—Simeon of Durham.
- 1166.—Maimonides of Corduba, the most learned of the Jews, ob. 1208.
- 1167.—Frederic takes possession of Rome.—War between England and France.—The caliph of Persia invades Egypt.—Henry of Huntingdon.
- 1169.—An interview between the kings of England and France at St. Dennis.
- 1170.—Peace concluded between England and France.—An earthquake at Antioch.
- 1171.—The Venetians take the island of Chio.—The dynasty of Fatimites ends in Egypt.—The sovereigns of Egypt henceforth styled sultans.
- 1172.—Henry II. of England takes possession of Ireland.—Peter, called Comestor, ob. 1198.
- 1173.—The city of Catania destroyed by an earthquake.
- 1174.—William acknowledges the kingdom of Scotland a fief of the crown of England.
- 1176.—Frederic totally defeated by the Milanese.—The dispensing of justice by circuits first appointed in England.—Genghis-kan begins to reign.
- 1177.—Baldwin defeats Saladin before Jerusalem.
- 1178.—The pope sends a legate to Prester-John.
- 1179.—Saladin defeats the crusaders.—The French king visits Becket's tomb in England.—The university of Padua founded.
- 1181.—The laws of England digested by Glanville.
- 1182.—Saladin takes Damascus.
- 1183.—Seven thousand Albigenes massacred by the inhabitants of Berry.—Peter of Blois, the historian, ob. 1200.
- 1184.—Andronicus orders all the Latins in Constantinople to be murdered.
- 1186.—The Bulgarians throw off the Roman yoke.—Sept. 16th a conjunction of all the planets at sun-rise; sun in 30° 22', Jupiter in 2° 3' =, Venus in 3° 49', Saturn in 8° 6', Mercury in 4° 10', Mars in 9° 8', tail of the Dragon 18° 23' =.
- 1187.—The kingdom of Jerusalem finished, that city being taken by Saladin, Oct. 2d.
- 1188.—The third crusade.—The tax, called Saladin's tythe, imposed.—The Dutch and Zealanders defeat the Saracens.—The duchy of Mecklenburg held as a fief of the crown of Denmark.
- 1189.—The kings of England and France go to the Holy Land.—Richard renounces his superiority over Scotland for a sum of money.
- 1190.—Frederic subdues Cilicia, and defeats the Saracens. The Teutonic order of knights said by Playfair to be instituted at Ptolemais.
- 1191.—The crusaders take Ptolemais.
- 1192.—King Richard made prisoner by the emperor Henry VI.—Guy, of Lusignan, elected king of Cyprus.—Richard defeats Saladin in the battle of Ascalon.—Roger de Hoveden, the historian.

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- 1195.—The Saracens from Africa invade Spain, defeat Alphonso, king of Castile, and kill 50,000 Spaniards.
- 1196.—The emperor Henry VI. takes possession of Naples and Sicily.—The 4th crusade.
- 1197.—Henry sends an army into Palestine.—William of Newburgh, the historian.
- 1198.—The 5th crusade.—The order of the Holy Trinity instituted.
- 1199.—Peace between Philip king of France and Richard king of England.—Campanus, of Lombardy, the astronomer.
- 1200.—The university of Salamanca, in Spain, founded.—William, king of Scotland, performs his homage to the king of England, at Lincoln, Nov. 21.

The THIRTEENTH CENTURY of the Vulgar Christian Æra.

- 1201.—The city of Riga, in Livonia, founded.—War declared between France and England.
- 1202.—The principality of Antioch united to that of Tripoli.—Gervase, of Canterbury, the historian.
- 1203.—The 6th (4th, Blair) crusade sets out from Venice.
- 1204.—Constantinople taken by the Venetians and French.—Normandy conquered and re-united to France.—The Inquisition established.—The empire of Trebizond established.
- 1205.—Baldwin defeated near Adrianople by the Bulgarians.
- 1207.—The first towns erected into corporations in Normandy, were those of Rouen and Falaise, this year.
- 1208.—The order of Fratres minores established.—King John, of England, excommunicated by the pope.
- 1209.—The works of Aristotle, just imported from Constantinople, are condemned by the council of Paris in 1210.—The silk manufacture imported from Greece into Venice.—Ralph de Diceto, the historian.
- 1210.—The persecution against the Albigenfes, begun in the preceding year, is now very violent.—The emperor Otho excommunicated by the pope.
- 1211.—The king of England subdues Wales.—Saxo-Græmæticus, the historian.
- 1212.—The Christians defeat the Moors at Thoulouse, and kill 200,000 of them.
- 1213.—The king of England, reconciled to the pope, becomes his vassal.—Walter of Coventry.
- 1214.—War between England and Scotland.—Philip defeats Otho near Bouvines.—The Turks defeat the Persians.
- 1215.—The order of Dominicans instituted.—A comet in March.—The order of Knights-Hospitallers founded.—A contest between the king and barons of England.—Magna Charta signed June 15.—The doctrine of transubstantiation introduced.
- 1216.—Alexander and the kingdom of Scotland excommunicated by the pope's nuncio.—Accursius, the famous lawyer, and author of the Glosses, ob. 1229.
- 1217.—Peace between England and Scotland.—The French defeated in the battle of Lincoln.
- 1219.—The Christians take Damietta from the Saracens.
- 1220.—Astronomy and geography brought into Europe by the Moors about this time.
- 1221.—The university of Padua enlarged.—St. Anthony of Padua, ob. 1231.
- 1222.—A great earthquake in Germany.—The Christians forced to evacuate Damietta.

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- 1223.—All the slaves in France franchised by Louis VIII.—An extraordinary comet appeared in Denmark.
- 1223.—John de Sacrobosco, a mathematician, of Halifax, in Yorkshire, ob. at Paris 1244.
- 1226.—The king of France, and many prelates and lords, form a league against the Albigenfes.
- 1227.—An expedition of all the European powers to Palestine.—The power of the English barons abridged.—The Tartars, under Genghis-kan, over-run the whole Saracen empire.
- 1228.—The university of Thoulouse founded.
- 1229.—A treaty between the Saracens and Christians.—A conspiracy against the crown of Sweden.—Alexander Halensis, ob. 1245.
- 1230.—Denmark desolated by pestilence.—The kingdoms of Leon and Castile united.—The Teutonic knights subdue Prussia.—The university of Naples founded.—Several murdered in the university of Paris on occasion of the disputes about Aristotle.
- 1231.—The Almagest of Ptolemy translated from the Arabic into Latin.
- 1232.—William, bishop of Paris, ob. 1248.
- 1233.—The Inquisition entrusted to the Dominicans.—The order of the Knights of the Blessed Virgin instituted.
- 1234.—Peter de Vigneo, chancellor to Frederic II., ob. 1249.
- 1236.—The first irruption of the Tartars into Russia, Poland, &c.
- 1238.—The university of Vienna founded.—The Tartars subject the Russians to the payment of tribute.
- 1239.—A writing of this date, on paper made of rags, is still extant.
- 1240.—The king of Denmark published a code of ancient Cimbric laws.—The Tartars invade Poland and Hungary.
- 1241.—The Russians defeat the Swedes and Livonians near Narva.—The Hanseatic league formed.—Tin mines discovered in Germany.—Matthew Paris, the historian, ob. 1259.
- 1242.—A plague in France, Italy, and Greece.—Groteft, bishop of Lincoln, ob. 1254.
- 1244.—The Kharijians defeat the Christians, and take Jerusalem.—The order of the Celestines instituted.
- 1245.—The general council of Lyons for renewing the crusades.—A clear red star, like Mars, appeared in W.
- 1248.—The 5th crusade under Lewis IX.
- 1249.—Damietta taken by Lewis.
- 1250.—Lewis defeated in Egypt and taken prisoner.—Painting revived in Florence by Cimabue.—The Sorbonne in Paris founded.
- 1251.—Wales subdued, and Magna-Charta confirmed.
- 1252.—Alphonso of Spain found the sun's apogee in $\pi 28^{\circ} 40'$.—Albertus Magnus, ob. 1280, æt. 75.
- 1253.—The Alphonsine tables composed.
- 1254.—War between Denmark and Sweden.—St. Thomas Aquinas, ob. 1274.
- 1256.—The order of the Augustines established.
- 1257.—St. Bonaventura, ob. 1274, æt. 53.
- 1258.—The empire of the Saracens finished by the Tartars taking Bagdad.—Representatives of the commons of England present for the first time in parliament. (Playfair.)—John de Ioinville.
- 1259.—The Tartars invade Poland.—Nassar Eddin, of Tusa, the Persian astronomer and geographer.
- 1260.—Alphonso of Spain orders all public records to be written

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- written in the vulgar tongue, not in Latin. The sect of Flagellants appear in Italy.
- 1261.—The Greek emperors recover Constantinople from the French, and the empire of the Franks there ends.—Roger Bacon, ob. 1284, æt. 78.
- 1263.—The Norwegians invade the Western islands of Scotland.—Civil wars in England, between the barons and the king.
- 1264.—The battle of Lewes, in which Henry is taken prisoner.—The commons first summoned to parliament. (Blair.)—The annual festival of the Holy Sacrament, instituted by pope Urban.—The deputies of towns and boroughs first summoned to parliament. (Playfair.)—A comet with a tail of great extent appeared; course direct; perihelion, July, 6^h. 8'.
- 1265.—The battle of Evesham, in England, Aug. 4.
- 1266.—The battle of Benevento, Feb. 26.—Peace between Scotland and Norway.
- 1267.—The police of Paris established about this time.—Cimabue, the first of the modern painters at Florence, ob. 1300.
- 1268.—The mussulmen gain Antioch.—The battle of Celano, in Italy, fatal to Conradin, Aug. 29th.—The Tartars invade China, and expel many of the natives.
- 1269.—Louis's expedition to Palestine.—Cozah Nasirodni observed the obliquity of the ecliptic to be 23° 30'.
- 1270.—The king of Hungary reduced Bulgaria.—The Scots guard in France embodied.
- 1272.—The academy of Florence founded.—All the orders of Mendicants reduced to the four following, viz. Dominicans, Franciscans, Carmelites, and Hermits of St. Augustin.
- 1273.—The empire of the present Austrian family begins.—Cheouching, in China, observed the obliquity of the ecliptic to be 23° 33' 39".
- 1274.—The 1st commercial treaty between England and Flanders.
- 1275.—Durandus, ob. 1296.
- 1277.—The sultan of Egypt defeats the Tartars near Damascus.—Nepotism first avowed at Rome by pope Nicholas III.
- 1279.—King Edward relinquished his right to Normandy.—The mortmain act passed in England.—Henry of Ghent, ob. 1293, æt. 76.
- 1280.—The sultan of Egypt defeats the Tartars near Emessa.
- 1281.—A revolution in Bulgaria.
- 1282.—Twelve thousand (8000 Blair,) French massacred at the Sicilian vespers, March 20.—A great pestilence in Denmark.—Peter, king of Arragon, seized on Sicily.—The academy of de la Crusca founded.
- 1283.—Wales conquered by king Edward, and united to England.—A new separation between the Latin and Greek churches.—The states of Segovia adopted the vulgar Christian æra.—Raymond Lulli, ob. 1315, æt. 80.
- 1285.—The Tartars ravage Hungary, and defeat the Hungarians.—Alphonso of Arragon deprives his uncle of Majorca, and in the following year, becomes master of Minorca.—Jacobus de Voragine, ob. 1298.

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- 1287.—An irruption of the Tartars into Poland.
- 1288.—The sultan of Babylon takes Tripoli.
- 1289.—A great earthquake in Europe.—Albertet, the mathematician and Provençal poet.
- 1290.—The Jews banished out of England.—The university of Lisbon founded.
- 1291.—The sultan of Babylon conquered Syria.—The Latin patriarchs of Jererusalem ended.—A contest between Bruce and Baliol for the crown of Scotland.—Ptolemais taken by the Turks by assault.—The crusades ended.—John Duns, called Scotus, ob. 1308, æt. 43.
- 1293.—A regular succession of parliaments in England from this year.—A comet appeared in China.
- 1294.—Parliaments established in Paris.
- 1296.—A war between England and Scotland.—An intense frost in Denmark.—Thebit, the Arabian astronomer, discoverer of the motion of trepidation.
- 1297.—The coronation chair, and records of Scotland, carried off by Edward.
- 1298.—The Ottoman empire founded.
- 1299.—An earthquake in Germany.—A comet appeared, its perihelion in the beginning of February; its ascending node Π 25°—inclin. 20°—retrograde.—Spectacles invented by a monk of Pisa.—The famous year of Jubilee instituted at Rome by Boniface VIII.
- 1300.—The Ottoman empire began.—Edward invades Scotland.

The FOURTEENTH CENTURY of the Vulgar Christian Æra.

- 1301.—The pope excommunicates Philip, king of France.—Peter de Apono, ob. 1316, æt. 66.
- 1302.—The sultan of Egypt defeats the Tartars near Damascus.—The mariners' compass invented (or improved) by Flavio.—The university of Avignon founded.
- 1303.—The Scots defeat three English armies, in one day, near Roslin.
- 1304.—Dante, ob. 1321, æt. 56.
- 1306.—The Jews banished out of France.—Edward of England invades Scotland, and is opposed by Bruce.—Arnoldus de Villa Nova, ob. 1340.
- 1307.—Coals first used in England.—The university of Perouse, in Italy, founded.—The establishment of the Swift cantons.
- 1308.—The university of Lisbon removed to Coimbra.—The seat of the popes removed to Avignon, for 70 years.
- 1310.—The knights of St. John take Rhodes, and settle there.
- 1312.—The order of knights Templars abolished by the council of Vienna.—The university of Orleans founded.—Durandus, bishop of Anicium, called doctor resolutissimus, ob. 1333.
- 1313.—Molay, grand master, with a number of Templars, burned alive at Paris.
- 1314.—The cardinals set fire to the conclave, and separate.—The battle of Bannockburn, July 25th, in which the Scots defeat the English.
- 1315.—Germany afflicted with famine and pestilence.—The Scots invade Ireland.—A comet appeared in December.
- 1316.—A comet appeared in February.
- 1317.—Nicholas de Lyra, ob. 1340.

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- 1318.—A severe famine in Great Britain.
- 1319.—The university of Dublin founded.—William Occam, ob. 1343.
- 1320.—An earthquake in England.—Gold coined in Christendom.
- 1321.—A civil war in England.—Abulfeda, the Saracen prince of Hamah in Syria, a great Arabian geographer, finished his Arabian geography,—ob. 1383.
- 1322.—The battle of Muldorf between Frederick III. and Louis V.—the former being taken prisoner.
- 1323.—A truce between England and Scotland for 13 years.—A great eruption of *Ætna*.
- 1325.—The first treaty of commerce between England and Venice.
- 1327.—Edward II. deposed by parliament.
- 1329.—The battle of Mount Cassel gained by King Philip over the Flemings.
- 1330.—Gun-powder invented by a monk of Cologne.
- 1331.—The Turks take and plunder the city of Nice.—The knights of the Teutonic order settle in Prussia.—The art of weaving cloth brought from Flanders into England.
- 1332.—The King of Poland seizes upon Silesia.—The pope accused of heresy.—Nicephoras Gregoras, the astronomer and historian, ob. 1350.
- 1333.—The Moors gain possession of Gibraltar.—The Scots defeated at Halidown hill, near Berwick, July 19.
- 1337.—War between England and France.—The first comet, whose course is described with an astronomical exactness, appeared in the beginning of this year—its perihelion June 2, 6^h 25'; its ascending node Π 24° 21'—inclination 32° 11'—retrograde.
- 1338.—The empire of Germany declared to be independent on the pope.—King Edward begins his war against France.
- 1339.—The academy of Pisa established.—Denmark desolated by war, famine, and pestilence.
- 1340.—The French defeated in a sea-fight by Edward III. near Helvoetsluys—followed by a truce which lasted 4 years—copper money first used in Scotland and Ireland.
- 1341.—Cantacuzenus usurps the Eastern empire for 17 years.—Barlaam the Calabrian.—A comet appeared in α , first seen near Spica Virginis, disappeared near Ω .
- 1342.—The siege of Algiers, in which powder was used.—Edward's expedition to the continent.—The knights and burghesses first sat together in the same house of the English parliament.
- 1343.—Leontius Pilatus of Thessalonica, restorer of Greek learning in Italy.
- 1344.—The Madeira islands said to be discovered by Macham, an Englishman.—Gold first coined in England.—The Tartars invade Poland, and are defeated.
- 1346.—The battle of Cressy, between the French and English, August 26.—A treaty of commerce between the Venetians and the sultans of Egypt.—The Scots defeated by the English, and David taken prisoner.
- 1347.—Pestilence ravages Europe, said to carry off $\frac{1}{4}$ th of the inhabitants.—The admiralty court instituted.—Edward takes Calais Aug. 4th.—A code of laws published in Poland, and the university of Cracow founded.

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- 1348.—The university of Prague founded.
- 1349.—The order of the Garter instituted in England, April 23.—A plague in England, Scotland, and Ireland.—The king of Arragon adopts the Christian *æra* Dec. 17.
- 1350.—The Jubilee fixed to every 50th year.
- 1352.—The Turks first enter Europe.
- 1353.—Locusts desolate Africa and Asia.—A comet appeared—its course from N. to S.
- 1354.—Francis Petrarch, ob. 1374, *æt.* 76.
- 1355.—A conspiracy at Venice.—Iovanni Boccaccio, ob. 1376, *æt.* 62.
- 1356.—The French defeated at Poitiers, and king John taken prisoner September 19.—An earthquake in Germany.—The golden bull published December 29.
- 1357.—A great sedition in France.
- 1358.—The vulgar Christian *æra* adopted in various parts of Spain.—Tamerlane begins to reign in Persia.—The treaty of Calais signed, Oct. 24.
- 1361.—Matthew of Westminster, surnamed Florilegus, ob. about 1380.
- 1362.—The law pleadings in England changed from French to English, as a favour of Edward III. to his people, in his 50th year.—Military order of Janizaries established among the Turks.
- 1364.—The battle of Cockerel, May 6, and of Avrai, September 29.
- 1365.—The universities of Vienna and of Geneva founded.
- 1366.—Adrianople made the seat of the Turkish empire.
- 1367.—The battle of Neirara in Castile, April 4.
- 1368.—The battle of Montial March 14.
- 1369.—Wickliff begins to teach in England, ob. 1385.
- 1370.—Chivalry flourished about this time.—The office of grand visier established.
- 1371.—The French defeated the English fleet near Rochelle, June 23.—The family of Stewart begins to reign in Scotland.
- 1373.—The Genoese become masters of Cyprus.—John Gower, the first English poet, ob. 1402.
- 1375.—A three years truce between England and France.
- 1376.—John Froissart, ob. 1400.
- 1377.—The French invade England.—The seat of the popes transferred from Avignon to Rome.—The sea breaks in upon Flanders.—Wickliff's doctrine condemned in England.
- 1378.—The schism of double popes, which continues 38 years.—Greenland discovered by a Venetian.
- 1379.—Civil commotions in Flanders.
- 1381.—Bills of exchange first used in England.—A plague in Germany.—Watt Tyler's insurrection in England, July.
- 1382.—The battle of Rosebeck in Flanders, Nov. 17.—The Turks take Hierapolis.
- 1383.—Cannon first used in the English service by the governor of Calais.
- 1384.—The first act of navigation in England.—No goods to be imported or exported by Englishmen on foreign bottoms.—Hostilities between England and Scotland.
- 1385.—The king of Portugal defeats the king of Castile at Aljubaroba, Aug. 14.—The ancient race of Swedish kings ended.—Nicholas Flamel, ob. 1409.
- 1386.—Andronicus Paleologus takes Constantinople—soon retaken.

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- retaken by John and Manuel.—Tamerlane subdues Georgia.—The first company of linen-weavers in England.
- 1387.—The first lord high admiral of England appointed.—Tamerlane subdues Turkestan.
- 1388.—Bombs invented at Venloo.—The Scots defeat the English at Otterburn, July 31.—Margaret of Denmark defeats the Swedes at Falcoping, Sept. 21—and unites the crowns of Sweden and Denmark.
- 1390.—The sacred war in Prussia.
- 1391.—Cards invented for the amusement of the French king.—The papal power abolished in England by act of parliament.—Insurrections in Scotland.—The academy of St. Luke founded in Paris.
- 1392.—Annats established.—Jews banished out of Germany.—Cape of Good Hope discovered by the Portuguese.—Emanuel Chrysoloras, ob. 1413, æt. 60, of Constantinople, preceptor in Greek.
- 1393.—The Turks ravage Walachia, and defeat the Hungarians at Nicopolis.—The doctrine of Hufs propagated in Bohemia.
- 1394.—The Jews banished out of France, Sept. 17.—Leonard Aretin, secretary of Florence.
- 1395.—Bajazet defeats the Christians at Nicopolis, Sept. 28, and afterwards subdues the Bulgarians.
- 1396.—Geoffroy Chaucer, the English poet, ob. 1440.
- 1397.—The union of Denmark, Sweden, and Norway, at Calmar.—Owen Glendour, ob. about 1408.
- 1398.—A rebellion in Ireland.—Dukes first created in Scotland.—Tamerlane penetrates into Hindoostan, and took Delhi in January following.—Intense frost in Denmark.
- 1399.—Tamerlane becomes master of Novogorod.
- 1400.—War between England and Scotland.—Tamerlane invades Asia Minor, with a great army.

The FIFTEENTH CENTURY of the Vulgar Christian Æra.

- 1401.—The emperor Rupert invades Italy, and is repulsed.—Tamerlane becomes master of Bagdad, Aug. 9th.
- 1402.—Tamerlane defeats Bajazet in the battle of Angora, July 28th, and takes him prisoner.
- 1403.—The battle of Shrewsbury, July 22d, in which Hotspur is killed.
- 1405.—Great guns first used in England at the siege of Berwick.—Famine and pestilence in Denmark.—The Canary islands discovered by Bethencourt, a Norman.
- 1406.—Leonard Aretin, ob. 1443, æt. 74.—Brunus of Arezzo, secretary of Florence.
- 1407.—The kingdom of France laid under an interdict.—Hufs propagates his opinions.—Balthazar Cossa becomes master of Rome.
- 1409.—The Lollards multiplied in England.—The council at Pisa begins, March 25th.
- 1410.—Painting in oil colour invented at Bruges by John Van-eyck.—A civil war in France.
- 1411.—The university of St. Andrews in Scotland founded.—War between king Ladislaus and the pope.
- 1412.—Algebra brought from Arabia into Europe, about the beginning of this century.
- 1414.—The council of Constance begins, Nov. 16th, in which two popes voluntarily submitted to deposition.
- 1415.—John Hufs condemned and executed, July 6th.—

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- Henry of England invades Normandy.—The English defeat the French in the battle of Azincourt, Oct. 25th.
- 1416.—The English defeat the French fleet at the mouth of the Seine.
- 1417.—Henry's second expedition into Normandy.—Paper made of linen rags invented.
- 1418.—The massacre of the Armagnac faction in Paris.—Poggio, the Florentine, ob. 1459, æt. 80.
- 1420.—The treaty of Troyes signed, May 21.—The island of Madeira discovered by the Portuguese.—Two kings, two queens, two regents, two parliaments, and two universities of Paris, in France.—The battle of Beaugé, April 3, in which the duke of Clarence is killed.
- 1421.—The revenue of England amounts to 55,754l.
- 1422.—The vulgar Christian æra introduced into Portugal.
- 1423.—The English defeat the French and Scots in the battle of Crevant.
- 1424.—The English defeat the French in the battle of Verneuil.—Ang. Flavius Blondus, ob. 1463, æt. 75.
- 1426.—An earthquake at Naples.
- 1427.—The academy of Louvain founded.—Theodore Gaza, ob. 1478, æt. 90.
- 1428.—The siege of Orleans begins, Oct. 12th, and repulsed by Joan of Arc.
- 1429.—The battle of Herrings, Feb. 12th.—Francis Philadelphus, ob. 1481, æt. 83.
- 1431.—A great earthquake at Lisbon.—Henry, king of England, crowned king of France.—Geo. Trapezuntius, ob. 1485, æt. 90.
- 1433.—G. Gemistius Pletho, ob. 1490, æt. 100.
- 1434.—A civil war in Sweden.—Cosmo de Medici recalled from banishment, which began the rise of that family in Florence.
- 1435.—The treaty of Arras between Charles II. and the duke of Burgundy.
- 1436.—Paris retaken by the French, April 13th.—Laurentius Valla, ob. 1465, æt. 50.
- 1437.—An expedition of the Portuguese into Africa.—The Turks invade Hungary.—Ulugh Beigh, emperor of Samarcand, author of the Persian astronomical tables, observed the obliquity of the ecliptic to be 23° 30' 17", ob. 1449, æt. 57.
- 1439.—The re-union of the Greek and Latin churches.—The Pragmatic sanction settled in France.
- 1440.—The art of printing invented at Mentz, and gradually improving for 22 years.—John Guttenburg, ob. after 1460.
- 1441.—John Faustus, ob. about 1466.
- 1442.—The Turks invade Hungary.—Peter Schæffer, ob. after 1479.
- 1444.—Famine in Sweden.—Truce between France and England at Tours, June 1st.—Wesselus, ob. 1489, æt. 70.
- 1446.—The sea broke in upon Dort, April 17th, and drowns 100,000 persons.—Frederick declares war against the Swifs.
- 1447.—The Visconti family ends in Milan; succeeded by the Sforzas.—The Turks, for several years, defeated by Scanderbeg in 22 battles.
- 1448.—The house of Oldenburgh begins to reign in Denmark.—The Scots defeat the English at Sark.—

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- The crown of Sweden separated from that of Denmark.—A bloody contest between the house of York and that of Lancaster.—The Vatican at Rome founded.
- 1449.—War between England and France.—Ulugh Beigh put to death by his son.—Geo. Purbachius, ob. 1462, æt. 87.
- 1450.—The battle of Fourmigni, April 18.
- 1451.—The English compelled to evacuate Rouen, and several other parts of France.—War between Sweden and Denmark.—Æneas Sylvius Pius II. ob. 1464.
- 1452.—Cardinal Bessarion, ob. 1472, æt. 77.
- 1453.—Constantinople taken by the Turks, May 29th, which terminated the Greek empire.—The English government in France ends with the battle of Castillon, July 7th.
- 1454.—A conspiracy in Rome against the pope.—The Prussians and Poles carry on war for twelve years, against the Teutonic knights.—Thomas à Kempis, ob. 1471.
- 1455.—The battle of St. Alban's, May 31st.
- 1456.—A great earthquake at Naples.—The Turks are repulsed at the siege of Belgrade.—Two comets appear.
- 1457.—Glass first manufactured in England.—Joannes Argyropulus, ob. 1480, æt. 70.
- 1458.—The Turks take Corinth.—A sedition in England.
- 1459.—The arts of engraving and etching invented.—Alphonso's first expedition into Africa.
- 1460.—The battle of Northampton, July 10th.—The battle of Wakefield, Dec. 31. Alum mines discovered in Italy.—Purbachius and Regiomontanus, (ob. 1476, æt. 40.) observed the obliquity of the ecliptic to be $23^{\circ} 29'$.—An academy founded at Basil, and at Friburg.
- 1461.—King Edward defeats king Henry at Towton, in Yorkshire, March 29th.
- 1462.—An expedition of the Turks into Walachia.—Regular posts established in France.—The first book printed, viz. the Vulgate Bible in 2 vols.—Baptista Platina, ob. 1481, æt. 60.
- 1463.—Pestilence rages in Saxony and Thuringia.—War between the Turks and Venetians.—Alphonso's second expedition into Africa.
- 1464.—The league against Louis XI. of France, called "La Guerre du bien public."—Rod. Agricola, ob. 1485, æt. 43.
- 1466.—The second printed book, viz. Cicero de Officiis.
- 1467.—Sheep from England first permitted to be sent to Spain.
- 1468.—Warwick's conspiracy against Edward.—Jo. Jovianus Pontanus, ob. 1503, æt. 70.
- 1469.—The battle of Banbury, July 26th.—The order of St. Michael instituted in France.
- 1470.—The battle of Stamford, March 14.—King Edward attainted, and king Henry VI. restored.
- 1471.—The battle of Barnet, April 14.—Edward restored.—The battle of Tewksbury, May 4th.—Marfilus Ficinus, ob. 1499, æt. 56.
- 1472.—War between the Turks and Parthians.—A comet appeared—its perihelion, Feb. 29th $10^{\text{h}} 23'$ A. M.—its ascending node $11^{\circ} 46' 20''$ —incl. $5^{\circ} 20'$ —retrograde—it passed through 40° in 24h.—John Lascaris, ob. 1513, æt. 90.

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- 1473.—The study of the Greek language introduced into France by Gregor' Tiplernas.
- 1474.—The Cape de Verd islands discovered by the Portuguese.—Annius of Viterbo, ob. 1492.—Abraham Zaguth observed Spica Virginis in $\approx 17^{\circ} 10'$.
- 1475.—The treaty of Amiens, Aug. 29.—Poland and Hungary infested with locusts.
- 1476.—Ferdinand of Castile defeats the king of Portugal.—Waltherus observed the obliquity of the ecliptic to be $23^{\circ} 30'$.—George Merula, ob. 1494.
- 1478.—Laurence de Medici expelled Florence, and an anathema against him by Sixtus IV. which greatly distressed learning.—Peace between France and Castile, Nov. 9.—Waltherus observed the vernal equinox in March 11, 8 h. 5'.
- 1479.—The university of Upsal founded.—The kingdoms of Castile and Arragon united.
- 1480.—The Turks besiege Rhodes.
- 1481.—A great famine in France.—Savonarola, ob. 1498, æt. 46.
- 1482.—The coast of Guinea discovered by the Portuguese.—A court of inquisition erected at Seville. Jo. Picus, of Mirandola, ob. 1494, æt. 37.
- 1483.—A conspiracy in England against Richard.—Post-horses and stages established.
- 1484.—Famine and pestilence raged in Denmark.
- 1485.—The battle of Bosworth, Aug. 22.—The union of the houses of York and Lancaster.—Demetrius Chalcondyles, ob. 1513.
- 1486.—War between the sultan of Egypt and the Turks.—The Russians subdue the kingdom of Casan.—Brazil discovered.—Angelo Politian, ob. 1494, æt. 46.
- 1487.—The court of Star-Chamber instituted in England.—Hermolaus Barbarus, ob. 1493, æt. 39.
- 1488.—The battle of Aubin June 28, in which the French king defeats the duke of Brittany.—The Cape of Good Hope discovered.
- 1489.—Geographical maps and sea charts brought into England.—An earthquake at Constantinople.—The kingdom of Cyprus ceded to the Venetians. William Grocyn, ob. 1522, æt. 80.
- 1490.—Poetry begins to flourish in Germany.
- 1491.—The study of the Greek tongue introduced into England, by Grocyn.—Baptista Mantuanus, ob. 1516, æt. 68.
- 1492.—Brittany re-united to the French crown.—America discovered by Columbus.—Isle of St. Domingo discovered.—Peace between England and France.—Ferdinand expelled the Moors from Granada, after a possession of above 800 years.
- 1493.—Montserrat discovered.—Jo. Reuchlin, called Capnio, introduced the Hebrew and Greek languages into Germany, ob. 1521, æt. 67.
- 1494.—Poyning's act passes in Ireland.
- 1495.—The king of France seized on the kingdom of Naples.—Algebra taught by a friar at Venice.—The diet of Worms for the peace of the empire.—The venereal disease introduced into Europe.—A treaty of commerce between Henry of England and Philip, duke of Burgundy.
- 1496.—The Jews and Moors banished out of Portugal.—John Colet, ob. 1519, æt. 53.
- 1497.—North America, discovered by Americus Vesputius.—Vasquez di Gama's expedition to the East Indies.
- 1498.—The Walachians ravage Poland, and carry off above

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- 100,000 prisoners, whom they sold to the Turks. Alexander ab Alexandro, ob. 1521, æt. 50.
 1499.—War between the Turks and the Venetians.—Lewis XII. takes possession of the Milanese.—Dr. Thomas Lynacre, ob. 1524.
 1500.—Brazil discovered by the Portuguese.—Florida discovered by John Cabot, an Englishman.—Maximilian divides the empire into six circles.—Painting in chiaro oscuro discovered.—A great plague in England.

The SIXTEENTH CENTURY of the Vulgar Christian *Æra*.

- 1501.—The tribunal of state inquisitors established at Venice.—Ishmael Sophi, of the sect of Ali, begins to reign in Persia.—Louis of France and Ferdinand of Castile, seize on the kingdom of Naples.—Aldus Manutius, ob. 1513.
 1502.—St. Helena discovered.—Pomponatius of Mantua, ob. 1525, æt. 63.—Gonsalvo, called the great captain, ob. 1515, æt. 72.
 1503.—The battle of Cerignole, April 28, which finished the French power in Naples.—Leonardo da Vinci, ob. 1520, æt. 75.—Cardinal Ximenes, ob. 1517, æt. 80.—Waltherus observed the summer solstice at Nuremberg, June 12, 12^h 46' 34".—The sun's apogee \oslash 4° 9'.
 1504.—King Henry VII. built a chapel at Westminster Abbey.—Gawin Douglas, ob. 1521.
 1505.—Shillings first coined in England.—Two comets appeared.—Albert Durer of Nuremberg, ob. 1528, æt. 57.
 1506.—The Academy of Frankfort on the Oder founded.—Ceylon discovered.—Nicholas Machiavel, ob. 1529.
 1507.—Louis reduced the Genoese to subjection.—The island of Madagascar discovered by the Portuguese.—Lewis Ariosto of Ferrara, ob. 1533.
 1508.—The league of Cambray against the Venetians, Dec. 10.—Budæus of Paris, ob. 1540, æt. 73.
 1509.—The battle of Aignadel, May 14, in which Louis defeats the Venetians.—The expedition of Ximenes to the coast of Barbary, May 26.—An earthquake at Constantinople, Sept. 14.
 1510.—Wernerus observed the obliquity of the ecliptic to be 23° 28' 30".—The pope grants to Ferdinand the investiture of Naples, July 23.
 1511.—The island of Cuba conquered by the Spaniards.—A league between the emperor, the pope, and the Venetians against the French, Oct. 4.—Raphael, ob. 1520, æt. 37.
 1512.—The battle of Ravenna, April 11.—The river de la Plata discovered.—Erasmus, ob. 1536, æt. 70.
 1513.—War between Scotland and England.—The battle of Navarre, in which the Swifs defeat the French.—The battle of the Spurs, Aug. 16.—The battle of Flodden, Sept. 9.—Sannazarius of Naples, ob. 1530.
 1514.—Cannon bullets of stone, still in use.—War between the Ottoman empire and Persia.—Polydore Virgil, ob. 1555, æt. 80.
 1515.—Copernicus observed the vernal equinox, March 11, 4^h 30' morn. at Fruemberg.—He observed Spica Virginis in \approx 17° 3' 2", and the sun's apogee in \oslash 6° 40'.—The 1st Polyglot Bible printed at Alcalá.—A battle between the French and Swifs

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- at Marignan, Sept. 13 and 14.—Ferdinand annexed the kingdom of Navarre to that of Castile.—Cornelius Agrippa, ob. 1534, æt. 48.
 1516.—Barbarossa seizes the kingdom of Algiers.—War between the Turks and Persians.—The treaty of Noyon, Aug. 16.—Francis Guiccardin, ob. 1540, æt. 58.
 1517.—The Reformation begun in Germany by Luther.—ob. 1546, æt. 63.—The Turks terminate the kingdom of the Mamalukes in Egypt.—Five books of the Annals of Tacitus found.
 1518.—New Spain and the Straits of Magellan discovered. Zuingleius, ob. 1531.
 1519.—Francis I. and Charles V. competitors for the Imperial throne.—Cardinal Bembo of Venice, ob. 1547, æt. 68.
 1520.—War between Poland and Prussia.—Sweden and Denmark united.—An interview between the kings of England and of France at Guisnes, June 4.—The confederacy of the Holy Junta formed in Spain.—Ludovicus Vives of Valentia, ob. 1536.
 1521.—A league between the emperor and Henry VIII. against Francis I.—The diet of Worms, April 17.—The Turks take Belgrade, Aug.—A conspiracy of the king of Sweden against the nobility.—The title of "Defender of the Faith" conferred on Henry VIII.—Copernicus of Thorn in Prussia, ob. 1543, æt. 60.
 1522.—The Turks take the island of Rhodes, Dec. 25.—The first voyage round the world, by a ship of Magellan's squadron.—Michael Angelo Boni, ob. 1564, æt. 89.
 1523.—A league formed against Francis I. by the pope, the emperor, the Venetians, &c.—Sweden and Denmark disunited.—Paracelsus, ob. 1541, æt. 48.
 1524.—Clement Marot, ob. 1544, æt. 60.—Queen Katharine of England, ob. 1536, æt. 50.
 1525.—The battle of Pavia, Feb. 24, in which Francis I. was made prisoner.—Julio Romano, ob. 1546, æt. 54.—Sir Thomas More, lord chancellor, ob. 1535.
 1526.—The treaty of Madrid, Jan. 14.—The inquisition established in Portugal.—The pope, Venetians, and French, form a league against the emperor.—Lutheranism established in Denmark.—Paul Jovius, ob. 1552, æt. 70.
 1527.—War between the pope and the viceroy of Naples.—The pope's territories invaded by the army of Charles V., and Rome taken and plundered, May 6th.—Bermuda isles discovered.—Francis Rabelais, ob. 1553, æt. 70.
 1528.—Popery abolished in Sweden.—Francis challenges the emperor to single combat.—A new form of government established in Genoa by Andrew Doria, (ob. 1560, æt. 93.)—Olaus Magnus, ob. 1544.
 1529.—The diet of Spires, March 15, against the reformers, from which the name of "Protestants" begins.—The peace of Cambray, Aug. 5, between Charles and Francis.—The Turks besiege Vienna, and are repulsed.—J. Geo. Trissino, ob. 1550.
 1530.—The diet of Augsburg, June 25.—The union of the Protestants at Smalcald, Dec. 22.—The secretary of state's office instituted in England.—Parochial registers first appointed.—Martin Bucer, ob. 1551, æt. 60.

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- 1531.—Post-offices in England.—A great earthquake at Lisbon.—A comet appeared—its perihelion, Aug. 25, 9^h 18' A. M.—ascending node 8 19° 25'—inclin. 17° 56'—retrograde.—Hieron^s Vida, ob. 1566.
- 1532.—The court of sessions instituted in Scotland.—Peace between the emperor and German princes, July 23.—A comet appeared—its perihelion, Oct. 20, 10^h 12' A. M.—ascending node 11 20° 27'—inclin. 32° 36'—direct.—Treaty of Nuremberg, Aug. 2.—Lilio Giraldi, ob. 1552, æt. 74.
- 1533.—Papal authority abolished in England.—An insurrection of the Anabaptists in Westphalia.—A comet appeared—its perihelion June 17, 7^h 30' A. M.—ascending node 8 5° 44'—inclin. 35° 49'—retrograde.—Ignatius Loyola, ob. 1556, æt. 65.
- 1534.—Barbarossa seizes the kingdom of Tunis.—The pope's sentence censuring the marriage of Henry VIII.—The reformation takes place in England, March 30th.—Julius Cæsar Scaliger, ob. 1558, æt. 75.—Anne Bullen, queen of England, ob. 1536.
- 1535.—The reformation introduced in Ireland.—Charles Vth's expedition into Africa ends, Aug. 14th.—The society of the Jesuits formed.—Arch^b Cranmer, ob. 1556, æt. 67.—Barbarossa, the Turkish general, ob. 1547.
- 1536.—James king of Scotland's expedition into France.—A league between Solymán and Francis against Charles V.—John Leland, ob. 1552.—Jane Seymour, queen of England, ob. 1537.
- 1537.—Fracastorius, ob. 1553, æt. 71.
- 1538.—A truce for 10 years, concluded at Nice, between Charles and Francis, which lasts 4 years, June 18.—Peter Aretin, ob. 1556, æt. 65.
- 1539.—A rebellion at Ghent, which occasions Charles V. to pass through France.—The Bible printed in English.—The ancient constitution of the cortes in Spain subverted by Charles V.—645 monasteries and religious houses suppressed in England and Wales.—John Sleidan, ob. 1456.—Ann of Cleves, queen of England, divorced 1540.
- 1540.—The variation of the compass discovered by Sebastian Cabot.—The order of knights of St. John abolished.—Copernicus observed the obliquity of the ecliptic to be 23° 28' 8", Sept. 27.—The society of Jesuits established.—Robert Stephens, ob. 1559, æt. 56.—Catharine Howard, queen of England, ob. 1542.
- 1541.—Solymán reduced Hungary to the form of a province.—Charles V. besieged Algiers, Oct. 21.—Melancthon, ob. 1560, æt. 64.
- 1542.—A treaty between Solymán and Francis I. against Charles V.—Japan discovered.—Hier^s Wollius, ob. 1580, æt. 64.—The English invade Scotland, and defeat the Scots at Solway Moss, Nov. 23.—Titian Vecelli, ob. 1576, æt. 99.
- 1543.—Iron cannon and mortars made in England.—A league between Henry and Charles V. against Francis I.—The academy of Verona founded.—California discovered.—Pins brought from France, and first used in England.—John Calvin, ob. 1564, æt. 55.—Catharine Parr, queen of England.
- 1544.—The battle of Cerifoles, April 11, in which the French defeated the Imperialists.—The crown of Sweden declared to be hereditary.—A treaty of

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- peace between the emperor and Francis I. at Cressly, Sept. 18.—The reformed religion authorised in Sweden.—Iron first cast in England.—Adrian Turnebus, ob. 1565, æt. 53.
- 1545.—Civil commotions in Scotland.—The English defeated by the Scots at Ancrum-Muir.—The council of Trent begins and continues 18 years.—Needles first made in England.—Conrad Gesner, ob. 1565, æt. 49.
- 1546.—A league between the emperor and the pope against the Protestants.—Socinianism sprung up in Italy.—Camerarius, ob. 1574, æt. 75.
- 1547.—The elector of Saxony defeated by the emperor at Mulberg, Ap. 24.—A conspiracy against the government of Genoa.—The Scots defeated by the English at Pinky, Sept. 10.—The interest of money settled at 10 per cent. in England.—Hieronymus Cardan, ob. 1575, æt. 75.
- 1548.—War between the Turks and Persians.—The reformation advances in Poland.—Jo. Genesius de Sepulveda, the Peripatetic, and restorer of learning in Spain, ob. 1572, æt. 81.
- 1550.—The eldest sons of peers first permitted to sit in the House of Commons.—The bank of Venice established about this time.—Iron bullets first used in England.
- 1551.—A league between Henry II. and Maurice, duke of Saxony, against the emperor.—Annibal Caro, ob. 1566.
- 1552.—The treaty of Passau between Charles and the Protestants, July 31st.—Books of astronomy and geometry destroyed in England, under a charge of magic.—The book of Common Prayer confirmed by act of parliament.—The corsair Dragut defeated by Doria before Naples.—Paul Manutius, ob. 1574, æt. 62.
- 1553.—Popery restored in England by queen Mary.—Servetus executed in Geneva.—Edward VI. dies July 6, æt. 16.—Cardinal Pole, ob. 1558.
- 1554.—The French invade the Low Countries.—The Russians subdue the kingdom of Astracan.—Mary of England marries Philip of Spain.—Castelvetro, ob. 1571, æt. 66.
- 1555.—The peace of religion established in Germany, Sept. 25.—A league between the pope and the king of France against the Spaniards, Dec. 15.—Fred. Commandin, ob. 1575, æt. 66.
- 1556.—A comet appeared—its perihelion, April 22, 8^h 3' A. M.—ascending node 11 25° 42'—inclin. 32° 6' 30"—direct.—The Turks ravage Corfica.—Charles resigns his crown to Philip, Jan. 6.
- 1557.—Charles retired to a monastery, Feb. 24.—Glass first manufactured in England.—Philip defeats the French at St. Quintin, Aug. 10.—Onuphrius Panvinus, ob. 1563, æt. 39.
- 1558.—Calais taken by the French, Jan. 8.—Queen Mary dies, Nov. 17.—The reformed religion authorised in England.—Ronsard, ob. 1585, æt. 61.
- 1559.—The peace of Chateau-Cambresis.—The tranquillity of Europe restored.—The queen regent of Scotland opposes the reformation, and persecutes the reformers.—George Buchanan, ob. 1582, æt. 76.
- 1560.—The conspiracy at Amboise begins the civil wars in France.—Philip removes his court from Toledo to Madrid.—A treaty between Elizabeth and the

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- Protestants in Scotland, at Berwick, Feb. 27.—The Presbyterian form of government established in Scotland.
- 1561.—The discord between Elizabeth and Mary commences.—Queen Mary arrives in Scotland, after an absence of 13 years.—Livonia ceded to Poland.—Camoens, ob. 1579, æt. 50.
- 1562.—The battle of Dreux, Dec. 19, in which the duke of Guise defeated the prince of Condé.—Peter Ramus, ob. 1572.
- 1563.—War between Sweden and Denmark.—The council of Trent terminates Dec. 4.—Orleans besieged by the duke of Guise, Feb. 6.—The escorial in Spain built.—Slave trade begun with England.—Orosius, ob. 1580.
- 1564.—The beginning of the year fixed to Jan. 1, in France.—Peace between France and England, April 9.
- 1565.—The revolt of the Low Countries.—The Turks attack Malta.—Tintoret, ob. 1594, æt. 82.
- 1566.—The 39 articles of the church of England established.—The Tartars ravage Hungary.—Theodore Beza ob. 1605, æt. 86.
- 1567.—Queen Mary espoused Bothwell, May 15.—The duke of Alva begins his operations in Flanders.—The battle of St. Denis, between the prince of Condé and Montmorency, Nov. 10.—Civil commotions in Sweden.—Ja' Cujas, ob. 1590, æt. 68.
- 1568.—Queen Mary defeated in the battle of Glasgow, May 13—retires into England and is imprisoned.—The Moors in Spain revolt.—The exercise of the reformed religion allowed in the Low Countries.—Ciaconius, ob. 1581, æt. 56.
- 1569.—The battle of Jaruac, May 13—of Moncontour, between the duke of Anjou and the Huguenots, Oct. 3.—Pancirolus, ob. 1591.
- 1570.—A league between Spain, Venice, and the Roman see against the Ottoman Porte.—The peace of Germain-en-Laye, in favour of the Huguenots, August 15.—Carolus Sigonius, ob. 1585, æt. 60.
- 1571.—The isle of Cyprus taken by the Turks.—The battle of Lepanto, Oct. 7, in which the Turks are defeated.—Henry Stephens, ob. 1598, æt. 70.
- 1572.—The massacre of the Protestants at Paris, on Sunday, Aug. 24.—Cornelius Gemma observes a bright new star in Cassiopeia.—Bodinus, ob. 1585.
- 1573.—War in France against the Protestants.—The prince of Hesse observed the vernal equinox March 10, 8^h 26' P.M. at Cassel.—Paul Veronese, ob. 1588, æt. 56.
- 1574.—The siege of Leyden by the Spaniards.—Sebastian of Portugal makes an expedition into Africa against the Moors.—Montagne, ob. 1592, æt. 59.
- 1575.—The university of Leyden founded.—The Turks invade and ravage Russia.—Francis Hotomanus, ob. 1590, æt. 65.
- 1576.—The league begins in France upon the edict of pacification, and the Protestants allowed the exercise of their religion in France.—A civil war ensues.—Palladio.
- 1577.—Drake undertakes a voyage round the world, and returns November 3, 1580.—A comet appeared—its perihelion, Oct. 27, 6^h 0' A.M.—ascending node γ , 25° 52'—inclin. 74° 32' 45"—retrograde. Janus Doufa, ob. 1604, æt. 50.

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- 1578.—The first treaty of alliance between England and the States General, Jan. 7.—A long and bloody war between Persia and the Ottoman Porte.—The Moors defeat the Portuguese at Alcazar, August 4.—Cardinal Baronius, ob. 1607, æt. 69.
- 1579.—Jan. 23d, the union of Utrecht, which begins the republic of Holland.—Riccoboni, ob. 1600, æt. 58.
- 1580.—Philip of Spain seizes the kingdom of Portugal.—A comet appeared—its perihelion, Nov. 29th, 3^h 0' A.M.—ascending node γ 18° 57' 20"—inclin. 64° 40'—direct.—Peter Pithecu, ob. 1596.
- 1581.—An edict of the United Provinces against Philip, July 26th.—Copper money introduced into France.—Jof. Scaliger, ob. 1609, æt. 69.
- 1582.—The Julian calendar reformed by pope Gregory.—New style introduced into Catholic countries, Oct. 5th, reckoned Oct. 15th.—Christopher Clavius, ob. 1612, æt. 75.
- 1583.—The first proposal of settling a colony in America.—Torquado Tasso, ob. 1595, æt. 51.
- 1584.—Raleigh discovered Virginia.—Cape Breton discovered.—The prince of Orange murdered at Delft, June 30.—Tycho observed the vernal equinox, March 10, 1^h 56' P.M. at Uraniburg.—Edmund Spencer, ob. 1598.
- 1585.—Drake takes Carthage.—Greenland discovered.—Coaches first used in England.—The treaty of Nonsuch between England and the States-General, Aug. 10.—A comet appeared—its perihelion, Sept. 28th, 7^h 20' A.M.—ascending node δ 7° 42' 30"—inclin. 6° 4'—direct.—Sir Philip Sidney, ob. 1586, æt. 32.
- 1586.—Babington's conspiracy against queen Elizabeth.—Cavendish's first voyage to circumnavigate the globe.—Tycho Brahe, ob. 1601, æt. 55.
- 1587.—Queen Mary beheaded, Feb. 8.—The battle of Coutras, Oct. 20th, in which the king of Navarre defeated the duke de Joyeuse.—Drake burned 100 sail of ships in the bay of Cadiz.
- 1588.—The Spanish armada destroyed, July 27th.—First newspaper in England, dated July 28.—Tycho observed the summer solstice, June 11th, 1^h 36' P.M. at Uraniburg.—The sun's apogee in ϵ 5° 30' 0".—The duke of Guise, &c. assassinated in France.—Duelling with small swords introduced into England.—Bomb-shells invented at Venloo.—Henrico Catharino Davila, ob. 1631, æt. 55.
- 1589.—A conspiracy against James, king of Scotland, by Huntly, Crawford, &c. popish lords.—Peace between the Turks and Persians.—Drake's expedition to Spain and Portugal.—Henry III. murdered by Clement, July 22d.—Justus Lipsius, ob. 1606, æt. 58.
- 1590.—A comet appeared—its perihelion, Jan. 29th, 3^h 45' P.M.—ascending node μ 15° 30' 40"—inclin. 29° 40' 40"—retrograde.—Telescopes invented by Jansen, a spectacle-maker in Germany.—An earthquake at Vienna, Sept. 5.—The art of weaving stockings invented by Lee of Cambridge.—The battle of Ivry, which ruined the league, March 4.—Stephen Pasquier, ob. 1615, æt. 81.
- 1591.—The university of Dublin erected.—Tea first brought into Europe.—Mariana, ob. 1624, æt. 87.
- 1592.—Presbyterian church government established by act of

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- of parliament in Scotland.—Falkland isles discovered.
- 1593.—Bothwell's conspiracy against king James.—A comet appeared—its perihelion, July 9th, $1^h 38'$ A. M.—ascending node $\approx 14^{\circ} 14' 15''$ —inclin. $87^{\circ} 58'$ —retrograde.—A great plague in London.—Cardinal Perron, ob. 1618, æt. 63.
- 1594.—The Jesuits expelled France.—The bank of England incorporated.—Byrgius observed the obliquity of the ecliptic $23^{\circ} 29' 25''$.—Isaac Casaubon, ob. 1614, æt. 55.
- 1595.—Drake's expedition against the isthmus of Darien.—Tycho Brahe observed the obliquity of the ecliptic, $23^{\circ} 29' 25''$.—Mendana and Quiros make discoveries in the Pacific ocean.—The Russians make the first discoveries in Siberia.—Caribbee isles discovered.—Shakespeare, ob. 1616, æt. 53.
- 1596.—Calais taken by the Spaniards from the French.—A great earthquake at Japan.—The English defeat the Spanish fleet, and take Cadiz.—A treaty with England, France, and Holland, at the Hague, against Spain, Oct. 31.—A comet appeared—its perihelion, July 23d, $7^h 55'$ A. M.—ascending node $\approx 12^{\circ} 12' 30''$ —inclin. $55^{\circ} 12'$ —retrograde.—The Stella Mira in the neck of the Whale was observed by David Fabricius, Aug. 13th.—Annibal Caracci, ob. 1609, æt. 40.
- 1597.—Watches brought to England from Germany.—The Turks invade Hungary.—Cervantes, ob. 1620, æt. 69.
- 1598.—Tyrone's insurrection in Ireland.—The edict of Nantes in April. The peace of Vervins, April 22d.—President de Thou, ob. 1617, æt. 64.
- 1599.—Tycho observed Saturn in opposition to the sun, March 24th, $10^h 20'$ A. M.—Sir Henry Saville, ob. 1622, æt. 72.
- 1600.—Gowrie's conspiracy in Scotland.—The English East India company established.—The battle of Newport, July 2d, between Maurice and Albert.—A changeable star in the neck of the Swan discovered by Janfenius.—St. Helena first possessed by England.—William Camden, ob. 1632, æt. 72.

The SEVENTEENTH CENTURY of the Vulgar Christian Æra.

- 1601.—The siege of Ostend begins, June 25th.—Spain invades Ireland, Sept. 21st.—Lord chancellor Bacon, ob. 1626, æt. 66.
- 1602.—Byron's conspiracy detected and punished.—Decimal arithmetic invented at Bruges.—Father Paul Sarpi, ob. 1623, æt. 71.
- 1603.—Manufactures of crystal established in France.—A league between France and England.—Queen Elizabeth dies, March 24th, æt. 70.—The crowns of England and Scotland united.—Gruterus, ob. 1627, æt. 67.
- 1604.—Ostend taken after a siege of three years, Sept. 10.—A new translation of the Bible ordered.—Peace concluded between England and Spain. A dispute between the pope and the Venetians concerning the privileges of the clergy.—The French established a colony in Canada.—A bright new star discovered near the right foot of Serpentarius, in September, by Kepler; which disappeared in the space of a year.—Malherbe, ob. 1628, æt. 76.
- 1605.—The gun-powder plot, Nov. 5th.—Marini, ob. 1625, æt. 56.

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- 1606.—A truce of twenty years between the empire and the Ottoman Porte.—Papirius Masso, ob. 1611.
- 1607.—A comet appeared—its perihelion, Oct. 16th, $3^h 50'$ P. M.—ascending node $8^{\circ} 20' 21'$ —inclin. $17^{\circ} 2'$ —retrograde.—Hudson's bay discovered.—Boccalini.
- 1608.—Colonies sent from England to Virginia.—The cold and frost extreme in the winter.—Galileo, ob. 1642, æt. 78.
- 1609.—A truce between the Spaniards and Dutch.—The independence of the United Provinces acknowledged, March 30, O. S.—Helvicus, ob. 1617, æt. 36.
- 1610.—The Persians defeat the Turks near Babylon.—War between Russia and Poland.—Thermometers invented by Drebbel, a Dutchman.—960,000 Moors banished out of Spain.—Galileo first observed three of Jupiter's satellites, Jan. 7.—Longomontanus observed Saturn in opposition to the sun, Aug. 12th, $12^h 0'$ P. M.—Andrew du Chesne, ob. 1640.
- 1611.—War between Denmark and Sweden.—The order of Baronets instituted in England, May 22.—An earthquake at Constantinople.—200,000 persons died there of the plague.—Peace concluded between the Turks and the Persians.—Lopez de Vega, ob. 1635, æt. 72.
- 1612.—A lucid spot in Andromeda's girdle first observed by Simon Marius.—The Russians defeat the Poles in Muscovy.—The English unsuccessfully attempt to discover a northern passage to China.—The French make a settlement in the island of Margna.—Ben Jonson, ob. 1638.
- 1613.—Peace concluded between Denmark and Sweden.—John Kepler, ob. 1630.
- 1614.—Logarithms invented by Baron Napier of Scotland, ob. 1617, æt. 67.—A British colony established in Virginia.
- 1615.—Peace between the Turks and the Imperialists.—The Jews ordered to leave France.—John Barclay, ob. 1621, æt. 38.
- 1616.—A civil war in France.—The settlement of Virginia by Sir Walter Raleigh.—King James restores Flushing, the Brille, &c. to the Dutch.—Cape Horn first sailed round.—Sir Robert Cotton, ob. 1631, æt. 61.
- 1617.—Peace concluded between Sweden and Russia.—Peace between the Venetians and the house of Austria.—Dominiquino, ob. 1641, æt. 60.
- 1618.—Peace concluded between Poland and Russia.—A comet appeared—its perihelion, October 30th, $11^h 37'$ A. M.—ascending node $11^{\circ} 16'$ —inclin. $37^{\circ} 34'$ —direct.—An horrible conspiracy at Venice detected.—The battle of Ardeville between the Turks and Persians.—The Synod of Dort begins November 1, and continues till April 26, 1619.—Fabri de Peirefex, ob. 1637, æt. 57.
- 1619.—The circulation of the blood discovered by Harvey, ob. 1657, æt. 80.—A war of thirty years commences in Germany, Aug. 26.
- 1620.—The English make a settlement at Madras.—Copper money first used in England.—The island of Barbadoes discovered by Sir William Courteen.—The Bohemians defeated by the Imperialists at Prague, October 30, O. S. by which the Elector Palatine lost his electorate.—Navarre united to France.

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- France.—Coining with a die first used in England.—Guido Rheni, ob. 1642, æt. 67.
- 1621.—War between Spain and Holland renewed after a truce of 12 years.—A civil war in France with the Huguenots, lasts 9 years.—War between Poland and the Ottoman Porte.—The Dutch establish the settlement of Batavia.—The two parties of Whigs and Tories formed in England.—Gaspar Barthius, ob. 1648, æt. 71.
- 1622.—The Imperialists reduce the Palatinate.—Heidelberg taken by the Emperor, and the famous library sent to Rome, Sept. 16.—Peter Paul Rubens, ob. 1640, æt. 63.
- 1623.—The Knights of Nova Scotia instituted.—The English factory massacred by the Dutch at Amboyna.—Sir Henry Spelman, ob. 1641.
- 1624.—The Dutch defeat the Spanish fleet near Lima.—The Turks besiege Bagdad, and are repulsed.—Cardinal Bentivoglio, ob. 1644, æt. 65.
- 1625.—A plague in England.—King James dies at Theobald's, March 27, æt. 59.—Discord between Charles I. and the House of Commons.—The first English settlement in the West Indies.—The Spaniards took Breda in the Low Countries.—Peace between Ferdinand of Hungary and the Sultan.—John Meursius, ob. 1639, æt. 60.
- 1626.—Peace between the Huguenots and the king of France, Feb. 5, N. S.—War renewed the following year.—A league of the Protestant princes against the emperor.—Gerard John Vossius, ob. 1650, æt. 73.
- 1627.—War between England and France.—Ericus Puteanus, ob. 1646, æt. 72.
- 1628.—The Turks invade Persia.—The duke of Buckingham murdered, Aug. 23.—Rochelle taken by Lewis XIII., Oct. 18, O.S.—Quevedo, ob. 1647.
- 1629.—Charles I. dissolves the English parliament, March 10; 9 members imprisoned, March 4, for their speeches.—Peace between Germany and Denmark.—The edict of pacification at Nîmes, July 4, O.S.—A truce between Sweden and Poland, for 6 years, Sept. 5, O.S.—Gustavus Adolphus enters Germany.—Peace between France and England.—Bahama isles discovered.—Inigo Jones, ob. 1651.
- 1630.—Gazettes first published in Venice.—The treaty of Stockholm, between England and Sweden, May 31.—War between Spain and Germany.—The Turks invade Poland.—Grotius, ob. 1645, æt. 62.
- 1631.—A treaty between France and Sweden, Jan. 13, O.S.—Gassendi first observed the transit of Mercury over the sun's disk, Nov. 17, 9^h 57' A.M.—The battle of Leipzig, Aug. 28, O.S. in which the Swedes defeat the Imperialists.—Archbishop Usher, ob. 1655, æt. 75.
- 1632.—War between the Danes and Swedes, and between the Swedes and the Imperialists, who are defeated by the former at Lutzen, Nov. 6, O.S. where Gustavus Adolphus is killed.—A great eruption of Vesuvius.—Antigua settled by the English.—Gab. Naudé, ob. 1653.
- 1633.—Galileo condemned by the inquisition at Rome.—Louisiana discovered by the French.—Anthony Vanduyck, ob. 1641, æt. 42.
- 1634.—War between Prussia and Poland.—The Swedes defeated at the battle of Nortlingen, Nov. 26, O.S. by the king of Hungary.—John Selden, ob. 1654, æt. 70.
- 1635.—The French academy established at Paris.—A long

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- and bloody war begins between France and Spain.—A treaty between France and Holland, Feb. 8.—Regular posts established in Great Britain.—Gassendi, ob. 1655, æt. 66.
- 1636.—A treaty between Lewis XIII., and the queen of Sweden, March 10, O.S.—A truce of 26 years between Poland and Sweden.—The Swedes defeat the Imperialists at Wistock, Oct. 4, O.S.—Cassini observed the transit of Mercury over the sun's disk at Thury, Nov. 11, 10^h 43' A.M.—Descartes, ob. 1650, æt. 54.
- 1637.—The Scots withdraw their allegiance from Charles I.—The polemoscope invented by Hevelius.—A bloody war commences between the Poles and the Cossacs in the Ukraine.—A league between Spain and Denmark against Sweden.—An insurrection of the Protestants in Hungary.—The prince of Orange takes Breda, Sep. 26, O.S.—Hampden condemned and sentenced to pay a tax, imposed by Charles I.—Famianus Strada, ob. 1649.
- 1638.—The Turks take Bagdad, Jan. 6.—Two battles of Rheinfeld, Feb. 18 and 21, O.S.—The solemn league and covenant in Scotland, against episcopacy.—Petauius, ob. 1652, æt. 69.
- 1639.—The Imperialists defeat the French at Thionville, May 27, O.S.—Horrox observed a transit of Venus over the sun's disk, at Liverpool, Nov. 24, O.S. 3^h 15' P.M.—Voiture, ob. 1648.
- 1640.—The Scots invade England, Aug. 10, O.S.—A conference between the English and Scots commissioners at Rippon, Oct. 2.—The duke of Braganza recovers the independence of Portugal.—The long parliament in England met, Nov. 5.—Balzac, ob. 1654.
- 1641.—The earl of Strafford beheaded, May 12.—The massacre of the Protestants in Ireland, Oct. 23.—Chillingworth, ob. 1644, æt. 42.
- 1642.—Peace between the Imperialists and the Turks.—The Swedes defeat the Imperialists at Leipzig, Oct. 3, O.S.—King Charles demands the five members, and the civil war begins. His army defeated at Edgehill, Oct. 23.—The Imperialists defeat the French at Tutelingen, Nov. 15, O.S.—Tasman makes discoveries in the Pacific ocean.—Salmasius, ob. 1653.
- 1643.—Bristol surrenders to prince Rupert, July 26.—The siege of Gloucester raised Sept. 5.—The first battle of Newbury, Sept. 20, in which the army of Charles I. is defeated.—The Tartars invade China, and in the following year effect a revolution.—The royal academy of painting founded by Lewis XIV.—Barometers invented by Torricelli.—The prince of Condé defeats the Spaniards at Rocroy, May 9, O.S.—Waller's plot in England detected, May 31.—Nicholas Poussin, ob. 1656, æt. 62.
- 1644.—A revolution in China.—The Swedes defeat the Imperialists in Bohemia, Feb. 25, O.S.—Cromwell defeats the army of Charles I. at Marstonmoor, July 2.—Earl of Essex's army surrenders in Cornwall, Sept. 2.—The second battle of Newbury, Oct. 27.—Gravelines taken by the duke of Orleans, July 18, N.S.—Riccioli observed Saturn in opposition to the sun, at Bologna, Oct. 10, 7^h 12' A.M.—Mothe le Vayer, ob. 1671.
- 1645.—War between the Turks and the Venetians.—Charles I. totally defeated at Naseby, June 14.—Peace between Denmark and Sweden, Aug. 3, O.S.—The first code of Russian laws published.—Turenne takes Treves.

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 Treves.—Duke de Rochefoucault, ob. 1680, æt. 68.
 1646.—The Turks defeat the Venetians near Retimo, Oct. 9, O.S.—Paul Scarron, ob. 1660.
 1647.—Charles I. delivered up by the Scots to the English commissioners, Jan. 30.—Two revolts in Naples.—Henry Hammond, ob. 1660, æt. 55.
 1648.—The peace of Munster between Spain and Holland, Jan. 20, O.S.—The Seven United Provinces declared a free and independent state.—The Imperialists defeated at Augsburg by Turenne, April 7, O.S.—The prince of Cordé defeats the archduke at Lens, Aug. 10, O.S.—The peace of Munster between France and the emperor, Oct. 14, O.S.—The peace of Osnaburgh between Sweden and the emperor.—Fabricius observed a new star in the tail of the Whale.—Thomas Hobbes, ob. 1679, æt. 91.
 1649.—King Charles I. beheaded Jan. 30. æt. 49.—Regal government, and the house of Peers, abolished in England, March 17.—A civil war in Paris, which is blocked up by the prince of Condé.—A league between Denmark and the United Provinces.—Galileo first applied the pendulum to clocks.—Samuel Bochart, ob. 1667.
 1650.—The battle of Dunbar, Sept. 3, in which Cromwell defeats the Scots.—Mezeray, ob. 1683, æt. 73.
 1651.—The battle of Worcester, Sept. 3, in which Cromwell defeats Charles II.—The Quakers appear in England.—The Venetians defeat the Turkish fleet near Scio, June 13, O.S.—The Poles defeat 300,000 Tartars, June 20.—Dr. John Wallis, ob. 1703, æt. 87.—Archibald, marquis of Argyle, ob. 1661, æt. 63.
 1652.—The war between the English and Dutch begins May 19.—Sea-fight between the English and Dutch fleets, near Plymouth, Aug. 16.—Van Tromp defeats the English fleet in the Downs, Nov. 29.—A comet appeared—its perihelion Nov. 3, 3^h 40' A. M.—ascending node Π 28° 20'—inclin. 78° 28'—direct.—A colony established by the Dutch at the Cape of Good Hope.—J. Fred. Gronovius, ob. 1671, æt. 58. Chancellor Seguier, ob. 1672, æt. 84.
 1653.—An engagement between the English and Dutch fleet, on the coast of France, Feb. 18.—Cromwell dissolves the English parliament, April 20.—The English defeat the Dutch fleet on the coast of Flanders, June 3—and again near the Texel, July 29.—Cromwell proclaimed protector of England, Dec. 16—ob. 1658, æt. 60.—Blaise Pascal, ob. 1662, æt. 39.
 1654.—Peace between England and Holland signed, April 5.—The air-pump invented by Otto Guericke of Magdeburg.—John Milton, ob. 1674, æt. 66.—Admiral Blake, ob. 1657, æt. 59.
 1655.—The English, under admiral Penn, take possession of Jamaica, May 7.—Blake attacks Tunis, and destroys the Spanish galleons in the bay of Santa Cruz.—The Venetians defeat the Turkish fleet at the Dardanelles, June 11, O.S.—Huygens first discovers a satellite of Saturn, March 25.—Peace between England and France, Oct. 25.—War between Sweden and Poland.—Thomas Bartholin, ob. 1680, æt. 64.
 1656.—A treaty between the king of Sweden and the elector of Brandenburg, Jan. 11, O.S.—War declared by England against Spain, Feb. 16.—The Swedes defeat the Poles in three battles, at Warsaw, July 18, 19, and 20, O.S.—Edmund Waller, ob. 1687, æt. 82.—Henry viscount de Turenne, and marshal, ob. 1675, æt. 64.
 1657.—War between Sweden and Denmark.—A treaty between the king of Poland and the elector of Brandenburg, Sept. 9, O.S.—Peter Corneille, ob. 1684, æt. 78.
 1658.—Hevelius observed Saturn in opposition to the sun, at Dantzick, April 4, 5^h 13' A. M.—Turenne, after having defeated the Spaniards, takes Dunkirk, June 17, and the city is delivered to the English.—J. Baptista Poquelin Moliere, ob. 1672.—Admiral de Ruyter, ob. 1676, æt. 69.
 1659.—Peace between France and Spain, called “the peace of the Pyrenées,” Oct. 28, O.S.—Du Cange, ob. 1688, æt. 58.
 1660.—Peace between Sweden and Denmark, at Copenhagen, March 17, O.S.—The restoration of Charles II., May 29.—The peace of Oliva, between Sweden, Poland, and the Empire, May 3.—The king of Denmark declared absolute, and the throne hereditary, Oct. 13, O.S.—Algernon Sidney, ob. 1683, æt. 66.—General Monk, duke of Albemarle, ob. 1670, æt. 62.
 1661.—A treaty between the Dutch and Portuguese.—A treaty of commerce between Great Britain and Sweden, at Whitehall, Oct. 21.—Bombay yielded to the English by Portugal.—Hevelius observed the obliquity of the ecliptic to be 23° 29' 7".—A comet appeared—its perihelion Jan. 17, 11^h 19' A. M.—ascending node Π 22° 30' 30"—inclin. 32° 35' 50"—direct.—Franking letters began; abridged in 1764 and 1775.—Sir John Marsham, ob. 1685, æt. 83.
 1662.—Dunkirk restored to the French.—The Royal Society established, July 15.—Samuel Butler, ob. 1680, æt. 68.
 1663.—The Royal Academy of Inscriptions and Belles-lettres, established at Paris.—The Portuguese defeated the Spaniards near Evora.—The Turks took Neuhasel, in Hungary, Sept. 17, O.S.—Prussia declared to be independent on Poland.—Charles le Brun, ob. 1690, æt. 71.
 1664.—War between the English and Dutch.—A treaty between the French king and the pope at Pisa, Feb. 2, O.S.—The French defeat the Turks in Hungary, July 22.—The observatory at Paris founded.—The treaty of Temeswar, Sept. 7.—The battle of St. Godard, July 22.—The academy for sculpture established in France, Aug. 31.—A comet appeared—its perihelion, Nov. 24, 11^h 52' P.M.—ascending node Π , 21° 14'—inclin. 21° 18' 30"—retrograde.—English clergy resigned the power of taxing themselves in their convocation.—Lewis Maimbourg, ob. 1686, æt. 77.
 1665.—War between France and England.—A comet appeared—its perihelion April 14, 5^h 15' P.M.—ascending node Π 18° 2'—inclin. 76° 5'—retrograde.—The English defeated the Dutch fleet near Harwich, June 3.—The plague raged in London.—The magic lanthorn invented by Kircher.—The Portuguese defeated the Spaniards at Villa Viciosa, June 7, O.S.—Ralph Cudworth, ob. 1688, æt. 71.
 1666.—An engagement between the English and Dutch fleets near Dunkirk, June 1, 4.—The English defeat the Dutch fleet near the Thames, July 25 and 26.—A fire broke out in London, Sept. 2, which extended to 600 streets, consumed 13,200 houses, &c. &c.—A settlement in Antigua by the English.—War declared between England and Denmark.—The Academy of Sciences established in France.—Giles Menage, ob. 1692, æt. 79.
 1667.—A treaty of commerce between Great Britain and Spain,

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- Spain, May 23.—The peace of Breda, July 31, between Great Britain and France, and also with Holland.—War renewed between France and Spain.—Charles de St. Evremond, ob. 1703, æt. 90.
- 1668.—A commercial treaty between Great Britain and Holland, at the Hague, Feb. 17.—The triple alliance of Great Britain, Sweden, and the States General, against France, Jan. 23.—Peace between Spain and Portugal, after 26 years of war, Feb. 3, O.S.—The peace of Aix-la-Chapelle, between France and Spain, April 22, O.S.—Benedict de Spinosa, ob. 1678, æt. 44.
- 1669.—The isle of Candia taken by the Turks, Sept. 6, O.S.—The commercial treaty of Florence, between Great Britain and Savoy, Sept. 19.—Huygens, ob. 1695, æt. 66.
- 1670.—The commercial treaty of Copenhagen, between Great Britain and Denmark, July 11.—The peace of Madrid, between Great Britain and Spain, July 18.—Peace between the duke of Savoy and the republic of Venice.—Mengoli observed the obliquity of the ecliptic to be $23^{\circ} 28' 24''$.—Hevelius discovered a new star, July 15, which soon disappeared, and was again visible in 1672.—Hevelius observed Saturn in opposition to the sun, at Dantzick, Sept. 8, $8^h 56' P. M.$ —Sir Christopher Wren, ob. 1723, æt. 91.
- 1671.—Cassini discovered four of Saturn's satellites in the course of a few years.—Isaac Barrow, ob. 1677, æt. 47.
- 1672.—A comet appeared—its perihelion Feb. 20, $8^h 37' P. M.$ —ascending node $\varpi 27^{\circ} 30' 30''$ —inclin. $83^{\circ} 22' 10''$ —direct.—Richer observed the obliquity of the ecliptic to be $23^{\circ} 28' 54''$.—The vernal equinox was observed at Paris, March 19, $7^h 41'$.—War declared by France against Holland, April 6.—England declared war against Holland, March 17.—War between the Turks and Poles.—A treaty between the Empire and Holland against France, July 15, O. S.—A bloody engagement between the English and Dutch fleets, in Solebay, May 28.—Louis XIV. overruns great part of Holland, after having taken Utrecht, June 10.—The prince of Orange is made Stadtholder, and J. de Wit put to death, Aug. 12.—Sir W. Temple, ob. 1700, æt. 72.
- 1673.—The English and French defeat the Dutch fleet, May 28, June 14, and Aug. 11.—The king of France declares war against Spain, Oct. 9, O. S.—The Poles defeat the Turks, near Choczim, Oct. 31.—René Rapin, ob. 1687, æt. 66.
- 1674.—A treaty between Great Britain, Holland, and Spain, at Westminster, Feb. 19.—Sicily revolted from Spain.—A battle between the prince of Condé and the prince of Orange, at Leneff in Flanders, Aug. 1, O. S.—The first establishment of the French in the East Indies.—The Academy of Soissons established.—Turenne defeats the Imperialists at Enshheim, Sept. 24, O. S.—Turenne defeats the Imperialists at Mulhausen, Dec. 19, O. S.—Turenne defeats the Imperialists at Turkeim, Dec. 27, O. S.—A treaty between Great Britain and Holland, at London, Dec. 11.—Dr. Thomas Sydenham, ob. 1689, æt. 66.
- 1675.—A conference for a peace at Nimeguen.—War between Sweden and Denmark.—Turenne passed the Rhine, and opposed by Monteculi.—The Prussians defeat the Swedes at Fehrbellin, June 8, O. S.—The battle of Altenheim, July 22, O. S.—A treaty between

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- Great Britain and Holland, at the Hague, Dec. 30.—Robert Boyle, ob. 1691, æt. 65.
- 1676.—Carolina planted by English merchants.—The king of France declares war against Denmark, Aug. 28.—The French defeat the fleet of the allies at Palermo, May 23, O. S.—The Royal Observatory at Greenwich built.—Samuel Puffendorf, ob. 1694, æt. 63.
- 1677.—The commercial treaty of St. Germain, between Great Britain and France, Feb. 24th.—The French defeat the prince of Orange near Cassel, April 1, O. S.—The Protestants revolt in Hungary.—A comet appeared—its perihelion, April 26, $0^h 37' P. M.$ —ascending node $\varpi 26^{\circ} 49' 10''$ —inclin. $79^{\circ} 3' 15''$ —retrograde.—M. de Navailles defeats the Spaniards several times.—The micrometer was invented by Kirch.—The Swedes defeat the Danes at Landseroon, Dec. 4, O. S.—Carlo Maratti, ob. 1713, æt. 88.
- 1678.—A strange darkness at noon-day, Jan. 12.—The defensive alliance of Westminster, between Great Britain and Holland, March 3.—The peace of Nimeguen, between France and Holland, July 31, O. S.—Peace between France and Spain, Sept. 17.—The Tartars attack the Russians.—A comet appeared—its perihelion, Aug. 17, $2^h 3' A. M.$ —ascending node $\varpi 11^{\circ} 40'$ —inclin. $3^{\circ} 4' 20''$ —direct.—The popish plot discovered by Oaks, Sept. 6.—Daniel George Morhoff, ob. 1691, æt. 53.
- 1679.—The long parliament of England dissolved, Jan 25.—The peace of Nimeguen, between France and Germany, signed Jan. 26, O.S.—The bill of exclusion first read in parliament, May 15.—Peace between Sweden and Denmark, after a war of four years, Aug. 23, O.S.—The meal-tub plot in England, Oct. 23.—An engagement between the English and Moors, which lasted eleven days, at Tangier, Nov. 7.—John de la Bruyere, ob. 1696, æt. 57.
- 1680.—The first establishment of the French in the East Indies.—The anatomy of plants made known by Grew.—Charles XI. declared absolute by the states of Sweden.—A comet appeared—its perihelion, Dec. 8, $0^h 6' P. M.$ —ascending node $\varpi 2^{\circ} 2'$ —inclin. $60^{\circ} 56'$ —direct.—Lord Strafford beheaded for high treason.—John de la Fontaine, ob. 1695, æt. 74.
- 1681.—Contests between the king of England and parliament.—Penny post in London began—established by government in 1711—postage advanced to 2d. in 1801.—Sir George Mackenzie, ob. 1691, æt. 53.—James, duke of Monmouth, ob. 1683, æt. 36.
- 1682.—The Royal Academy of Nismes established.—A comet appeared—its perihelion Sept. 4, $7^h 39' P. M.$ —ascending node $\varpi 21^{\circ} 16' 30''$ —inclin. $17^{\circ} 56'$ —retrograde.—The autumnal equinox observed at Paris, Sept. 22, $6^h 34'$.—Bouhours, ob. 1702, æt. 74.—Marshal Schömburg, ob. 1690.
- 1683.—The Rye-house Plot discovered, June 14.—A comet appeared—its perihelion, July 3, $2^h 50' P. M.$ —ascending node $\varpi 23^{\circ} 23'$ —inclin. $83^{\circ} 11'$ —retrograde.—Vienna besieged by the Turks.—Lord Ruffel beheaded, July 21st.—John Dryden, ob. 1701, æt. 70.
- 1684.—A truce between France and Spain.—A league between Venice and Poland against the Turks.—The duke of Lorraine defeated 150,000 Turks at Weitzen, June 17, O. S.—Flamstead observed Saturn in opposition to the sun, at Greenwich, Feb. 19, $5^h 10' A. M.$ —A comet appeared—its perihelion, May 29, $10^h 16' P. M.$ —ascending node $\varpi 28^{\circ} 15'$ —inclin. $65^{\circ} 48' 40''$ —direct.

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- direct. —Racine, ob. 1699, æt. 60.—George Savill, marquis of Halifax, ob. 1695, æt. 62.
- 1685.—The edict of Nantes revoked Oct. 12, O.S.—Insurrections in England and Scotland.—Duke of Monmouth defeated in the battle of Sedgemoor, July 6.—Charles II. dies, Feb. 6, æt. 55.—Marshal de Vauban, ob. 1707, æt. 74.—N. Boileau Despreaux, ob. 1711, æt. 75.
- 1686.—The Newtonian philosophy published.—An embassy from the king of Siam to Lewis XIV.—The grand alliance of Germany, Great Britain, and Holland, against France, at Vienna, May 12.—A convention of Great Britain and Holland against France, at London, Aug. 22.—The league of Augsbourg against France, July 11, O. S.—A comet appeared—its perihelion, Sept. 7, 2^h 33' A. M.—ascending node \propto 20° 34' 40"—inclin. 31° 21' 40"—direct.—Humphrey Prideaux, ob. 1724, æt. 77.
- 1687.—The kingdom of Hungary declared to be hereditary in the house of Austria.—John George Grævius, ob. 1703.
- 1688.—Smyrna destroyed by an earthquake, July 10.—The revolution in England begins, Nov. 5.—France declares war against Holland, Nov. 23, O. S.—King James abdicates, and retires to France, Dec. 23.—A revolution in Siam.—P. Bayle, ob. 1706, æt. 59.
- 1689.—King William and queen Mary proclaimed, Feb. 16.—James II. landed in Ireland with an army.—The emperor declares war against France.—France declares war against Spain and against England.—The French fleet defeated at Bantry-bay, May 1.—The grand alliance between the emperor, king William, and the States-general, concluded at Vienna, May 12.—King William defeated at Killiecrankie, July 27.—Episcopacy abolished in Scotland, July 22.—Falkland islands discovered.—A treaty between Russia and China.—Louis XIV. declares war against Holland.—A conjunction of Venus with the sun observed at Paris, June 26, 8^h 14' A. M.—The Imperialists defeat the Turks, near Patochin, Aug. 30, and Sept. 24.—John Locke, ob. 1704, æt. 70.
- 1690.—Peace between the czar of Moscow and the emperor of China.—The French defeat the English and Dutch fleets off Beachy-head, June 30, O. S.—The French defeat the allies at Fleurus, June 21.—King William defeats James II. at the Boyne, July 1, O. S.—Edward Stillingfleet, bishop of Worcester, ob. 1699, æt. 64.
- 1691.—The congress at the Hague, Jan.—Mons taken by the French, March 30, O. S.—The battle of Aghrim in Ireland, July 12.—Limerick surrenders Oct. 3, which finishes the war in Ireland.—The Turks defeated by the Imperialists, Aug. 9, O.S.—A treaty of union between Sweden and Denmark.—12,000 Irish Catholics transported to France.—Flamsteed observed the obliquity of the ecliptic to be 23° 28' 32".—Archbishop Tillotson, ob. 1694, æt. 65.
- 1692.—The sea-fight off la Hogue, May 19, in which the English defeat the French fleet.—The French besiege Namur, and take it, May 25.—The massacre of Glencoe, in Scotland, Jan. 31.—Luxembourg defeats the English at Steinkirk, July 24.—The duchy of Hanover made the 9th electorate of the empire.—Earthquakes in England and in Jamaica, Sept. 8.—Gilbert Burnet, bishop of Salisbury, ob. 1715, æt. 72.
- 1693.—The French defeat the English and the Dutch fleets

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- off cape Vincent, June 16.—The order of St. Lewis instituted in France.—Luxembourg defeats the allies at Landen, July 19.—The battle of Marfiglia, Sept. 24.—Bossuet, bishop of Meaux, ob. 1704, æt. 78.
- 1694.—The bank of England incorporated.—Messina destroyed by an earthquake.—Huy taken, Sept. 18.—The Poles defeat the Turks at Niester, Sept. 26.—Queen Mary dies, Dec. 28, æt. 33.—Sen. Vinc. de Filicaia, ob. 1707, æt. 65.—Mad. de Maintenon, ob. 1719, æt. 84.
- 1695.—War between the allies and the Ottoman Porte.—The allies take Namur, July 25.—Cafal taken by the duke of Savoy, May.—The vote for a new coinage, Dec. 10.—Nicholas Malebranche, ob. 1715.
- 1696.—The Assassination plot discovered, July 14.—Peter I. czar of Muscovy, takes Azoph, July 19.—Cassini, ob. 1712, æt. 87.
- 1697.—Carthage taken by the French, May 26.—The Imperialists defeat the Turks in the battle of Zentha, Sept. 1.—The peace of Ryswick, Sept. 11, between Great Britain and France—France and Holland—France and Spain.—Oct. 20, between France and the empire.—Henry Dodwell, ob. 1711, æt. 70.
- 1698.—The first treaty of partition signed Aug. 19, between France, Great Britain, and Holland.—A comet appeared—its perihelion, Oct. 9, 4^h 57' A. M.—ascending node \propto 27° 44' 15"—inclin. 11° 46'—retrograde.—James Gronovius, ob. 1716, æt. 71.—Pensionary Heinsius, ob. 1720, æt. 79.
- 1699.—The peace of Carlowitz, Jan. 16, between Poland, Venice, and the Ottoman Porte.—A comet appeared—its perihelion, Jan. 3, 8^h 22' P. M.—ascending node \propto 21° 45' 33"—inclin. 69° 20'—retrograde.—The Scots attempt an establishment on the coast of Darien.—A league between Denmark, Poland, and Russia, against Sweden.—The Dutch guards sent to Holland.—Dr. W. Lloyd, bishop of Worcester, ob. 1717, æt. 90.
- 1700.—The Dutch, and the Protestants in Germany introduce the new style, omitting the last eleven days of February.—The Spanish monarchy transferred to the house of Bourbon.—The second treaty of partition, signed at Landen, March 3, and at the Hague, March 25.—A severe bill against the Papists in England.—A conjunction of Venus with the sun, observed at Paris, Sept. 2, 11^h 20^h P. M.—A treaty between Denmark, Sweden, and Holstein, Aug.—The Swedes defeat the Russians, at Narva, Nov. 20.—Mad. Dacier, ob. 1720, æt. 69.

The EIGHTEENTH CENTURY of the Vulgar Christian Era.

- 1701.—The first king of Prussia crowned, Jan. 7.—An academy of sciences founded at Berlin.—An alliance between Germany, England, and Holland, against France, at the Hague, Sept. 7.—A league between France, Spain, and Portugal, against the allies.—Sir Isaac Newton, ob. 1727, æt. 85.
- 1702.—A comet appeared—its perihelion March 3, 2^h 12' A. M.—ascending node \propto 9° 25' 15"—inclin. 4° 30'—direct.—War declared in England, Germany, and Holland, against France, May 4.—The French defeat the Imperialists at Luzara, Aug. 4.—Landau surrendered to the Imperialists, Aug. 30.—Venloo surrendered to the allies, Sept. 25.—The English and Dutch destroy the French fleet, &c. in the port of Vigo, Oct. 12.—The French send colonies to the Mississippi.

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- An engagement between the English and French fleets in the West Indies, Aug. 19.—King William dies March 8, æt. 52.—Prince Eugene of Savoy, ob. 1736, æt. 73.—Fenelon, bishop of Cambray, ob. 1715, æt. 64.
- 1703.—Portugal cedes to the league against France and Spain, May 5.—Bianchini observed the obliquity of the ecliptic to be $23^{\circ} 28' 25''$.—The foundation of Petersburg laid.—A dreadful tempest in England, Nov. 27.—Godfrey William Leibnitz, ob. 1716, æt. 70.
- 1704.—Marlborough defeats the Bavarians at Schellenburg, July 2.—Gibraltar taken by admiral Rooke, July 24.—The battle of Hochstet or Blenheim, Aug. 2, in which the allies defeat the French.—Narva taken by the czar of Muscovy, Aug. 10.—The sea-fight off Malaga, Aug. 13, in which the English defeat the French fleet.—Flamsteed observed Saturn in opposition to the sun, at Greenwich, Oct. 25, $12^h 0' P. M.$ —Landau taken by the allies, Nov. 23.—Huet, bishop of Avranches, ob. 1721, æt. 91.—John, duke of Marlborough, ob. 1722, æt. 73.
- 1705.—The English defeat the Spanish fleet off Gibraltar, March 21.—Marlborough forced the French lines in Brabant, July 18.—Prince Eugene defeated at Cassano by the duke of Vendome, Aug. 5.—The English reduce Barcelona, Aug. 22.—Sir Godfrey Kneller, ob. 1723, æt. 77.
- 1706.—Marlborough defeats the French at Ramillies, May 12, and afterwards takes Brussels, Louvain, Bruges, Ghent, Ostend, Menin, &c.—The allies become masters of Carthage. June 13.—The articles of Union between England and Scotland signed, July 20.—Prince Eugene defeats the French at Turin, Aug. 27.—Peace between Sweden and Poland, Sept. 13.—A comet appeared—its perihelion Jan. 19, $4^h 56' P. M.$ —ascending node $12^{\circ} 16' 22''$ —inclin. $18^{\circ} 20' 45''$ —direct.—John Flamsteed, ob. 1723, æt. 77.
- 1707.—The articles of Union ratified by the Scottish parliament, Jan. 16.—The allies defeated by the French at Almanza, April 14.—A treaty between the emperor and the king of Sweden in April.—The emperor seizes the kingdom of Naples.—The king of Prussia declared sovereign of Neuchâtel, Nov. 3.—A conspiracy in Geneva.—A comet appeared—its perihelion Dec. 1, $11^h 43' A. M.$ —ascending node $8^{\circ} 22' 50' 29''$ —inclin. $88^{\circ} 37' 40''$ —direct.—Andrew Dacier, ob. 1722, æt. 71.
- 1708.—Marlborough and Eugene defeat the French at Oudenarde, June 30.—The Muscovites defeated by the king of Sweden at Holowazen in July.—The allies become masters of Sardinia, Aug. 4.—Minorca taken by general Stanhope, Sept. 18.—Lisle surrendered to the allies, Oct. 12.—Ghent taken by Marlborough, Dec. 30.—Jo. Vincent Gravina, ob. 1718, æt. 50.
- 1709.—The Russians defeat the Swedes at Pultowa, June 27.—The allies take Tournay, July 30.—The allies defeat the French at Malplaquet, Aug. 31.—The allies take Mons, Oct. 21.—Dr. R. Bentley, ob. 1742, æt. 80.—Marshal Villars, ob. 1734, æt. 82.
- 1710.—Sacheverel sentenced by the parliament of England, March 23.—Douay taken by Marlborough and Eugene, June 15.—The Spaniards defeated by the allies at Almenara, July 27; again at Saragossa, Aug. 9.—The Academy of Lyons established.—The English defeated by the duke de Vendome at Brihwega, Dec. 9, when general Stanhope was taken prisoner.—The

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- battle at Villa Viciosa, Dec. 10.—The Spaniards were defeated by Staremberg.—Dr. Hare, bishop of Chichester, ob. 1740, æt. 70.—R. Harley, earl of Oxford, ob. 1724, æt. 63.
- 1711.—Gironne taken by the duke de Noailles, Jan. 23.—War declared by Peter, emperor of Russia, against the Turks, March 8; a battle of 3 days between the Turks and Russians.—Bouchain taken by Marlborough, Sept. 13.—Joseph Addison, ob. 1719, æt. 48.—Henry St. John, lord Bolingbroke, ob. 1751, æt. 73.
- 1712.—The English defeated by Villars at Denain, July 13, who takes Douay, Sept. 8.—Negotiations for a general peace began at Utrecht.—Sir R. Steele, ob. 1729.
- 1713.—A treaty of peace and commerce between Great Britain and Holland, at Utrecht, Jan. 29.—Peace between Russia and the Ottoman Porte.—A treaty between Great Britain and Spain, at Madrid, March 26.—Peace between Great Britain and France, at Utrecht, April 11; between France and the duke of Savoy, April 11; between France and Portugal, April 11; between France and Prussia, April 11; between France and the States-General, April 12; between Great Britain and Spain, July 13; and treaty of commerce between them, Dec. 9.—Matthew Prior, ob. 1721, æt. 57.
- 1714.—The bull Unigenitus received in France.—The opposition of Saturn to the sun observed at Paris, Feb. 26, $8^h 15' P. M.$ —The treaty of Rastadt between France and Germany, March 6.—The interest of money fixed in England at 5 per cent.—The king of Spain takes Barcelona, and Cordova.—The treaty of Baden between France, Germany, and Spain, Sept. 7.—War declared by the Turks against Venice, Dec. 7.—The accession of George, elector of Hanover, to the kingdom of Great Britain, Aug. 1, when queen Anne dies, æt. 50.—Francis Atterbury, bishop of Rochester, banished 1723, ob. 1732, æt. 70.
- 1715.—A conjunction of Venus with the sun observed at Paris, Jan. 26, $8^h 19' P. M.$ —Louville observed the obliquity of the ecliptic to be $23^{\circ} 28' 24''$.—The treaty of Utrecht between Spain and Portugal, Feb. 13.—A rebellion in Poland.—The Turks conquer the Morea.—The barrier treaty of Antwerp between Germany and Holland, Nov. 15.—The battle of Preston-pans, between the king's forces and the rebels Nov. 13; the battle of Dumblain, or Sheriff-muir, between the same, Nov. 13.—The Pretender lands near Aberdeen, Dec. 22.—Louis XIV. dies Aug. 21, æt. 77.—John Hardouin, ob. 1729, æt. 83.—John, duke of Argyle, ob. 1743, æt. 61.
- 1716.—The alliance of Westminster between Great Britain and Holland, Feb. 6.—The rebellion in Scotland suppressed, April 26.—The alliance of Westminster between Great Britain and Germany, May 25.—War declared between the Germans and Turks.—The Turks invade the island of Corfu; they are defeated by prince Eugene at Peterwaradin, July 25.—John Le Clerc, ob. 1736, æt. 79.—Philip, duke of Orleans, regent of France, ob. 1723, æt. 51.
- 1717.—The triple alliance between Great Britain, France, and Holland, at the Hague, Dec. 24.—L'Enfant, ob. 1728, æt. 68.—Cardinal Alberoni, the Spanish minister, disgraced 1719, ob. 1752, æt. 88.
- 1718.—Charles XII. attempts the conquest of Norway.—The

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- The English defeat the Spanish fleet near Syracuse, July 31.—The treaty of Passarowitz, between the Germans, Venetians, and Turks, July 21.—The quadruple alliance, between Germany, Great Britain, France, and Holland, Aug. 2. To this treaty the king of Sardinia acceded, Nov. 8.—Great Britain declares war against Spain, Dec. 22.—A comet appeared—its perihelion Jan. 4, $1^h 15' P.M.$ —ascending node $\Omega 7^{\circ} 55' 20''$ —inclin. $31^{\circ} 12' 53''$ —retrograde.—Abbe Vertot, ob. 1735, æt. 80.—Earl Macclesfield, lord chancellor, ob. 1732, æt. 66.
- 1719.—The Spanish troops evacuate Sicily.—Peace between Spain and Great Britain, June 26.—Peace between Poland and Sweden; between Hanover and Sweden, at Stockholm, Nov. 20.—The battle of Franca Villa, June 9.—Vigo taken by lord Cobham, Oct. 10.—The Mississippi scheme at its height in France, in November and December.—John Law, comptroller-general of finances, ob. 1729, æt. 58.—Dr. John Friend, ob. 1728, æt. 53.
- 1720.—An offensive and defensive league between Sweden and England, Jan. 21.—Peace between Sweden and Prussia, at Stockholm, Jan. 21.—The South Sea scheme begins April 7, and ends Sept. 29.—Peace between Sweden and Denmark, June 3.—A great earthquake in China, June 11.—The Mississippi company in France dissolved, June 27.—Pestilence in France.—The kingdom of Sardinia ceded to the duke of Savoy, Aug. 7.—Bernard de Montfaucon, ob. 1741, æt. 86.
- 1721.—A treaty of peace between Great Britain and Spain, at Madrid, June 13.—A defensive alliance, between Great Britain, France, and Spain, June 13.—A treaty of peace between Sweden and Russia, at Nystadt, Aug. 19.—Dr. Samuel Clarke, ob. 1729, æt. 54.—Sir Robert Walpole, earl of Orford, ob. 1745, æt. 71.
- 1722.—Peace between the English and Moors, Aug. 12.—A great revolution in Persia, Oct. 12.—The czar of Muscovy assumed the title of emperor of Russia.—Roggewein makes discoveries in the Pacific ocean.—The Christians and Jesuits banished out of China.—The autumnal equinox observed at Paris, Sept. 23, $10^h 20' A.M.$ —Dr. Jonathan Swift, ob. 1745, æt. 78.
- 1713.—A comet appeared—its perihelion, Sept. 17, $4^h 10' A.M.$ —ascending node $\gamma 14^{\circ} 16'$ —inclin. $49^{\circ} 59'$ —retrograde.—Dr. Edmund Halley, ob. 1742, æt. 82.
- 1724.—An earthquake in Denmark.—Protestants persecuted in France.—An Academy of Sciences established at Petersburg.—Philip V. resigns his kingdom to his son Lewis, Jan. 15, who reigns about one year and two months.—John Albertus Fabricius, ob. 1736, æt. 67.—Duke de Ripperda, the Spanish minister, disgraced 1726, ob. 1737.
- 1725.—The treaty of Vienna, between the emperor and the king of Spain, April 31.—War between the Persians and Turks.—The treaty of Hanover between Great Britain, France, and Prussia, against Germany and Spain, Sept. 3; acceded to by Holland and Sweden.—Dr. John Arbuthnot, ob. 1735.—Cardinal Fleury, French minister, ob. 1743, æt. 90.
- 1726.—The value of current coins fixed in France, in June.—An earthquake at Palermo, Aug. 21.—Hermann Boerhaave, ob. 1738, æt. 70.
- 1727.—The treaty of Copenhagen between Great Britain,

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- Denmark, &c., April 16.—The Spaniards besiege Gibraltar, May 20.—Peace between Persia and the Ottoman Porte.—The aberration of the fixed stars discovered and accounted for by Bradley.—The siege of Gibraltar begun by the Spaniards, May 20th, and continued till April 1728.—King George I. dies June 11, æt. 68.—Dr. Edward Chandler, bishop of Durham, ob. 1750, æt. 83.
- 1728.—The treaty of Westminster, between Great Britain and Holland, May 27.—The congress of Soissons, June 14.—The university of Holstein founded.—A colony of Danes passed into Greenland.—A great burning in Copenhagen.—An earthquake in China, Sept.—Cardinal Polignac, ob. 1741, æt. 80.—Sir R. Temple, lord Cobham, ob. 1749, æt. 74.
- 1729.—A comet appeared—its perihelion, June 12, $6^h 36' P.M.$ —ascending node $\approx 10^{\circ} 35' 15''$ —inclin. $77^{\circ} 1' 58''$ —direct.—The treaty of Seville, between Great Britain, France, and Spain, Nov. 9.—Dr. Edmund Gibson, bishop of London, ob. 1743, æt. 79.
- 1730.—War between the Ottoman Porte and Persia.—An earthquake in China.—A revolution at Constantinople, Sept.—The usurpation of the Afghans in Persia ended.—The Persians under Kouli-Khan gain a signal victory over the Turks.—Dr. Benj. Hoadly, bishop of Winchester, ob. 1761, æt. 85.
- 1731.—A treaty between the king of Great Britain and the emperor at Vienna, March 16.—A new treaty between the emperor, and the kings of Britain and Spain, at Vienna, July 22.—A treaty of union and defensive alliance between the electorates of Saxony and Hanover, at Dresden, Aug.—A great earthquake at Naples.—Alexander Pope, ob. 1741, æt. 80.
- 1732.—The Spanish fleet defeated the Moors on the coast of Barbary, June 20.—The summer solstice observed at Paris, June 21, $7^h 28' 30'' A.M.$ —The Pragmatic sanction confirmed by the diet of the empire, Jan. 11.—Charles Rollin, ob. 1741, æt. 80.
- 1733.—The Jesuits expelled from Paraguay, Jan.—A double election of a king in Poland.—A war between France and Germany.—A treaty between the kings of France, Spain, and Sardinia.—Abbé du Bos, ob. 1742, æt. 72.—Charles lord Talbot, lord chancellor, ob. 1737, æt. 54.
- 1734.—A battle between the Persians and Turks at Babylon, Feb.—The French defeat the Imperialists at Parma, June 18.—Philipsburg surrendered to the French, July 7.—The city of Dantzic submitted to Augustus, July 10.—The battle of Guastalla on Sunday, Sept. 19, in which the king of Sardinia defeats the Imperialists.—A commercial treaty between Great Britain and Russia, Dec. 2.—Bernard de Fontenelle, ob. 1756, æt. 100.—W. Pulteney, earl of Bath, ob. 1764, æt. 81.
- 1735.—A treaty of alliance between Denmark and Sweden.—The Persians entirely defeat the Turks, May 29.—The French and their allies succeed against the Imperialists in Italy.—The preliminaries of peace between France and Austria signed at Vienna, Oct. 3.—Dr. Thomas Sherlock, bishop of London, ob. 1761, æt. 84.
- 1736.—Peace between Spain and the house of Austria.—War between the Russians and Turks.—Kouli Khan makes peace with the Turks, and is proclaimed king of Persia, by the title of Schah Nadir, Sept. 29.—Cassini observed the transit of Mercury over the sun's disk, at Thury, Nov. 11, $10^h 43' A.M.$ —Dr. George Berkeley, bishop of Cloyne, ob. 1753, æt. 73.

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- 1737.—A comet appeared—its perihelion, Jan. 19, 8^h 20' P. M.—ascending node, \cap 16° 22'—inclin. 18° 20' 45"—direct.—The emperor, in alliance with Russia, declares war against the Turks, July 2.—A dreadful hurricane at the mouth of the Ganges, Oct. 10.—Colin Maclaurin, ob. 1746, æt. 48.—Philip earl of Hardwicke, lord chancellor, ob. 1764, æt. 74.
- 1738.—The Russians invade Crim Tartary.—The order of St. Januarius instituted at Naples.—A treaty between the emperor and the French king, at Vienna, Nov. 18.—The autumnal equinox observed at Paris, Sept. 23, 7^h 21' A. M.—the sun's apogee in \ominus 8° 19' 8".—James Thomson, ob. 1748, æt. 48.—Lord president Forbes, ob. 1747, æt. 62.
- 1739.—Schah Nadir becomes master of the empire of Moguls.—A treaty between Great Britain and Denmark, in May.—A comet appeared—its perihelion, June 6, 10^h 0' P. M.—ascending node, \cap 27° 25' 14"—inclin. 55° 42' 44"—retrograde.—The Russians defeat the Turks at Choczim, Aug. 8.—Peace between Germany and the Ottoman Porte, Aug. 21.—between Russia and the same, Nov.—War declared between England and Spain, Oct. 23.—Admiral Vernon took Porto Bello, Nov. 21.—A treaty between France and Holland, at Versailles, Dec. 21.—An intense frost in Britain.—Dr. Joseph Butler, bishop of Durham, ob. 1752, æt. 60.
- 1740.—War between Poland and Hungary.—Peace between the Persians and Turks, Oct.—The emperor Charles VI. dies, Oct. 9, which begins the general war in Germany, that continues 8 years.—Henry Fielding, ob. 1754, æt. 48.—Arthur Onslow, ob. 1768, æt. 78.
- 1741.—The battle of Molwitz, in which the Prussians defeat the Imperialists, March 30.—War between the Russians and Swedes.—Vernon takes Carthage, June 19.—The Prussians become masters of Silesia, Oct. 20.—A revolution in Russia, Dec. 6.—Charles de Secondat baron Montesquieu, ob. 1755, æt. 67.—Frederick prince of Wales, ob. 1751, æt. 44.
- 1742.—A comet appeared—its perihelion, Jan. 28, 4^h 21' P. M.—ascending node, \approx 5° 34' 45"—inclin. 67° 4' 11"—retrograde.—The battle of Czaflaw, between the Prussians and Austrians, May 6.—Peace between Austria and Prussia.—The Austrians besiege Prague, Aug. 16—Dec. 16.—A defensive alliance between Great Britain and Prussia, at Westminster, Nov. 18.—A comet appeared—its perihelion, Dec. 31, 9^h 15' A. M.—ascending node, \cap 8° 10' 48"—inclin. 2° 15' 50"—direct.—Dr. Stephen Hales, ob. 1761, æt. 82.
- 1743.—War between Persia and the Ottoman Porte.—The battle of Campo Santo, Jan. 17, between the Spaniards and Austrians.—The battle of Dettingen, June 16, in which the allied army defeats the French.—A treaty of defensive alliance between the king of Great Britain and the empress of Russia, Feb.—A dreadful plague in Sicily, May.—War in Germany between the Hungarians, British, French, and Austrians.—Peace between Russia and Sweden at Abo, Aug. 17.—A comet appeared—its perihelion, Sept. 10, 9^h 16' A. M.—ascending node, \cap 5° 16' 25"—inclin. 45° 48' 21"—retrograde.—An alliance between Great Britain, Hungary, &c. at Worms, Sept. 13.—The alliance of Moscow, between Great Britain and Russia, Dec. 11.—G. Frederick Handel, ob. 1759, æt. 56.
- 1744.—A comet appeared—its perihelion, Feb. 19, 8^h 17'

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- P. M.—ascending node, \S 15° 45' 20"—inclin. 47° 8' 36"—direct.—The French attempt to invade Britain defeated, Feb. 24.—A sea-fight off Toulon, between the French and English fleets, Feb. 22.—War of Great Britain against France declared, 31.—War of Hungary and France declared, April 17.—Siege and surrender of Menin, June.—Prague taken by the king of Prussia, Sept. 16.—Friburgh surrendered to the French, Nov. 1.—Commodore Anson arrives at St. Helens, after having completed his voyage round the world.—Dr. James Bradley, ob. 1762, æt. 70.—Henry Pelham, English minister, ob. 1754, æt. 60.
- 1745.—The quadruple alliance of Warsaw, between Great Britain, Austria, Holland, and Poland, Jan. 8.—The French defeated by the Austrians at Pfaffenhofen, April 4.—The battle of Fontenoy, between the French and allies, April 30.—Schah Nadir defeats the Ottoman army at Erzerum in May.—The Prussians defeat the Austrians at Striegau, June 4.—The French took Tournay, June 8—Ghent, June 12—Bruges, July 18—Oudenarde, July 21—Dendermonde, Aug. 12—Ostend, Aug. 23—Newport, Sept. 5—Aeth, Oct. 9.—The English become masters of Louisbourg and Cape Breton, June 6.—The rebellion in Scotland begins in July.—The Prussians defeat the Austrians at Sohr, Sept. 19.—The rebels defeat the king's army at Preston-pans, Sept. 21.—The king of Sardinia almost stripped of his dominions by the Spaniards, Oct.—The treaty of Dresden, between Prussia, Poland, Austria, and Saxony, Dec. 25.—Carlisle taken by the duke of Cumberland, Dec. 30.—Dr. Conyers Middleton, ob. 1750, æt. 67.—Count de Saxe, marshal of France, ob. 1750, æt. 54.
- 1746.—The rebels defeat the royal forces at Falkirk, Jan. 17.—Peace between Persia and the Ottoman Porte in Jan.—Count Saxe takes Brussels, Feb. 20, and soon after Antwerp.—The royal army defeated and dispersed the rebels at Culloden, April 16.—The defensive alliance of Petersburg, between Austria and Russia, May 22.—The prince of Conti takes Mons, July 10—Charleroi, Aug. 2.—Count Clermont takes Namur, Sept. 19.—Count Saxe defeats the allies at Roucoux, Oct. 11.—Lima destroyed by an earthquake, Oct. 17.—William Hogarth, ob. 1764, æt. 67.—William Augustus, duke of Cumberland, ob. 1765, æt. 45.
- 1747.—The French fleet defeated by Anson and Warren, May 3.—A comet appeared—its perihelion, Feb. 17, 11^h 45' P. M.—ascending node, \S 26° 58' 27"—inclin. 77° 56' 55"—retrograde.—The prince of Orange elected stadtholder of the United Provinces, May 2.—The defensive alliance of Stockholm, between Prussia, Poland, and Sweden, May 29.—The French defeat the allies at Laffeldt, July 2.—The French fleet defeated by admiral Hawke, Oct. 14.—Bergen-op-Zoom taken by the French, Sept. 5.—Kouli Khan murdered.—A revolution in Persia.—Jacques Cassini, ob. 1756, æt. 79.—George lord Anson, ob. 1762, æt. 62.
- 1748.—A comet appeared—its perihelion, April 18, 7^h 25' A. M.—ascending node, \cap 22° 55' 16"—inclin. 85° 26' 57"—retrograde.—A comet appeared—its perihelion, June 7, 1^h 24' P. M.—ascending node \S 4° 39' 43"—inclin. 56° 59' 3"—direct.—Maestricht taken by the French, May 7.—The peace of Aix-la-Chapelle, between Great Britain, France, Spain, Austria, Sardinia, and Holland, Oct. 7.—Benjamin Robins, ob.

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- ob. 1751, æt. 44.—Sir John Barnard, ob. 1764, æt. 80.
- 1749.—Nova Scotia peopled.—A league between the pope, Venetians, &c. against the Corsairs of Algiers and Tunis.—Pierre Bouguer, ob. 1758, æt. 61.—Philip, earl of Chesterfield, ob. 1773, æt. 79.
- 1750.—Two shocks of an earthquake in England, Feb. 8, and March 8.—Interest on the public funds reduced to 3 per cent. Feb. 28.—An academy of sciences founded at Stockholm.—The commercial treaty of Madrid, between Spain and Great Britain, Oct. 5.—Bernard de Belidor, ob. 1761, æt. 64.—Allen, earl Bathurst, ob. 1775, æt. 91.
- 1751.—Peace between Spain and Portugal.—Frederic, prince of Wales, dies, March 20, æt. 44.—Thomas Simpson, ob. 1761.
- 1752.—The new style introduced into Great Britain, Sept. 3 counted the 14th.—N. Louis de la Caille, ob. 1762, æt. 49.
- 1753.—The British Museum established at Montague-house by act of parliament.—Dr. Edward Young, ob. 1765, æt. 83.
- 1754.—A dreadful eruption of *Ætna*.—A great earthquake at Constantinople, Grand Cairo, &c. Sept. 2.—The French attack an English fleet on Monongahela, &c. on the Ohio, April 17.—Mr. Washington intercepts a small body of French, June 1.—Dr. John Leland, ob. 1766, æt. 75.—John duke of Bedford, ob. 1771, æt. 61.
- 1755.—War declared between the Dutch and Algerines, April 10.—Quito in Peru destroyed by an earthquake, April 28.—Braddock defeated and killed near Fort du Quesne, July 9.—The French defeated near lake George, Sept. 8.—A convention between Great Britain and Russia, at Petersburg, Sept. 30.—Lisbon destroyed by an earthquake, Nov. 1.—Dr. Thomas Birch, ob. 1766, æt. 61.—Admiral Edward Boscawen, ob. 1761, æt. 50.
- 1756.—A treaty between Great Britain and Prussia, Feb. 16.—War declared in England against France, May 17.—An engagement between the English and French fleets off Minorca, May 20.—Blakeney surrendered Minorca to the French, June 28.—Calcutta taken by the viceroy of Bengal, June 20.—Oswego taken, Aug. 14.—Dr. Robert Smith, ob. 1768, æt. 79.—William Pitt, earl of Chatham, ob. 1778, æt. 70.—The king of Prussia defeats the Austrians at Lowoschutz, Oct. 1.
- 1757.—Calcutta re-taken, Jan. 2.—Damien's conspiracy against the king of France, Jan. 5.—The king of Prussia invades Bohemia.—Chandernagore taken, March 23.—The battle of Prague, May 6, in which the king of Prussia defeats the Austrians.—The battle of Kollin, June 18, in which the king of Prussia is repulsed by count Daun.—The battle of Plaffy, in the East Indies, June 23.—The battle of Hastenbeck, July 26, in which the French defeat the allies.—The French take Verdun, Aug. 26, and Bremen, Aug. 29.—The convention of Closter-seven, Sept. 8.—A comet appeared—its perihelion, Oct. 21, 7^h 55' P.M.—ascending node μ 4° 12' 50"—inclin. 12° 50' 20"—direct.—The battle of Rosbeck, Nov. 5, in which the Prussians defeat the French and Austrians.—The Austrians defeat the Prussians near Breslaw, Nov. 22.—The Prussians defeat the Austrians at Lessa, Dec. 5.—The king of Prussia takes Breslaw, Dec. 21, and becomes

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- master of Silesia.—Dr. Thomas Secker, archbishop of Canterbury, ob. 1768, æt. 75.
- 1758.—Minden reduced by prince Ferdinand, March 14.—A treaty between Great Britain and Prussia, April 11.—The English take Senegal, May 1.—The French take fort St. David's, June 2.—The French defeated by prince Ferdinand at Crevelt, June 23.—Count Daun compelled by the king of Prussia to raise the siege of Olmutz, July 1.—The English repulsed at Ticonderago, July 8.—The Hanoverians defeated by the French at Sangarhausen, July 23.—Louisbourg taken by the English, July 27.—Cherbourg taken by British troops, Aug. 8.—The Prussians defeated by the Austrians at Frankfort on the Oder, Aug. 12.—The Russians defeated by the king of Prussia, at Zorndorf, Aug. 25.—The allies defeated by the French at Landwernhagen, Oct. 10.—The king of Prussia defeated by count Daun at Hockkirchen, Oct. 14.—The king of Prussia and his generals raise the sieges of Colberg, Neiss, Cosel, Torgau, Leipzig, and Dresden, in October.—The English take fort du Quesne, Nov. 25.—A treaty between Great Britain and Prussia, Dec. 7.—Goree taken by commodore Keppel, Dec. 29.—P. Francis Courayer, ob. 1776, æt. 95.—General James Wolfe, ob. 1759, æt. 33.
- 1759.—A comet appeared—its perihelion, March 13, 1^h 50' A.M.—ascending node 8 23° 45' 35"—inclin. 17° 40' 15"—retrograde.—The French defeated by prince Ferdinand at Bergen, April 13.—Guadaloupe surrendered to the English, May 1.—Fort Niagara reduced by Sir William Johnson, July 24.—The French defeated by the allies at Minden, Aug. 1.—The Russians defeated by the king of Prussia, at Cunnerdorf, Aug. 12.—The Jesuits expelled from Portugal, Sept. 3.—An engagement between the English and French fleets near Pondicherry, Sept. 10.—General Wolfe defeats the French and takes Quebec, Sept. 17.—Boscawen defeats the French fleet off Gibraltar, Aug. 18.—Hawke defeats the French fleet off Belleisle, Nov. 20.—A comet appeared—its perihelion, Nov. 27, 2^h 19' P.M.—ascending node Ω 19° 39' 24"—inclin. 78° 59' 22"—direct.—Balbec and Tripoli destroyed by an earthquake, Dec. 5.—A comet appeared—its perihelion, Dec. 17, 0^h 41' A.M.—ascending node, π 18° 65' 19"—inclin. 4° 37' 24"—retrograde.—Dr. Zachary Pearce, bishop of Rochester, ob. 1774, æt. 84.—Henry Fox, lord Holland, ob. 1774, æt. 69.
- 1760.—The English defeated by the French at Quebec, Ap. 28.—A transit of Venus over the sun, June 6.—The French defeated by the allies at Lydorf, July 16.—The Prussians defeated by the Austrians at Landshut, June 23.—The allies defeated by the French at Corbach, July 10.—The French defeated by the allies at Warbourg, July 31.—The Austrians defeated by the king of Prussia at Pfaffendorf, Aug. 15.—The Prussians defeat the Austrians in Saxony, Aug. 30.—The English become masters of Montreal, and of Canada, Sept. 8.—Berlin taken and plundered by the Austrian and Russian troops, Oct. 9.—Earthquakes in Syria, Oct. 13.—The prince of Brunswick defeated near Rhineberg, Oct. 16.—The king of Prussia defeats the Austrians at Torgau, Nov. 3.—King George II. dies, Oct. 25, æt. 77.—Fr. Ar. de Voltaire, ob. 1778, æt. 84.
- 1761.—Pondicherry taken by Col. Coote, Jan. 15.—The French defeat the Hanoverians, &c. near Grunberg, March

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- March 21.—Belleisle surrenders to the English, June 7.—The allies defeat the French at Kirchdenckern, July 15.—A league between France and Spain, Aug. 15.—The Russians defeated at Colberg, Sept. 16.—King George III. married, Sept. 8; crowned Sept. 22.—A process against the Jesuits in France.—George Lord Lyttelton, ob. 1773, æt. 64.—Charles Townshend, ob. 1767, æt. 42.
- 1762.—War against Spain, Jan. 3.—Czarina dies, Jan. 5.—Martinico surrenders, Feb. 4; Grenada, &c. March 4.—Peace between Russia and Prussia, March 5.—War between Portugal and Spain, May 23.—A comet appeared—its perihelion, May 29, 3^h 10' A.M.—ascending node, $\times 19^{\circ} 25'$ —inclin. $84^{\circ} 45'$ —direct.—War declared by France and Spain against Portugal, June 20.—The allies defeat the French at Grabenstein, June 24.—A revolution in Russia, July 9.—Havannah surrenders to the English, Aug. 12.—Prince of Wales born, Aug. 12.—The Jesuits banished from France in August.—Prince Ferdinand defeated by the French at Johannesburg, Aug. 30.—A battle between the allies and French at Brucher-muhl, Sept. 21.—Manilla taken by the English, Oct. 6.—Schweidnitz surrenders to the king of Prussia, Oct. 9.—Prince Henry defeats the allies at Freyberg, Oct. 29.—The allies besiege and take Cassel, Nov. 1.—Peace between Great Britain and France, at Fontainebleau, Nov. 3.—M. de Condamine, ob. 1774, æt. 74.
- 1763.—The peace of Paris, between Great Britain, France, and Spain, acceded to by Portugal, Feb. 10.—The peace of Hubersburg between Hungary and Prussia, Feb. 15.—Peace between Prussia and Poland, Feb. 15.—The expulsion of the Jesuits from France completed.
- 1764.—A comet appeared, Jan. 3, 8^h P.M.—its ascending node, $\Omega 29^{\circ} 20' 5''$ —inclin. $53^{\circ} 54' 19''$ —retrograde.—A treaty between Russia and Prussia, April 15.—Count Stanislaus Poniatowsky unanimously elected king of Poland, Sep. 6.—Famine and pestilence in Italy.—An earthquake at Lisbon, Dec. 26.—Monro defeats Sujah Dowlah, at Buxar, Oct. 23.—Byron makes discoveries in the Pacific ocean.—C. V. Linnaeus, ob. 1778, æt. 70.
- 1765.—The regency bill passed in England, May 15.—Sujah Dowlah defeated by general Carnac, May 3; and soon after, Bengal established by lord Clive under the British government.—Duke of Cumberland dies, Oct. 31.—Dauphin dies, Dec. 20.—Chevalier de St. George dies, Dec. 31.—Dr. Thomas Rutherford, ob. 1771.—James Stewart, Pretender, ob.
- 1766.—A comet appeared, March 8—its ascending node $\Omega 4^{\circ} 10' 50''$ —inclin. $40^{\circ} 50' 20''$ —retrograde.—The American stamp act repealed, March 18.—An insurrection in Spain compelled the king to leave Madrid, March 25.—A comet appeared, April 8—its ascending node $8 17^{\circ} 22' 19''$ —inclin. $8^{\circ} 18' 45''$ —direct.—A treaty of commerce and navigation between Great Britain and Russia, at Petersburg, June 20.—A great earthquake at Constantinople.—The Jesuits expelled from Bohemia and Denmark.—David Hume, ob. 1776, æt. 66.
- 1767.—The Jesuits expelled from Spain, Genoa, and Venice, April 2.—Martinico almost destroyed by an earthquake.—The Protestants tolerated in Poland, Nov. 2.—Wallis and Carteret make discoveries in the Pacific ocean.—Jean Jacques Rousseau, ob. 1778.
- 1768.—The Royal Academy of Arts established in Lon-

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- don.—The Turks declare war against the Russians.—The Jesuits expelled from Naples, Malta, and Parma.—Act, making the Irish parliament octennial, passed Feb. 3.—Bougainville makes discoveries in the Pacific ocean.—Violent commotions in Poland.—David Garrick, ob. 1779, æt. 63.—Robert lord Clive ob. Nov. 22, 1774.
- 1769.—First battle of Choczim, April 30; second battle of Choczim, July 13; third battle of Choczim, Sept. 17.—The Russian fleet enters the Mediterranean, in December.—Cook makes discoveries in the Pacific ocean.—Paoli fled from Corsica, June 13, which was reduced.—Thomas Gray, poet, ob. July 30, 1771.—Capt. James Cook, ob. Feb. 14, 1779.
- 1770.—The Russians defeat the Turks, near the river Pruth, Aug. 1.—An earthquake at St. Domingo.—The right of Falkland island settled.—Bender taken by storm, Sept. 28.—Oliver Goldsmith, poet, ob. April 14, 1774.—Edward lord Hawke, ob. Oct. 17, 1781.
- 1771.—An emigration of 500,000 Tourgouths from the coasts of the Caspian sea to the frontiers of China.—Lord Mayor of London committed to the Tower, March 27.—The Turkish fleet burned by the Russians at Cisme, Natolia, July 5.—Dr. Warburton, bishop of Gloucester, ob. July 7, 1779.—John (Dunning) lord Ashburton, ob. Aug. 18, 1783.
- 1772.—A revolution in Denmark, when the queen was imprisoned, Jan. 17.—Augusta, princess of Wales, dies Feb. 8, æt. 53.—Insurrection at Christianstadt, which ended in a revolution in Sweden, that made the king absolute, Aug. 13, and completed at Stockholm, Aug. 19.—Poland dismembered by the emperors of Russia, the king of Prussia, and the house of Austria.—Dr. William Hunter, anatomist, ob. March 15, 1788.—Sir George Saville, ob. Jan. 1784.
- 1773.—Cook makes discoveries in the Pacific Ocean, and sailed to $71^{\circ} 10' S.$ lat.—The order of the Jesuits suppressed by the pope's bull, Aug. 25.—Disturbances in America begin by the destruction of tea on board three sloops at Boston, Dec. 18.—Mons. d'Alembert, ob. Oct. 27, 1783.
- 1774.—Dr. Franklin's petition dismissed, Jan. 29.—Literary property determined, Feb. 22.—Grenville's act for elections made perpetual, March 31.—Boston port-bill passed, March 31.—Louis XV. dies May 10, æt. 64.—Turkish army ruined, June 20.—Peace between the Russians and Turks, July 21.—The ancient parliament of Paris restored, Nov. 12.—A comet appeared—its perihelion Aug. 15, 11^h 11' P.M.—ascending node $\approx 0^{\circ} 49'$ —inclin. $83^{\circ} 0'$ —direct.—L. Euler, mathematician, ob. Sept. 1783.—Charles Stewart, Pretender, ob. March 3, 1788.
- 1775.—Hostilities in America begin at Lexington, April 19.—Action at Bunker's hill, June 17.—The Spanish troops land near Algiers, July 8.—St. John's taken by Montgomery, Nov. 2.—The assault of Quebec, Dec. 31.—Dr. Samuel Johnson, ob. Dec. 13, 1784.
- 1776.—General Howe quits Boston, March 17.—Congress assumes independence, May 15, and declares it July 4.—Attack on Charlestown, June 28.—General Howe lands on Staten island, July 3.—Battle on Long island, Aug. 27.—New York taken, Sept. 15, and Fort Washington, Nov. 16.—Rhode island occupied, Dec. 8.—The affair at Trenton, Dec. 26.—Austria granted religious toleration, and abolished torture—also in Poland.

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- Poland.—Dr. Robert Lowth, bishop of London, ob. Nov. 1787.
- 1777.—Ticonderoga taken by general Burgoyne, July 6.—General Howe embarks his army off Staten island, July 24.—and lands in Chesapeake bay, Aug. 30.—Battle on the Brandywine, Sept. 11.—Philadelphia taken by the British, Sept. 26.—Battle of German town, Oct. 4.—General Burgoyne's army surrenders at Saratoga, Oct. 16.—Monf. Buffon, ob. April 16, 1788.
- 1778.—Treaty between France and the Americans, Feb. 6.—Philadelphia evacuated, June 18.—Action in the Jerseys, June 28.—Austrians and Prussians begin hostilities, July 7.—Action at sea between the English and French fleets, July 27.—Siege of Rhode island, Aug. 9 and 30.—Pondicherry taken, Oct. 17.—French routed at St. Lucia, Dec. 18.—Americans defeated in Georgia, Dec. 29.—Monf. Diderot, ob. April 1785.
- 1779.—Peace between the Imperialists and Prussians, May 13.—St. Vincent's taken by the French, June 17.—Grenada taken, July 3.—An engagement between Byron and d'Estaing off Grenada, July 6.—A tremendous eruption of Vesuvius, Aug. 8.—The siege of Gibraltar begun by the Spaniards in July.—Sir George Collier takes many American vessels in Penobscot bay, Aug. 14.
- 1780.—Sir George Rodney took 22 sail of Spanish ships, Jan. 8.—Engagement with Langara, Jan. 16, near Cape Vincent.—An engagement between the English and French fleets off Martinico, April 17.—Charlestown in America surrendered to the British arms, May 12.—An insurrection and riot in London in June.—Five British East India ships and a large fleet of West India ditto, captured by the combined fleets of France and Spain, in lat. $36^{\circ} 40'$, and long. 15° W. from London, Aug. 9.—Lord Cornwallis gains a signal victory over the American forces at Camden, South Carolina, Aug. 16.—Torture abolished in France by edict, Aug. 25.—A most dreadful hurricane in the Leeward islands, in October.—War declared against Holland, Dec. 20.
- 1781.—Sir George Rodney and general Vaughan took the island of St. Eustatia, Feb. 3.—re-taken, Nov. 17.—Lord Cornwallis defeated the American forces, at Guildford, March 15.—An engagement between the English and Dutch fleets, near the Dogger bank, Aug. 5.—The English army, commanded by Lord Cornwallis, surrendered to the united forces of America and France, at York town, October 19.
- 1782.—Minorca surrendered to the Spaniards, Feb. 4.—An engagement between the English and French fleets near Trincomale in the East Indies, Feb. 17.—Sir George Rodney defeated the French fleet commanded by count de Grasse, off Dominica, April 12.—An engagement between the English and French fleets near Trincomale in the East Indies, April 12.—Another engagement near Trincomale in September.—Gibraltar besieged by the Spaniards from 1780 to Sept. 13, of this year, when their floating batteries were burnt by red-hot balls from the garrison, commanded by general Elliot.—Independence of America admitted Nov. 30.
- 1783.—Preliminaries of peace between Great Britain, France, and Spain, Jan. 20, and America declared independent.—Armistice between England and Hol-

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- land, Feb.—Definitive treaty, Sept. 8.—A dreadful earthquake in Sicily.—Messina, and many other cities, destroyed, Feb. 5.
- 1784.—Peace ratified with America, March 24.—with Holland, May 24.—First commemoration of Handel, performed in Westminster Abbey by 600 performers, May 26.—Archindshan, in Turkey, destroyed by an earthquake, and 12,000 inhabitants buried in the ruins, July 18.—Printing re-established in Constantinople.—Protestants allowed churches in Hungary.—Crimea settled by Russia.—First bishop in America consecrated Nov. 14.
- 1785.—The emperor of Germany suppresses 2000 religious houses.—An earthquake in Calabria, April 10.—A severe frost in Germany, which lasted 115 days.—Inundations in different parts of England, in Sept. and Oct.—A violent storm in France, Aug. 5, which laid waste 131 villages and farms.—New method of making bar-iron from pig-iron invented by Mr. Cort of Gosport, reckoned superior to Swedish iron.—A ferry-boat was lost in passing the Menai, between Carnarvon and Anglesea, and 50 persons drowned, Dec. 4.
- 1786.—Torture abolished in Sweden, by order of the king.—Cardinal Tournon, high-inquisitor at Rome, hung on a gibbet 50 feet high.—Droit d'Aubaine abolished in France.—Commercial treaty with France, signed Oct. 29.—An earthquake in Scotland, and different parts of the north of England, Aug. 11.—A plague in the Levant.—Exports from Great Britain amounted to 5,600,000*l*.
- 1787.—Botany-bay settlement first sailed from England, March 21.—A bishop appointed in Nova Scotia by the king of England, Aug. 11.—Banks first begun in the East Indies.—Cotton-wool used in English manufactures at this time, valued at 7,500,000*l*. and weighed 22,000,000*lbs*. In this manufacture there were in England and Scotland 163 water-mills, 550 mule-jennies of 50 spindles each, and 20,070 hand-jennies of 80 spindles each. See *COTTON MANUFACTURE*.—Exports from Great Britain amounted in this year to 5,700,000*l*.—Earthquake in Mexico, and other parts of New Spain, April 18.—Amsterdam taken possession of by Prussia, Oct. 9.—Agreement between France and England to disarm, Oct. 9.—Contest between the king of France and parliament begins.—Fire destroyed one-fourth of Christiania in Denmark, April 9, to the value of 100,000 rix dollars.—Export of woollen cloth from Great Britain in this year amounted to the value of 3,687,795*l*. 12*s*. 2*d*.—An inundation from the Liffey in Ireland, Nov. 12, which did very considerable damage in Dublin and its environs.
- 1788.—War between the Turks, Germans, and Russians.—Treaty between Great Britain and Russia, Jan. 13.—Life-guards and horse-guards disbanded by the English government, May 26.—Stadtholdership guaranteed to the prince of Orange by the United States of Holland, June 27.—Russia declares war against Sweden, June 30.—Choczim taken, Sept. 29.—Inundation at Kirkwald in Scotland, by the irruption of the dam-dykes, Oct. 4, which nearly destroyed the town.—French notables assembled, Nov. 6.—Oczakow taken, Dec. 17.—Animal magnetism introduced in France, and soon exploded.—and in the following year introduced into England.—Formosa, in the Chinese sea, shakes off the Chinese yoke, when 10,000 Chinese were massacred.

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- massacred, and the rest driven into the woods and rocks of the island.
- 1789.—Insurrections in France, March.—States-general of France convened, May 5.—French attempt to invade Ireland in January, when their forces were dispersed by a storm in Bantry bay.—Nobility in France renounced their pecuniary privileges, May 23.—The French king makes concessions, June 28.—Revolution in France, July 3—and declared a republic.—Bastille at Paris destroyed, July 14.—Insurrection in Brabant, Aug. 10.—Bender taken, Oct. 8.—Ghent surrendered, Nov. 23—and Brussels, Dec. 12.—Nootka, in the N.W. of America, settled by the English.—Earthquake at Bergo-di-san-Sapoloro, in Tuscany, Sept. 30, which destroyed the cathedral, bishop's palace, with the adjacent town of Castello, &c.; and Borgo had 150 houses destroyed, and 30 houses, &c. swallowed up by an opening of the earth.—An inundation in Scotland, and the north of England, in July.—Sunday-schools first established in Yorkshire in 1784, became about this time general in England and Scotland.—At Corfu, a magazine of gunpowder and bomb-shells blew up, and killed 180 men, March 11.
- 1790.—Assignats first issued in France, April 17.—New confederation at Paris commemorated, July 14, in the field of Mars.—Religious houses suppressed by the national assembly in France, amounting to 4,500.—Titles of honour abolished in France by the national assembly.—Canal of Bourbon, between the Oise and Paris, is begun. See CANAL.—Earthquake in Westmorland, at Arncliffe, March 6.—Inundation of the river Don, near Doncaster, and the Derwent and Trent, Nov. 20.
- 1791.—Riot in Birmingham, July 14, in which several houses and meetings were destroyed, on occasion of the commemoration of the French revolution, by a few persons assembled at a tavern for that purpose.—The king, queen, and royal family, of France attempted to escape out of the kingdom, but were detained by force, June 21, and brought back prisoners to Paris; sanctioned the national constitution, Sept. 15.—Insurrection of the negroes at St. Domingo, amounting to 35,000, against the whites, of whom above 300 were massacred, in September; again in 1794.—Protestants permitted to have churches in France.—Bangalore in the East Indies taken by earl Cornwallis.—Battle of Seringapatam.—The Austrians defeat the French near Mous, April 30.—At Constantinople 32,000 houses were destroyed between March and July.—Earthquake in Scotland, in October—in Sicily and Calabria, October—at Lisbon, Nov. 27.—at Zant, in the Adriatic, Dec. 2.—Avignon declared by the national assembly to belong to France.—Washington city in America founded.—Roman Catholics relieved in England by an act passed in 1776 and this year.
- 1792.—The title of citizen only allowed in France.—France declared itself a republic.—The king of France attended on the national assembly, and renounced the sovereignty, Aug. 10, when he was compelled to claim their protection, and they sent him to the Temple, where he was confined as a prisoner, separate from the queen, &c.—Battle of Seringapatam, in which Tippoo was reduced by earl Cornwallis. The Austrians defeated at Longwy, Aug. 14.—The

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- French defeated at Grand-pre, Sept. 10.—Battle of Valory between the French and Austrians, Sept. 20.—of Menehould between the Prussians and French, Oct. 2.—of Condé, Oct. 2.—of Hanau, Oct. 27.—of Bossu, Nov. 4.—of Jemappe, Nov. 6, when Dumourier entered Brabant.—of Arderlecht, Nov. 13.—of Thierlemont, Nov. 17.—of Varoux, Nov. 27.—Flanders over-run by the French this year, and in 1794, and afterwards declared part of that republic.—Liege taken by the French.—Fire at Constantinople, Sept. which destroyed 7000 houses.—Earthquake in the counties of Bedford, Leicester, Lincoln, Nottingham, &c. March 2.—The custom-house at Seville destroyed by fire, May 7, with 40,000*l.* damage.—Sheffield cotton manufactory, valued at 45,000*l.*, destroyed by fire, Feb. 9.—Leopold, emperor of Germany, poisoned, March 1.—King of Sweden assassinated, March 16.—The lake of Harentoren, in the county of Kerry, Ireland, a mile in circuit, sunk into the ground with all its fish, March 25.
- 1793.—Dumourier, French general, seized the commissioners from the national convention, and quitted the army, April 2.—Holland invaded by the French.—French king brought to trial, Jan. 19, condemned, Jan. 20, and put to death, Jan. 12.—Queen beheaded, Oct. 16.—War with France by the English, Prussians, Austrians, Sardinians, and Italian states.—Toulon taken by admiral Hood.—Battle of Hockheim, between the Austrians and French, Jan. 7.—of Aldenhoven, Feb. 28.—of Aix-la-Chapelle, Jan. 15.—of Tongres, March 4.—of Jurvienden, near Thierlemont, March 18.—of Thierlemont, March 19.—of Lovaine, or the Iron mountain, March 22.—of Coblenz, April 1.—of Cassel, April 7.—of Tournay, between the Austrians and English, and the French, May 8.—of St. Amand and Maulde, May 10.—of Valennes, between the allies and French, May 23.—of Mannheim, May 30.—of Furnes, between the Dutch and French, June 21, and between the Austrians and French, June 26.—of Villiers, July 18.—of Cambray, or Cæsar's camp, Aug. 9.—of Lincelles, Aug. 18.—of Furnes, Aug. 21.—of Rexmond, Aug. 29.—of Dunkirk, between the English and French, Sept. 7.—of Quesnoy, Sept. 11.—of Limbach, between the Austrians and French, Sept. 12.—of Menin, Sept. 15.—of Toulon, between the English and French, Oct. 1.—of Weissenburgh, between the Austrians and French, Oct. 14.—of Maubeuge, between the allies and the French, Oct. 16.—of Birlemont, Oct. 16.—of Orchies, Oct. 20.—of Wanzenaw, Oct. 25.—of Landau, Nov. 29.—of Toulon, when it surrendered to the French, Nov. 19.—of Lebach, Nov. 27.—of Rouffillon, between the Spaniards and French, Dec. 11.—of Perpignan, Dec. 20.—Ypres surrendered to the French, under Moreau, June 17.—Earthquake at Domingo, April.—at Shaftesbury and Salisbury, Sept. 29.—A piece of land in Finland, 4000 square ells in extent, sunk 15 fathoms in Feb.
- 1794.—Insurrection of the negroes at St. Domingo.—Slave trade abolished by the French convention, Feb. 4.—Aix-la-Chapelle taken by the French, Sept. 21.—Antwerp taken in 1792, and also this year, July 24.—Battle of Oppenheim, allies and French, Jan. 8.—of Waterloo, Jan. 23.—of Werwick, March 1.—of Bayonne, Spaniards and French, March 19.—of Perle, allies and French, March 22.—of Cateau, March 28.—of Cracow,

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Cracow, Russians and Poles, April 4—of Durkheim, allies and French, April 5—of Piedmont, Sardinians and French, April 6—of Crombeck, allies and French, April 14—of Arlon, April 17—of Warsaw, Russians and Poles, April 21—of Landrecy, allies and French, April 24—of Cambray, English and French, April 24—of Cateau, April 26—of Courtray, allies and French, April 29—of Otend, May 5—of Montefquan, Spaniards and French, May 1—of Aost, Sardinians and French, May 2—of Saorgia, May 8—of Tournay, English and French, May 18—of Bouillon, allies and French—of Tournay, May 22—of Lautern, May 23—of Lithuania, Russians and Poles, June 3—of Piltzke—of Barcelona, Spaniards and French, June 14—of Charleroi, Dutch and French, June 17—of Cracow, Prussians and Poles—of Aost, Sardinians and French, June 26—of Puyceda, Spaniards and French, June 26—of Blonie, Russians and Poles, July 7—of Mannheim, allies and French, July 12—of Dorbilos, Prussians and Poles, July 19—of Fontarabia, Spaniards and French, Aug. 2—of Zogre, Prussians and Poles, Aug. 22—of Bellegarde, Spaniards and French, Aug. 26—of valley of Leira, Sept. 8—of Maestricht, allies and French, Sept. 18—of Clermont, Sept. 20—of Piedmont, Sept. 23—of Pofnania, Prussians and Poles, Sept. 24—of Kophir Bazsee, Russians and Poles, Sept. 25—of Milan, Sardinians and French, Sept. 31—of Emmerick, allies and French, Oct. 2—of Warsaw, in which the Poles are totally defeated by the Prussians, &c. Oct. 12—of Druten, English and French, Oct. 20—of Pampeluna, Spaniards and French, Oct. 28—of Nimeguen, allies and French, Nov. 4—of Sendomir, Poles and Prussians, &c. Nov. 16—of Navarre, Spaniards and French, Nov. 25—of Mentz, allies and French, Dec. 1.—Bergen-op-Zoom, taken by the French.—Bois le duc taken.—Breda taken.—Brussels taken.—Charleroi surrenders to the French, June 26.—Cleves taken by the French.—Landrecy surrenders to the French, July 15.—St. Lucia taken by the English.—Maestricht taken by the French, Nov. 4.—Namur taken by the French, July 13.—Treves taken by the French.—Telegraphs, invented in 1687, put into practice by the French this year, and by the English Jan. 28, 1796.—Sea-fight June 1, in which lord Howe totally defeated the French fleet, took six ships of war, and sunk several.—Craton surrendered to the Prussians, June 15.—Dieppe laid in ashes by the English, July 14.—Martinico taken from the French, March 23.—Earthquake in Turkey, July 3, which destroyed three towns containing 10,000 inhabitants—also near Naples, June 13; which almost destroyed the city of Torre-del-Gréco.—Copenhagen had its royal palace, &c. destroyed by fire, Feb. 26, to the amount of 4,500,000*l.* sterling; above 100 persons lost their lives.—At Grenelle, near Paris, an explosion of powder-mills proved fatal to 3000 persons, and destroyed several buildings, Sept. 3.

1795.—Louis XVII. of France died in prison, June 8, and the princess Maria Teresa Charlotte was delivered up in exchange for deputies, Dec. 26.—Amsterdam taken possession of by the French, Jan. 18.—Stadtholder and family obliged to quit Holland, when the French took possession of the United States, Jan. 21, and retired to England.—Warren Hastings, after 7 years trial, acquitted April 23.—Battle on the Waal, allies and French, Jan. 11—of Nantes, Chouans and re-

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publicans, Jan. 18—of Catalonia, March 5—of Neve Munster, March 5 and 18—of Figura, when the Spaniards were defeated, April 5—of Piedmont, when the Piedmontese were defeated, April 12—of Pontas in Catalonia, when the French were defeated, June 14—of Piedmont, when the French were defeated, June 24, 27, and July 1—of Pampeluna, when the French were defeated, July 9—of Bilbao, when the Spaniards were defeated, July 17—of Quiberon, the emigrants defeated, July 21—of Urutia, the French defeated, July 30—of Vittoria, the Spaniards defeated, Aug. 14—of Piedmont, the Austrians defeated, Aug. 20—of La Pietra, the French defeated, Aug. 31—on the Lahn, ditto, Sept. 19—of Mannheim, the Austrians defeated, Sept. 23—of Piedmont, the French defeated, Oct. 1—on the Mayne, the French defeated, Oct. 11—of Mentz, the French defeated, Oct. 29—of Worms, ditto, Nov. 8—of Moseile, ditto, Nov. 22—of DeuxPons, ditto, Nov. 28—of Alfentz, ditto, Dec. 8.—Breda taken by the French.—Briel seized by them in January.—Cape of Good Hope taken by the English in June, and again in 1806.—Dort taken by the French, Jan. 10.—Dusseldorp surrendered to the French, Sept. 6.—Frankendal re-taken from the French, Nov. 12.—Luxembourg surrendered to the French, after a severe siege, June 7.—Malacca surrendered to the English, Aug. 17.—Mannheim re-taken by the Austrians, Nov. 23, with 10,338 prisoners and 4 generals, &c.—St. Marcou isles taken by Sir Sidney Smith, in July.—Sir Edward Pellew took 15 sail, and burned 7, out of a fleet of 35 sail of transports, March 8.—The French fleet defeated, and two ships of war taken by admiral Hotham, March 14.—Admiral Cornwallis took 8 transports under convoy of 3 French men of war, June 7.—11 Dutch East Indiamen were taken by the Sceptre man of war and some armed Indiamen, June 19.—The French fleet defeated by lord Bridport, June 25, and 3 ships of war taken near L'Orient.—Sierra Leone nearly destroyed by a French frigate.—Trincomale in Ceylon taken by the English.—Utrecht surrendered to the French, Jan. 18.—The sovereignty of Poland dissolved, and the kingdom divided between Russia, Austria, and Prussia, Nov. 25, and the king retired on a pension of 200,000 ducats.—Peace between Prussia and France—also between France and Spain.—7000 houses destroyed by fire at Constantinople, August.—The arsenal, admiralty, &c. with near 50 streets, containing 1363 houses, in Copenhagen, were destroyed by fire, June 5.—A dreadful eruption of Mount Vesuvius.

1796.—Subscription loan to government for 18 millions for carrying on the war against France was filled in less than 16 hours, Dec. 5.—Bamberg taken by the French, Aug. 4.—Battle of Piedmont, the Sardinians totally defeated by the French, April 14—of Lodi, between the French and Austrians, May 11—of Mantua, May 29—of Wetzlaer, French defeated, June 4—near Kirpen, French under Jourdan, defeated by general Kray, June 20.—Austrians defeated by Jourdan, July 6.—Archduke repulsed by the French, July 8.—Siege of Mantua raised, July 23.—Austrians defeated by Jourdan, Aug. 11.—Jourdan defeated by the archduke near Nuremberg, Aug. 18.—French defeated by the Austrians, near Neuwied and Amberg, Aug. 24.—Jourdan defeated near Munich, Sept. 11—near Limberg, Sept. 18; and at Isly on the Leck, Sept. 19.

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—Bengau on the Danube taken by the French, August 17.—Bonaparte seized Egypt, July 1.—Calvi, in Corsica, surrendered to the French.—Columbo, in Ceylon, surrendered to the English, June 12.—Constance seized by the French, Aug. 2.—Corsica quitted by the English.—Demerara, &c. surrendered to the English, April 23; and again Sept. 23, 1803.—Isle of Elba, near Leghorn, taken possession of by the English, July 6; and relinquished in 1797.—Florence taken possession of by the French in July, and in March 20, 1799, and evacuated in July 18 following.—Frankfort seized by the French in July.—Goza, near Malta, surrendered to the French, June 11, but taken by the English for the Neapolitans, in Nov. following.—Milan seized by the French, May 18.—Minorca surrendered to the English, Nov. 14.—Munich taken by the French, Aug. 25.—Nuremberg seized by the French, July 9, and by the Austrians in the following August.—Trent taken by the French.—The Dutch fleet under admiral Lucas, in Saldanna bay, Africa, consisting of 5 men of war and several frigates, surrendered to sir George Keith Elphinstone, Aug. 19.—Insurrection at St. Vincent's suppressed.—Peace between France and Naples—the French and Sardinians—England and Spain.—Amboyna seized by the English, Nov. 28.—Telegraphs used in England.

1797.—Bank of England declined paying their notes in specie, except the fractional parts, Feb. 25—issued 20-shilling notes and dollars, in payment, March 6—and called in the dollars in the following October.—Ireland invaded by the French.—Mutiny on board the fleet at Portsmouth for advance of wages, &c. April 18, which subsided May 10, when an act passed to raise their wages, and the king pardoned the mutineers.—Another mutiny at the Nore, which, after blocking up the trade of the Thames, subsided June 10, when several of the mutineers were executed.—Penny and two-penny pieces of copper first issued in England, June 26—a die of a reduced size was cut for them in 1806.—Revolution in Venice, May 17.—Battle between the Austrians and Bonaparte, in Italy, Jan. 19 and 27, when the Austrians were defeated.—Bonaparte defeated the archduke, April 1.—The Austrians again defeated on the Upper Rhine, May 7, when the French took Frankfort, Kehl, &c.—The English relinquish the isle of Elba.—The French invade South Wales without success, Feb. 22.—Ireland put under martial law, May 19.—The Spanish fleet defeated by sir J. Jervis, and 4 line of battle ships taken, Feb. 14.—The Dutch fleet defeated by admiral Duncan, on the coast of Holland, when their 2 admirals and 15 ships of war were captured or destroyed, Oct. 11.—Trinidad taken by the English with 4 ships of the line.—Triest seized by the French, but retaken by the Austrians, April 14.—Verona taken by the French, and great part destroyed by fire, April 28.—Venice seized, and their republic abolished by the French, and soon after part of their territories seized by the Austrians, and surrendered to them by the French.—Seditious societies and reading-rooms suppressed by an act of parliament, June 21.—Seven-shilling pieces were issued in England in December of this year.—The total exports of British manufacture in this year amounted to 29,217,041l., and in the next year, 1798, to 34 millions.—Newspapers first published at Constan-

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tinople this year.—An earthquake at Sumatra did great damage, and above 300 persons perished, Feb. 20.—The whole country between Santa Fée and Panama destroyed by an earthquake, including the cities of Cuzco and Quito, with 40,000 inhabitants, in February.—In the same month several violent shocks were felt in the West Indies.—St. Domingo declared itself independent, in January.—Tyrol seized by the French.—Loretto pillaged by a French army, and the Madonna sent to Paris, Feb. 6.

1798.—Louis XVIII. retired to Petersburg, and was allowed a procession by the emperor of Russia, April 3.—The pope quitted Rome, when the French took possession of the city, Feb. 26, and Rome declared itself independent as a republic; the pope's authority annulled, and he died their prisoner in Sept. 1799.—Alexandria in Egypt taken by the French.—Alessandria in Italy seized by the French, and surrendered to the Austrians and Russians, July 24, 1799.—Malta taken by the French, July 11.—The Swiss troops totally defeated by the French, and their independency abolished, Sept. 19.—Battle between the Irish rebels and the king's forces, at Kilcullen, May 22—and at several other places, in all which the insurgents were defeated—in Connaught where the French aided the Irish rebels, they were all taken prisoners, Sept. 7.—The basons, gates, and sluices of the canal at Bruges, destroyed by the English, May 19.—Genoa seized by the French, who were repulsed, Aug. 17, 1799—taken by the English and Austrians in May 1800, and surrendered to the French in the following July.—The French invaded Ireland, and landed at Killala bay, Aug. 22, 1500 men, who surrendered themselves prisoners on Sept. 7 following.—Marcou isles defended against the French troops, May 7.—Piedmont surrendered to the French, Dec. 6—recovered in 1799.—The French fleet of 17 ships of war, totally defeated, and 9 of them taken, by sir Horatio Nelson, Aug. 1, near the Nile in Egypt.—The French off the coast of Ireland, consisting of 9 ships, by sir J. B. Warren, Oct. 12, when he took 5 of them.—War between France, Naples, and Sardinia, Nov.—Earthquake at Sienna in Italy, when 50 persons lost their lives, May 25.—Voluntary contributions for the support of government against the French invasion amounted to upwards of 2½ millions—besides 139,332l. 15s. 2d. remitted from Bengal.

1799.—Coin in circulation in England, 44,000,000l.—Corsica, which put itself under the protection of England in June 1794, and in Nov. 1798, relinquished this year.—Ancona taken possession of by the French in July 1796, and surrendered to the Imperialists, Nov. 13, this year.—Battle near Naples between the French and Neapolitans, Jan. 18.—The archduke Charles totally defeated the French, and took 2000 prisoners, March 14 and 26, near Stockach.—The French defeated near Verona, March 5, 25, and 26; and again 30, and April 5.—The French defeated by the Austrians, April 19 and 20, near Cremona—by the Russians near Milan, April 27, 11,000 killed and taken prisoners—near Cassano, April 27.—Bonaparte repulsed at Acre by the Turks and sir Sidney Smith, April 16—defeated near the Adda, March 26, 31, and May 5—defeated by Suwarrow near Alessandria, May 17—defeated at Zurich, with the loss of 4000 men, June 4—by Suwarrow, June 19, when the French lost 18,268 men, 7 can-

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non, and 8 standards.—Tippo Saib defeated and slain near Periapatam in the East Indies by the English forces, May 4.—The Austrians defeated near Coire by general Massena, May 7.—The archduke defeated Jourdan, April 2.—General Kray defeated general Scherer, commanding the French in Italy, April 18.—Suwarrow defeated the French in forcing the passage of the Adda, May 23.—Bonaparte defeated before Acre by sir Sidney Smith, May 27.—The French defeated at Naples by cardinal Ruffo, June 5.—Suwarrow defeated Macdonald near Parma, with the loss of 10,000 men, and four generals, July 12.—Suwarrow defeated general Moreau, July 18.—Suwarrow defeated general Joubert, who was killed, Aug. 15, at Novi, with 10,000 killed, 400 prisoners, and the whole artillery.—The French defeated near Tranto, June 19, near Mannheim, Aug. 12.—The Imperialists defeated near Zurich, Sept. 21.—The French defeated near Mendovi, Nov. 6.—near Philipsburg, with the loss, on the side of the French, of 4,000 men, Dec. 3.—near Coni, which place surrendered to the Austrians, Dec. 4.—The Austrians defeated near Genoa, and lost 3000 men, Dec. 12.—Corfu, which had been seized by the French in 1797, was taken by the Russians, March 3.—St. Elmo surrendered to the royal troops of Naples, July 12.—Capua surrendered to the allies, July 26.—Ceva and Cazole abandoned by the French, June 15.—Mantua, which surrendered to the French, Feb. 1, 1797, retaken July 28, by the Russians and Austrians, after a long siege.—Naples taken possession of by the French, June 21; retaken by cardinal Ruffo, July 10, and again possessed by the French, April 8, 1801.—The Dutch fleet in the Texel surrendered to admiral Mitchell, on his taking the Helder, Aug. 29.—Tortona taken by the French, July 5, abandoned, July 20, and surrendered to the Imperialists, Aug. 11.—Turin taken by the French, Dec. 6, 1798, surrendered to the Austrians and Russians in June following, and the citadel, May 17.—Urbino, in Italy, surrendered to the Austrians, July 10.—Holland invaded by the English, Aug. 27.—abandoned by a convention, Oct. 19.—Printing-presses in England licensed, July 12.

1800.—Bonaparte's life attempted by an explosion of combustibles, Dec. 24.—Union of Great Britain with Ireland debated.—Battle of Novi, Austrians and French, Jan. 8.—of Savona, in Italy, April 8.—of Veragio, —April 10, the French defeated.—of Stockach, May 1, the Austrians defeated.—of Moskirch, May 3, ditto.—of Riss, May 9, Austrians lost 500 men.—of Broni, June 10, which gave the French possession of Italy from Milan to Placentia.—of Marengo, 6000 Austrians killed, 8000 prisoners, and 45 pieces of cannon taken, June 21.—of Hohenlinden, Austrians defeated, Nov. 3.—on the Mincio, Dec. 25, Austrians defeated.—Genoa taken by the English and Austrians in May, and surrendered to the French in July following.—Tuscany seized by the French.—Union act for Ireland passed, July 2, and took place Jan. 1, 1801.—Batavia taken by the English, Sept. 12.—Earthquake at Constantinople, Oct. 24, which destroyed the royal palace, and many buildings.—Curaçoa taken by the English, Sept. 14.—Inundation at St. Domingo, in October, which destroyed 1400 persons—Gold mine discovered at Waterford in Ireland.

1801.—Union with Ireland carried into effect, Jan. 1.

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—Aboukir in Egypt surrendered to the English forces March 18.—Battle of Rhamonia in Egypt, French defeated by the English, March 21.—Cairo taken by the English and Turks from the French, June 21.—The island of Madeira taken by the English, July 25.—Naples possessed by the French, April 8.—The Danish fleet of 28 sail taken and destroyed by Lord Nelson off Copenhagen, Sept. 2, and Copenhagen bombarded.—An engagement between the French and English in the bay of Gibraltar, when the Hannibal of 74 guns was lost, July 5.—The French fleet defeated near Cadiz, July 16, two French 74's burnt and one taken.—Ternate in the East Indies captured by the English, June 21.—Peace between Austria and France, Feb. 9.—War between Spain and Portugal, Feb. 28.—Peace between Naples and France, March.—between Portugal and Spain, June 10.—between France and Portugal, Sept. 29.—Alexandria in Egypt taken by the English, Aug. 22.—War between France and the Porte, Oct. 17.—St. Bartholomew, in the West Indies, taken from the Danes by the English, March 20.—The first imperial parliament in England in January.—An inundation on the coast of Holland and Germany in November.—Armed neutrality of the northern powers against England, by the empress of Russia, commenced in 1780, and was renewed in 1800, dissolved by a British fleet in this year.—St. Martin's, a Danish island in the West Indies, taken by the English, March 24.—Porter raised 2d. per gallon, Jan. 10, 1762, and again this year.

1802.—Sir Ralph Abercromby, commanding the British army in Egypt, completely repulsed the French forces before Alexandria in Egypt, March 21—the brave general was wounded in this contest, which terminated so honourably to himself and the army, and died a few days after, universally lamented.—Peace between England, France, Spain, and Holland, March 27.—First stone of the London Docks in Wapping laid, June 26.—West India Docks, in the Isle of Dogs, opened Aug. 21.—An earthquake nearly destroyed Crema, in Upper Hungary, June 12.—An inundation in Dublin and parts adjacent, Dec. 2 and 3.—Stockholm nearly destroyed by fire in June 1795, and again Nov. 15 this year.—Stattholderate of Holland, &c. renounced by the prince of Orange, in a formal treaty with France, July.—Life-boats invented by Mr. Greathead, who received a premium from parliament in May.

1803.—Prisoners of war, all the persons who happened to be in France at the commencement of the war, detained, contrary to the usage of nations, in May.—Bonaparte offers sums to Louis XVIII. on condition of his relinquishing the crown in his favour, Feb. 26.—Goree restored to the French.—War between England and France.—Battle in the East Indies, between Scindiah and the English, the former defeated, Aug. 11.—Demerara surrendered to the English, Sep. 23.—Lubec taken by the French, June.—Tobago taken by the English, June 30.—Hanover taken by the French, June 14.—A very bright meteor, which illuminated the atmosphere almost a minute, and rendered legible the writing on the signs in London, $\frac{1}{2}$ past 8 in the evening, Nov. 18.

1804.—France formed into an empire May 5, and Bonaparte, a Corsican of mean extraction, crowned emperor December 2 following.—A fleet of India ships under the command

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mand of Capt. Dance beat off a squadron of French men of war, Feb. 15.—The celebrated boring machine in the iron foundry at Hanover, valued at 2,000,000 crowns, carried away by the French, Jan.—Goree taken by the English, March 9.—Poor-rate in England estimated, including donations, at near 4 millions.—Earthquake in Holland, so violent as to cause the chandeliers in Maastricht church to vibrate two or three feet, Jan.—The present emperor of Germany assumed the title of emperor of Austria, Aug. 11.—War between England and Spain, Dec. 14.

1805.—War between England and Spain.—Letters of marque and reprisal issued against Spain, Jan. 11.—The London Wet Docks at Wapping opened Jan. 31.—A French squadron from Rochfort levied contributions on some of the West India islands, Feb. 21.—A French squadron, consisting of the Marengo of 80 guns, admiral Linois, and two strong frigates, beaten off by the Centurion of 50 guns, in Vizagapatam road in the East Indies.—Bonaparte assumes the title of king of Italy, March 18.—Battle of Bhurtpore in the East Indies, Jeswant Rao Holkar defeated by the English, April 2.—A change in the Dutch constitution, and Schimmelpenninck placed at the head of the government, under the title of Pensionary, May 1.—The Genoese senate decree the union of the Liguian republic with France, May 25.—Lord Melville impeached, June 26.—Sir Sidney Smith attempted to burn the Boulogne flotilla with the fire machines called carcasses, Aug. 31.—Treaty of offence and defence made between France and Naples at Paris, and ratified at Portici, Oct. 8.—Marquis Cornwallis dies at Ghazepore in the province of Benares, Oct. 5, æt. 67.—Battle of Guntzburg, French and Austrians, the former victorious, Oct. 2.—of Ulm, French and Austrians, the latter taken prisoners, Oct. 19, and Ulm surrendered by general Mack with 30,000 men.—of Moenk, the Austrians beaten, Nov. 10.—of Loeben, Austrians repulsed, Nov. 13.—of Diernstein, Austrians and French, former defeated, Nov. 14.—Vienna taken by the French, Nov. 13.—The imperial palace of Schoenbrunn taken by the French, Nov. 14.—Presburg taken by the French, Nov. 15.—Battle of Tinterdorff, Austrians and Russians against the French, former beaten, Nov. 16.—of Austerlitz, French against the Austrians and Russians, French victorious, Dec. 2.—Sir Robert Calder, with 15 sail of the line, fell in, off Ferrol, with the combined fleets of the enemy, consisting of 20 sail of the line, and after an action of more than 4 hours, captured two sail, both Spanish ships.—French and Spanish combined fleets engaged by Lord Nelson off Cape Trafalgar, Oct. 21, and after a dreadful conflict of 4 hours, the gallant admiral took, sunk or destroyed, 19 sail, made the French commander in chief, admiral Villeneuve, and two Spanish admirals prisoners; one Spanish admiral was killed, and another badly wounded. The British force consisted of 27 sail of the line (including three 64's). The enemy had 33 sail of the line, 13 French and 15 Spanish. The much-lamented Nelson, whose flag was hoisted on board the Victory, fell at the close of the engagement, and was succeeded by rear-admiral (now lord) Collingwood.—French fleet engaged off Cape Ortegal by Sir R. Strachan, Nov. 4, who captured 4 French sail of the line.—Treaty of peace between France and Austria signed at Presburg, Dec. 27.—Treaty of peace with Scindiah in the East

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Indies, concluded by general Lake, Nov. 22.—Peace concluded with Holkar, Dec. 24.—An earthquake at Eisenhartz in Styria, July 24.—An earthquake at Naples and in the adjacent towns and country, to a considerable extent, followed by the loss of 20,000 lives, and a damage estimated at 240 millions of francs, July 26.—A shock felt in many parts of Rome, July 30.

1806.—The remains of lord Nelson, after a grand funeral procession, solemnly interred in St. Paul's cathedral, Jan. 9.—Admiral Duckworth captured and destroyed 5 French sail of the line in the bay of St. Domingo, an 80 gun ship and two 74's taken, a three-decker and a 74 driven ashore and burnt.—Public funeral of the Right Hon. Wm. Pitt, (who died Jan. 23,) Feb. 22.—French squadron, consisting of the Marengo, rear admiral Linois, and the Belle Poule of 40 guns, captured, on their return from India, by Sir J. B. Warren, March 13.—Prince of Orange died, April 22.—The proceedings on the impeachment of lord Melville commenced in Westminster-hall, April 29.—The island of Capri taken by Sir Sidney Smith, April 22.—Holland erected into a kingdom, and Louis Bonaparte, the French emperor's brother, proclaimed king of it, by Bonaparte, with great ceremony at St. Cloud, Paris, June 5.—A resolution to take effectual measures for abolishing the slave trade adopted, on the motion of Mr. Fox, by the house of commons, June 10.—A similar resolution adopted, on the motion of lord Grenville, in the house of lords, June 24.—Lord Melville's trial terminated, June 12—his lordship being acquitted by the peers.—The brilliant victory of Maida, in Calabria, obtained by sir John Stuart, at the head of about 5000 British troops, over general Regnier, who commanded an army of more than 8000 French.—A treaty signed at Paris, between France on the one hand, and Bavaria, Wirtemberg, Baden, and several smaller German states on the other, by which the latter renounced their connection with the empire, and under the name of the "Confederation of the Rhine," placed themselves under the protection of France, July 12.—Gæta surrenders to the French army, July 13.—A treaty of peace between France and Russia, signed at Paris on the part of the latter power by M. d'Oubril, July 20—refused to be ratified by the emperor of Russia, with the advice of his council, Aug. 13.—Surrender of Buenos Ayres and its dependencies to major general Beresford and sir Home Popham, July 28.—In consequence of the confederation of the Rhine, Francis II. published his resignation of the office of emperor of Germany, which dissolved that ancient constitution, Aug. 7.—Brilliant naval achievement by his majesty's ships Arethusa and Anson, in an attack on the enemy near Moro castle in the island of Cuba; the Spanish frigate Pomona, of 38 guns and 347 men, being captured; twelve 24-pounder gun-boats being destroyed, each having a crew of 100 men, and the fort, mounting sixteen 36-pounders, blown up.—A manifesto against the French government, published by the emperor of Russia, at Petersburg, Aug. 30.—A tremendous hurricane at Dominica and Martinico, which did great damage to the islands, and destroyed many of the inhabitants, Sept. 9.—The Right Hon. Charles James Fox died, Sept. 13—and after a grand and impressive procession, his remains were deposited in Westminster Abbey, Oct. 10.—Sir Samuel Hood, having under his command

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command the Centaur and Monarch, fell in with a French squadron, consisting of five frigates and two brigs from Rochefort, and captured four of the frigates, but lost his right arm in the action.—Hostilities commenced between the French and Prussians, by a skirmish near the bridge of Saalfeld, in which prince Ferdinand Louis of Prussia, who defended that bridge, was killed, Oct. 10.—A general action took place near Jena between the French and Prussians, in which the latter were defeated with immense loss, and the consequences of which were the almost complete annihilation of the army of the king of Prussia, and the occupation of almost the whole of his dominions by the enemy. Oct. 14.—Defeat, and surrender of the corps of the Prussian army, under prince Hohenloe, to the French division, commanded by Murat, Oct. 21; soon after which the French gained possession of Stettin and Custrin.—A proclamation addressed to the Poles from the French head-quarters, announcing the advance of the French army to Poland, and promising, in the name of Bonaparte, to render that country inde-

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pendent, if the people would shew themselves worthy of becoming a nation, Nov. 3.—The electors of Saxony and Hesse acceded to the confederation of the Rhine, Nov. 6.—The Prussian corps commanded by general Blucher, after a brave and skillful retreat, maintained against the three divisions of Bernadotte, Soult, and Murat, was attacked near Lubeck by a much superior force, and obliged to capitulate, Nov. 7.—Magdeburg surrendered to the French, Nov. 7.—The duke of Brunswick died at Ottenfion, near Altona, in consequence of a wound received in the battle of Jena, Nov. 9.—General Davoust, with a French corps, enters Posen, Dec. 2.—Louis, king of Holland, issues a decree for enforcing Bonaparte's pretended *blockade* of the British isles through all the countries occupied by the Dutch troops, December 2.—The French cross the Vistula, and occupy Praga, December 5.—Surrender of Thorn, Graudentz, Warsaw, &c.—Proclamation of the independence of Poland.—War between Russia and the Porte.

END OF VOL. VII.

